e-QR Whitepaper v1.2

A pan-European, transport-agnostic A2A payment initiation specification

Conceptual and governance whitepaper (non-normative)

e-QR Payment Standard MTÜ
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1. Executive Summary

Across Europe, SEPA Instant Credit Transfers are now widely available, yet everyday merchant payments at the point of sale remain dominated by international card schemes. Despite regulatory momentum and technical readiness, the absence of a unified, interoperable account-to-account (A2A) payment initiation layer has prevented instant payments from becoming a practical alternative to cards in retail commerce.

This whitepaper introduces e-QR: a pan-European, transport-agnostic A2A payment initiation specification designed to accelerate merchant adoption of SEPA Instant payments. e-QR provides a simple, interoperable mechanism for initiating SEPA Instant Credit Transfers (SCT Inst) using a standardised merchant payment payload and a unified Merchant Registry. It is not a new payment system, processor, or clearing infrastructure. Instead, e-QR is a lightweight interoperability layer that enables any banking or payment application to initiate an instant payment in a secure, consistent, and merchant-verifiable manner, independent of the payload transmission method (e.g. QR code, NFC).

The initiative aligns directly with major European policy directions. The European Commission's 2020 Retail Payments Strategy calls for the full uptake of instant payments, the development of pan-European payment solutions, reduced dependence on non-European card schemes, and the use of open, interoperable technical standards, including QR codes, to support instant-payment-based retail acceptance. The new EU Instant Payments Regulation (Regulation (EU) 2024/886) reinforces this by making instant payments a standard offering, ensuring PSP reachability and placing constraints on instant-payment pricing. In parallel, the European Payments Council's (EPC) guidance on Mobile-initiated SEPA Credit Transfers (MSCTs) and QR-based initiation, together with earlier EPC QR guidelines for SEPA Credit Transfers, provide technical building blocks for payload-initiated payments, with QR as a baseline carrier profile. In this context, e-QR follows the standards already developed or under development by the European Payments Council (EPC) and commits to remain aligned as EPC guidance evolves.

e-QR responds to these strategic objectives with a practical, implementable model. It profiles and operationalises existing EPC/MSCT guidance into a pan-European specification and adds the missing operational components - governance, merchant identification, data protection, fraud-mitigation rules, and certification - required for real-world deployment at the point of interaction. The model is designed for staged validation through pilots and production deployments in one or more SEPA markets, without implying centralised operation or mandatory adoption.

The forthcoming digital euro further reinforces the need for standardised, low-cost QR-based payment acceptance infrastructure across Europe. The proposed digital euro regulation gives it legal tender status with merchant acceptance obligations, while including proportionality exemptions to avoid imposing prohibitive infrastructure costs on smaller businesses. QR codes are the natural fulfilment of this requirement: they demand no new terminal hardware, work on printed media and simple screens, support offline scenarios, and cost virtually nothing to deploy. By establishing a verified merchant ecosystem and a standardised QR-based initiation layer today, e-QR positions European markets to be operationally ready when the digital euro becomes available, expected around 2029.

The proposed architecture consists of three core elements:

- **A unified payment initiation payload specification (schema + encoding)** profiled from EPC/MSCT guidance for SCT Inst initiation; v1.0 includes a QR carrier profile aligned with EPC/MSCT QR guidance.
- **A Merchant Registry**, ensuring accurate, authoritative merchant identification, fraud resistance, and interoperability across payment service providers.
- **A harmonised consumer interaction flow**, in which any banking or payment app can capture a merchant-presented e-QR payload (e.g. scan QR code or tap NFC), retrieve the relevant merchant data, and redirect the payer to their bank or PSP for confirmation.

For merchants, e-QR is designed as a low-cost acceptance channel at scheme and registry level. The MTÜ and certified Technical Operators do not charge merchants any onboarding, participation, or usage fees. Participating banks and PSPs remain free to define their overall commercial models for merchant services (accounts, bundles, terminals, value-added services) independently, subject to competition law. The e-QR framework does not set, recommend, or coordinate merchant pricing; its role is to remove technical fragmentation and avoid scheme-level merchant fees.

For banks and PSPs, e-QR supports higher SEPA Instant volumes, lower internal costs than card rails for many transactions, and new merchant services around reconciliation, analytics, and QR-based acceptance.

This whitepaper outlines the rationale, architecture, governance model, and implementation roadmap for e-QR. It serves as the conceptual foundation for the forthcoming e-QR Technical Standard (Draft v0.1) and the initial proof-of-concept implementation. The MTÜ responsible for e-QR invites payment service providers, merchants, financial institutions, regulators, and industry experts to participate in the collaborative development of the e-QR specification and its initial implementations.

2. Background and Problem Statement

2.1 Retail Payment Landscape in Europe

Across Europe, digital banking adoption is high, with widespread access to online and mobile banking, strong customer authentication, and increasing reliance on digital public and private services. Consumers are accustomed to seamless digital interactions and real-time experiences in many areas of daily life.

Despite this maturity, retail payments - particularly at physical points of sale - remain heavily dependent on international card schemes. Merchant acceptance infrastructure continues to be dominated by card terminals, acquirer contracts, and card-network processing flows.

At the same time, SEPA Instant Credit Transfers are now broadly available across European payment service providers. However, consumer-facing use of instant A2A payments in everyday retail contexts remains limited. While the underlying settlement rails exist, there is no unified, interoperable mechanism that enables consumers to initiate instant A2A

payments to merchants in a simple, consistent, and universally accepted manner at the point of interaction. As a result, the practical potential of instant payments has not translated into widespread merchant acceptance.

2.2 Merchant Cost Burden and Structural Dependence on Card Schemes

Card payments provide convenience but impose significant structural costs on merchants - particularly micro-merchants, SMEs, and sectors with thin margins. These costs include:

- Terminal acquisition or rental fees.
- Fixed monthly service charges.
- Per-transaction fees.
- Settlement delays.
- Reconciliation overhead.
- Contractual dependence on non-European card networks.

For many small merchants, these costs directly affect business viability, discouraging digital payment acceptance or limiting it to specific price ranges. This dependence on global card schemes reduces competition and places a disproportionate burden on merchant segments that would benefit most from accessible digital payment options.

A low-cost A2A alternative operating natively on SEPA Instant would materially reduce acceptance costs while maintaining security and convenience, provided PSPs price such services in a merchant-friendly way.

2.3 Fragmentation in Existing QR and Mobile Payments

QR-based payments are widely used globally, yet across Europe there is no harmonised, interoperable approach to merchant-presented QR payments. Instead, banks, fintech providers, and POS vendors have introduced proprietary QR formats or app-specific solutions. The absence of common rules leads to:

- Incompatible QR data structures.
- Merchant-specific QR codes tied to particular providers.
- Duplicated integration work for each service.
- Inconsistent merchant identification practices.
- Consumers facing different QR experiences depending on the provider.
- No guarantee that any payer app can interpret any merchant QR code.

This fragmentation prevents A2A payments from scaling across the entire retail economy. Without a unified standard, no single QR format can achieve widespread acceptance, limiting consumer familiarity and merchant trust.

2.4 Lack of a Standardised, Interoperable Merchant-Presented Payment Initiation Layer

Across Europe, there is no industry-defined or widely adopted standard for merchant-presented payment initiation at the point of interaction. As a result:

- Merchants cannot publish a single QR code that all banks and PSPs can interpret.
- PSPs must individually support multiple, inconsistent initiation formats.
- Merchant authentication and fraud-prevention mechanisms vary by provider.
- Consumers cannot rely on uniform behaviour when scanning a merchant-presented QR code.
- Public authorities lack a coherent technical foundation for promoting A2A retail payments.

A harmonised, interoperable payment payload layer is required to provide a consistent user experience, avoid fragmentation, strengthen security, and enable instant payments to be initiated from any compliant application to any merchant independent of the payload carrier (e.g. QR, NFC).

2.5 European QR Specifications and Their Limitations

The European Payments Council and MSCT multi-stakeholder groups have already published QR-related specifications for SEPA and mobile-initiated credit transfers (including SCT QR guidelines and MSCT QR specifications). These documents define how SEPA payment data can be encoded in a QR code and provide important technical foundations. However, they have not resulted in a harmonised, widely deployed retail QR standard at the point of interaction across the EU. The existing specifications:

- Are not backed by a national merchant registry or trust model.
- Do not define governance, certification, or operational roles.
- Do not mandate common UX or fraud-mitigation practices.
- Have seen limited, fragmented implementation in consumer-facing retail environments.

e-QR is designed to adopt and profile these EPC/MSCT QR building blocks into a pan-European specification, adding the governance, registry, and operational components needed for a functioning initial-market deployment.

2.6 Drivers and Preconditions for Change

Several converging factors define the environment in which any merchant-presented A2A payment initiation framework in Europe would operate:

- European policy direction increasingly favours instant payments, competition, and interoperable QR-based initiation.
- SEPA Instant Credit Transfers are now widely available, removing infrastructure barriers that previously limited real-time A2A payments.

- The EU Instant Payments Regulation makes instant payments a standard offering and constrains pricing towards parity with regular credit transfers.
- Mobile banking penetration is high across SEPA markets, with consumers accustomed to strong digital authentication.
- Retail payment ecosystems remain fragmented, increasing integration costs and slowing adoption of A2A alternatives.
- International card scheme fees remain structurally high, creating demand for more cost-efficient merchant payment options.
- The digital euro, expected to launch around 2029, will require low-cost merchant acceptance infrastructure. Its legal tender status with proportionality exemptions creates structural demand for QR-based payment initiation that avoids expensive terminal deployments.

These factors do not by themselves constitute a solution, but they define the context and constraints within which a pan-European, payload-based payment initiation specification such as e-QR can be designed and deployed.

2.7 Global Precedents

Several countries have demonstrated that QR-based A2A payment frameworks can achieve rapid, inclusive, and cost-efficient adoption at national scale:

- Indonesia (QRIS) unified payment providers under one QR standard, enabling broad SME acceptance and reducing reliance on cards.
- India (UPI QR) has become the default retail payment method nationwide, transforming merchant acceptance and driving transaction volumes to global highs.
- Singapore (SGQR) consolidated multiple QR systems into one national standard, simplifying merchant onboarding and ensuring interoperability across providers.

The relationship between QR infrastructure and central bank digital currency (CBDC) adoption is also instructive. China's e-CNY has processed substantial transaction volumes by building directly on the country's existing QR code payment infrastructure, integrating with established consumer wallet applications. By contrast, Nigeria's eNaira, which launched without robust QR-based payment infrastructure, saw very limited adoption despite its legal tender status. These examples suggest that pre-existing, standardised QR payment ecosystems materially improve the adoption trajectory of new digital currencies — a consideration directly relevant to the forthcoming digital euro.

These examples show that lightweight interoperability layers - based on a single **market-wide merchant-presented standard** and A2A settlement - can rapidly expand digital payments, especially for SMEs and micro-merchants. They illustrate that the technical and governance model proposed for e-QR has been proven viable in other jurisdictions.

2.8 Summary

Across Europe, the foundational components for real-time A2A retail payments are already in place, yet a critical interoperability layer remains missing. The current landscape is characterised by fragmented QR and mobile payment implementations, continued reliance on international card schemes, and the absence of a market-wide merchant-presented initiation profile aligned with existing EPC/MSCT specifications. Ongoing European regulatory developments and global experience with QR-based A2A payment frameworks demonstrate that these challenges are structural rather than technical, and that they are solvable through a harmonised, interoperable approach.

3. Strategic Opportunity and Initial Implementation Context

3.1 Alignment with European Policy Direction

The e-QR initiative fits directly within the trajectory set by key European policy and scheme documents. These frameworks collectively outline a future in which instant payments are ubiquitous, QR-based initiation is standardised, and dependence on global card networks is reduced.

European Commission – Retail Payments Strategy (2020)

The European Commission's Retail Payments Strategy calls for:

- Full uptake of instant payments across the EU.
- Development of pan-European payment solutions.
- Reduced reliance on non-European card schemes.
- Support for open, interoperable technical standards.
- Better use of technologies such as QR codes to support instant-payment-based retail acceptance.

The Strategy observes that a single, open, and secure European QR standard would support instant payments and notes the current lack of a harmonised, widely adopted approach. e-QR is aligned with this direction and consistent with the Commission's stated objectives.

SCT Inst and Instant Payments Regulation Environment

Instant payments are transitioning from voluntary adoption to regulatory expectation. The SCT Inst scheme and the EU Instant Payments Regulation (Regulation (EU) 2024/886) together introduce:

- Universal PSP reachability for instant payments.
- Parity constraints between instant-payment charges and regular credit transfer charges.

- Standardised messaging and data requirements (ISO 20022).
- Transparent settlement timelines and availability.

This creates the technical and economic foundation for A2A retail payments. e-QR builds on these rules by providing a consumer-facing initiation layer that sits directly on top of SCT Inst without altering any clearing or settlement mechanisms.

EPC MSCT Interoperability and QR Guidance

The European Payments Council's guidance on mobile-initiated SEPA credit transfers (MSCTs) and associated QR specifications identify the need for consistent QR-based initiation and common merchant identification frameworks. They describe QR codes as a strategic channel for unified A2A payments and outline baseline interoperability principles.

e-QR operationalises these concepts by providing:

- A harmonised payload encoding profile (QR carrier profile aligned with EPC/MSCT).
- A Merchant Registry trust model reflecting EPC trust requirements.
- A consistent payment journey independent of the carrier across all payer applications.

The Digital Euro and QR-Based Payment Infrastructure

The European Central Bank's digital euro project represents a further structural driver for standardised QR-based payment acceptance. Having completed its preparation phase in October 2025, the ECB has moved to operational readiness, with a potential pilot exercise in mid-2027 and first issuance expected around 2029, subject to EU legislative adoption.

The proposed digital euro regulation introduces several features that create direct demand for the type of infrastructure e-QR provides:

- **Legal tender status with proportionality exemptions.** Merchants in the euro area would generally be obliged to accept the digital euro, but micro-enterprises are exempt unless they already accept comparable digital payment means. This design presupposes a low-cost acceptance channel — exactly the type QR codes provide.
- **Offline payment capability.** The digital euro is designed to support offline transactions processed device-to-device without active internet connectivity. QR codes on printed media or simple displays naturally complement this functionality, providing cash-like resilience in areas with limited network coverage.
- **Financial inclusion mandate.** With approximately 13 million adults in the EU remaining unbanked, the digital euro targets broader participation through distribution via postal offices and simplified interfaces. QR-based payment initiation is the most inclusive acceptance method, requiring no specialised hardware beyond a basic smartphone with a camera.
- **No consumer fees for basic services.** Payment service providers would be obligated not to charge natural persons for basic digital euro payment services. This makes the digital euro a high-volume, low-margin instrument that benefits from the cost efficiencies of QR-based acceptance.

e-QR does not presuppose or depend on the digital euro. However, the e-QR payload model and Merchant Registry are designed to accommodate the digital euro as an additional settlement rail alongside SCT Inst, should it be introduced. Early deployment of e-QR establishes the verified merchant ecosystem, consumer QR payment habits, and standardised initiation infrastructure that would otherwise need to be built from scratch when the digital euro launches. In this sense, e-QR serves as practical preparatory infrastructure for a digital-euro-enabled European payments landscape.

3.2 Transformational Potential for the Economies

A unified QR-based A2A payment framework offers benefits that extend far beyond the payments sector, supporting competitiveness, digital resilience, and economic inclusion.

A. Small and Medium-Sized Enterprises (SMEs)

SMEs and micro-merchants face disproportionate costs from card acceptance. e-QR provides:

- A low-cost, fee-free scheme-level acceptance model.
- Minimal hardware requirements.
- Immediate settlement via SCT Inst.
- Easier digital onboarding.

This reduces barriers to accepting digital payments across all sectors, including small retailers, service providers, and rural businesses.

B. Competition and Market Efficiency

By enabling a card-independent payment initiation layer, e-QR:

- Increases competition among payment service providers.
- Encourages pricing transparency.
- Reduces structural dependence on global card networks.
- Enables innovation in merchant-facing services.

C. Broader Digital Economy Support

A market-wide interoperable QR initiation profile promotes:

- Digital transformation in commerce.
- Reduced cash usage.
- Improved payment data consistency.
- Enhanced interoperability across platforms.
- Integration opportunities for fintechs and POS vendors.

3.3 Relationship to Other European Initiatives (EPI / Wero, EMPSA, Open Banking)

The emergence of pan-European solutions such as the European Payments Initiative's "Wero" wallet, EMPSA-supported schemes, and open-banking-based payment initiation reflects a broader move towards European-led A2A payments.

e-QR addresses a complementary layer:

- Wero and similar wallets focus on consumer experience and cross-border payment functionality.
- e-QR defines a merchant-presented payment initiation payload profile and Merchant Registry trust model for the point of interaction.
- Open-banking PISPs and PSPs can use e-QR as a common initiation and merchant identification framework.

In this model:

- A Wero or other wallet app can capture and present e-QR payloads (QR carrier profile in v1.0; other carriers possible).
- The Merchant Registry provides consistent merchant identity data for all payer applications.
- Within any EU market, domestic and pan-European solutions can share the same e-QR payload semantics.

e-QR therefore does not compete with European wallets; it provides the missing infrastructure they rely on when operating in certain markets.

In addition, e-QR is intended as a pan-European specification built as a profile of EPC/MSCT guidance for merchant-presented initiation (with QR carrier profiling in v1.0). If and when a binding EU-wide QR standard for instant payments is defined, the MTÜ will align e-QR's data model and Registry semantics with that standard to protect existing investments by banks, PSPs, and merchants.

This complementary positioning extends to the digital euro. Wero has already reached over 50 million registered users as of early 2026, building consumer familiarity with QR-based payment flows across multiple European markets. As Wero expands to in-store NFC payments and online commerce during 2026, it is establishing the behavioural and technical foundations upon which the digital euro will operate. e-QR's standardised merchant-presented payload and verified Merchant Registry provide the acceptance-side infrastructure that both Wero and the future digital euro require. Rather than competing initiatives, these form a layered European payments ecosystem: Wero and digital euro wallets handle the consumer experience, SEPA Instant provides the settlement rails, and e-QR provides the standardised merchant-facing initiation layer and trust framework that ties them together at the point of interaction.

4. e-QR Concept Overview

4.1 What is e-QR?

Definition

e-QR is a pan-European, transport-agnostic A2A payment initiation specification. It defines a standardised merchant payment payload and a Merchant Registry trust model that allow any compliant PSP application to validate the payee and initiate an SCT Inst payment. The payload may be carried via multiple methods, including a QR code representation (baseline in v1.0) and future proximity carriers such as NFC.

Purpose

The purpose of e-QR is to provide implementation markets with a low-cost, interoperable A2A acceptance layer that complements existing card infrastructure. The framework ensures that:

- Any merchant can present a single e-QR payload accepted by all participating PSPs (rendered as a QR code in v1.0; other carriers possible).
- Consumers can pay using their existing mobile banking apps.
- PSPs can implement a uniform interpretation and initiation flow based on SEPA Instant.
- The ecosystem avoids fragmented proprietary QR formats that increase cost and complexity.

The initiative fills a structural gap in EU markets by providing a retail-facing interaction layer for A2A payments and enabling scalable adoption of SEPA Instant for everyday commerce.

Core Principles

e-QR is designed around several foundational principles:

- **Open Interoperability:** all implementations use one standardised payload schema profiled from EPC/MSCT guidance; carrier profiles (QR, NFC, etc.) are strictly defined to ensure uniform interpretation.
- **Merchant Authenticity**: all merchants are verified and registered through the Merchant Registry.
- **Merchant-Free Scheme at Scheme Level:** the e-QR scheme and Merchant Registry do not charge merchants any onboarding, participation, or usage fees at scheme level; scheme-level costs are recovered from PSPs and other institutional participants. PSPs remain free to set any merchant-facing pricing independently, subject to competition law.
- **Low-Cost Infrastructure**: no proprietary switches, domestic clearing layers, or specialised hardware dependencies are required by the standard.

- **Vendor Neutrality with Founder Leadership:** the standard is governed by a non-profit MTÜ with open membership and clear safeguards against anti-competitive behaviour. Founding members provide bootstrap continuity and technical stewardship, while banks, PSPs, vendors, and merchants participate through defined governance structures.
- **Simplicity**: payloads, onboarding, and flows are intentionally minimal to ensure ease of adoption.
- **Security-by-Design**: structured data, registry validation, and SEPA compliance form the security baseline.
- **European Alignment:** the architecture initiates SCT Inst strictly via existing EPC MSCT and SEPA frameworks and does not introduce new payment rails.

4.2 High-Level Architecture

The architecture of e-QR consists of two lightweight shared layers - the e-QR payload format (schema + carrier profiles) and the Merchant Registry - combined with PSP-driven SEPA Instant initiation. No new domestic switching, clearing, or settlement systems are introduced.

e-QR Interoperability Layer

This layer defines the standardised data model, encoding rules, and parameters used in all e-QR payload instances. It ensures:

- Consistent interpretation by any PSP.
- Uniform mapping to SEPA Instant payment fields.
- Clear separation between merchant identity, account data, and optional metadata.
- Forward compatibility through versioned schemas.

The interoperability layer does not perform routing or processing. Its function is purely structural: to ensure every payload instance carries predictable, verifiable, and compliant payment information.

Merchant Registry

The Merchant Registry is the trust anchor of the ecosystem. It provides authoritative verification of merchant legal identity, issuance and management of Merchant Identifiers (MIDs), binding of MIDs to verified IBANs, real-time lookup for payer applications, and protection against QR tampering (e.g. replaced or altered IBANs).

Consumer-facing applications must validate the scanned MID prior to payment initiation. This mitigates common fraud scenarios observed in markets relying on unverified static QR codes.

Merchant Registry services are operated by one or more Technical Operators certified under the e-QR governance framework. Technical Operators are appointed and overseen by the e-QR MTÜ and must comply with the unified rulebook, technical specification, security requirements, and certification criteria.

Multiple Registry instances may operate in parallel under this framework. Interoperability between implementations is ensured through common data models, signing requirements, and a signed Operator Directory distributed to payer applications.

The Registry does not store funds, perform clearing, or interact directly with SEPA rails. It does not replace PSP obligations related to AML, sanctions screening, or verification-of-payee checks; these remain fully within the responsibility of regulated PSPs.

PSP ↔ Bank Flows

Once the payload is validated, PSPs initiate payments directly via SEPA Instant. PSPs retain full responsibility for:

- Strong customer authentication (SCA).
- Risk management, AML, and fraud monitoring.
- User experience inside their applications.
- Creation and submission of SCT Inst payment orders.
- Displaying confirmation and transaction status.

e-QR functions solely as a standardised initiation channel aligned with existing SEPA Instant execution rules.

Consumer Journey (High-Level)

A typical consumer flow consists of:

1. **Capture:** the user captures the merchant-presented payload (e.g. scan QR / tap NFC).
2. **Decode**: the app extracts the merchant MID, IBAN, amount (if dynamic), and metadata.
3. **Verify**: the MID is validated through the Merchant Registry in real time.
4. **Initiate**: the PSP constructs an SCT Inst order with pre-filled data, including the verified merchant name.
5. **Authenticate**: the user confirms via SCA.
6. **Settle**: SEPA Instant processes the A2A transfer within seconds.
7. **Confirm**: the merchant receives funds through their PSP.

This flow mirrors existing banking UX patterns and requires no additional consumer applications.

4.3 Key Design Principles

Interoperability

All e-QR deployments follow a single payload format. Interoperability ensures that:

- Every compliant payer app can interpret every compliant payload instance, regardless of carrier (QR/NFC).
- PSPs avoid maintaining multiple QR integrations;

- merchants avoid fragmented acceptance channels.

This principle mirrors global best practices (e.g. QRIS, SGQR) while aligning with EPC MSCT guidance.

Merchant-Free Scheme and Low-Cost Infrastructure

The architecture avoids expensive components such as national proprietary switches, new routing layers, or card-type acquirer–issuer infrastructures. Static QR codes can be printed on paper, and dynamic QR codes can be generated by POS software with minimal integration work. The MTÜ and Operator do not charge merchants for onboarding, participation, or use of e-QR; all scheme-level costs are recovered from PSPs and other institutional participants. Participating PSPs and banks retain full freedom to set their overall merchant pricing (for example, account packages, terminal fees, and value-added services), subject to applicable competition law. The e-QR framework does not set, recommend, or coordinate merchant pricing; PSPs and banks remain free to price their services independently, subject to competition law.

Vendor Neutrality with Founder Leadership

The e-QR standard is governed by a non-profit MTÜ that ensures:

- Open access.
- Transparent versioning.
- Non-discriminatory conditions for PSPs, POS vendors, and fintechs.

The MTÜ is initiated by founding members that provide continuity, technical and structural leadership, particularly in the early phases. Governance rules prevent any participant from using the standard to exclude others from fair access, while reserved matters protect the integrity of the standard and Operator arrangements during the bootstrap period.

Simplicity

Simplicity is a deliberate design choice. The standard:

- Defines a minimal but complete payload.
- Avoids excessive optional fields that complicate interoperability.
- Maintains a strictly layered architecture (Carrier → Registry → PSP → SEPA).
- Keeps onboarding and integration intuitive.

SEPA Instant Backbone

All payments are executed as SCT Inst where available. This:

- Delivers card-like real-time settlement.
- Aligns with EU regulatory direction.
- Ensures compatibility across PSPs.
- Avoids duplicating European infrastructures.

Where instant capability is not available, fallback to standard SCT is technically possible but discouraged and should follow the same initiation model with transparent indication to users.

Security-by-Design

Security is provided through multiple integrated elements:

- Verified merchant identity via the Registry.
- Structured, unambiguous payloads resistant to manipulation.
- SCA within the consumer's PSP app.
- Adherence to PSD2, ISO 20022, and EPC MSCT guidelines.
- No consumer data stored inside the QR code (only merchant and transaction parameters).

Static QR codes are known globally to be susceptible to physical tampering (e.g. sticker overlays). e-QR mitigates this risk by requiring Registry-based MID/IBAN verification, standardised display of merchant name in payer apps, and by encouraging dynamic QR for higher-risk and higher-value environments.

4.4 Data Protection and Privacy by Design

To align with GDPR, PSD2, and general European data-protection expectations, e-QR is designed according to privacy-by-design principles:

- **No consumer personal data in payload:** e-QR payloads (regardless of carrier such as QR/NFC) contain only merchant and transaction-level data (merchant identifier, IBAN or proxy, amount, reference, optional merchant metadata). They do not encode payer identifiers, device IDs, or other personal data.
- **Merchant Registry limited to merchant data**: the Registry holds legal-entity data, verified IBANs, and technical identifiers required to validate QR payloads. It does not store, process, or infer consumer payment histories.
- **No central visibility into payer behaviour**: all payment execution and consumer-level data remain within PSP environments. The Operator only sees Registry lookups and limited technical logs required for security and performance, with appropriate retention limits.
- **Data minimisation and purpose limitation**: Registry and interoperability-layer data are limited to what is strictly necessary to support e-QR initiation, fraud checks, and operational monitoring as mandated by law.
- **Support for PSP compliance**: the structured nature of the QR payload and Registry ensures that PSPs have clean, accurate payee data, supporting verification-of-payee and sanctions checks required under the Instant Payments Regulation and AML frameworks.
- **Transparent governance**: any changes to data fields, retention rules, or access models are managed via the MTÜ's transparent versioning and consultation processes.

5. System Components (High-Level)

5.1 e-QR Interoperability Layer

The interoperability layer defines the technical foundation of the system. It specifies the payment payload schema, carrier encoding rules (QR in v1.0; extensible), how applications interpret the payload, and how merchant details are validated.

Purpose

- Provide a single, unified payload format (with a defined QR carrier profile in v1.0) for all merchants and PSPs.
- Ensure consistent mapping to SEPA Instant payment fields.
- Simplify POS and PSP integration by eliminating fragmented proprietary merchant-presented formats.

Scope

The interoperability layer includes:

- A standardised data model and field hierarchy.
- Encoding rules (textual structure, field delimiters, versioning).
- Mandatory and optional parameters for static and dynamic QR modes.
- Rules for payload validation prior to PSP initiation.
- Registry lookup rules tied to the Merchant Identifier (MID).

Non-Scope

It does not:

- Perform routing or switching.
- Store or process payments.
- Replace PSP authentication, AML, sanctions, or risk controls.

The layer acts solely as a technical lingua franca for encoding and reading merchant-presented QR codes across the market.

5.2 Merchant Registry

The Merchant Registry is the integrity and trust anchor of the e-QR ecosystem. It ensures that every merchant-presented payload corresponds to a verified merchant and that encoded payment details are accurate and tamper-resistant.

Purpose

- Provide authoritative merchant identity verification.

- Bind each Merchant Identifier (MID) to validated IBANs.
- Prevent QR tampering, spoofing, and redirection attacks.
- Ensure a secure, consistent baseline for PSPs and payer apps.

Trust Model

- Merchant Registry services are operated by one or more Technical Operators certified under the e-QR governance framework.
- All Technical Operators operate under the e-QR MTÜ's unified governance, rulebook, and certification framework, while using the same e-QR technical specification.
- Interoperability and trust between Registry instances are ensured through common data models, signing requirements, and a signed Operator Directory distributed to payer applications.
- Governance is transparent and non-discriminatory, consistent with EU competition principles.
- Strict verification requirements apply to merchant onboarding, updates, suspensions, and revocations.

Verification Process

1. Merchant submits legal identity and IBAN information through a PSP or authorised onboarding channel.
2. Registry validates identity, legal entity status, and account ownership via appropriate KYC/KYB evidence supplied by PSPs.
3. A unique MID is issued and bound to one or more IBANs.
4. Registry records become available for real-time lookups by PSP applications.

Minimum verification baseline (conceptual)

The rulebook defines minimum onboarding and change-control requirements to ensure consistent verification across Technical Operators. At a minimum, this includes: verification of merchant legal entity against authoritative registers; verification that the merchant is entitled to receive funds to each bound IBAN via evidence supplied by the merchant's PSP; re-verification on material changes (legal identity, IBAN bindings, authorised representatives); and support for suspension and revocation with time-stamped records and auditable change history.

Lookup Model

When capturing an e-QR payload (e.g. scanning QR or tapping NFC):

- The payer app retrieves merchant data using the MID.
- The app verifies that the IBAN in the QR matches the registered IBAN.
- If mismatch or fraud indicators occur, the payment cannot proceed or trigger additional warnings.

Resilience and availability (conceptual)

The Operator Directory and related signing keys are distributed as signed artefacts and are cacheable by payer applications to reduce dependency on real-time availability. Directory updates and key rollovers follow defined publication and revocation procedures. Registry lookup services must be engineered for high availability and DDoS resilience, with SLA targets, monitoring, and incident response obligations defined by the MTÜ. The rulebook defines deterministic payer-app behaviour for verification failures (for example: blocking initiation or requiring explicit user acknowledgement) and requires prominent display of the verified merchant name when available.

Role Limitations

The Registry:

- Does not hold funds;
- Does not execute payments.
- Does not perform settlement or generate clearing messages.
- Does not replace PSP responsibilities for AML, sanctions, or verification-of-payee checks.

Its sole function is identity integrity, ensuring trust in the overall payment flow.

5.3 Merchant Dashboard

The Merchant Dashboard provides merchants with a simple interface to manage their presence in the e-QR ecosystem and generate payload representations (static QR codes in v1.0; additional carrier artefacts where supported) for everyday use.

Key Functions

- Digital onboarding (via PSP or supported onboarding channels).
- Viewing registered legal details and associated IBAN(s).
- Generating static QR codes for printing or display.
- Generating or integrating dynamic QR codes via compatible POS systems.
- Updating merchant profile information as required.

Purpose

- Provide a low-friction, zero-cost tool for merchants.
- Support SMEs and micro-merchants with minimal technical capability.
- Ensure merchants can operate independently of proprietary vendor solutions.

The dashboard is provided to merchants at zero cost by the e-QR Operator under MTÜ governance. No fees are charged to merchants for registration, QR generation, or ongoing use of e-QR. The dashboard is deliberately simple; its role is not to replace banking portals or commercial POS software.

The Merchant Dashboard serves as a neutral, scheme-level access point. It ensures that any eligible merchant can enrol in e-QR and obtain static QR codes without dependence on proprietary solutions or bilateral commercial arrangements. PSP-assisted onboarding can coexist with the dashboard, but the dashboard guarantees that basic e-QR acceptance remains open and accessible, particularly for SMEs and micro-merchants.

5.4 Consumer-Facing Flow

Consumer-facing applications - primarily banking apps and licensed PSP apps - execute the user journey for e-QR payments. The flow is designed to be intuitive and consistent across providers.

High-Level Flow

1. **Capture**: capture payload (scan QR / tap NFC).
2. **Decode**: the app reads the standardised e-QR payload.
3. **Validate**: the app performs a Registry lookup to confirm merchant identity and IBAN consistency.
4. **Initiate**: the PSP constructs an SCT Inst payment order with pre-filled fields, including the verified merchant name.
5. **Authenticate**: the user confirms the payment via PSD2-compliant SCA.
6. **Execute**: the PSP sends the SCT Inst transfer through SEPA rails.
7. **Confirm**: user and merchant receive real-time confirmation.

The consumer app's responsibility is payment initiation and authentication. No new application is required; existing banking apps remain the primary interface. Prominent display of the verified merchant name is required as a key anti-fraud measure.

5.5 PSP & Banking Integration

Payment service providers play the central operational role in executing e-QR payments. The standard intentionally defines only high-level responsibilities, allowing full flexibility in implementation.

PSP Responsibilities

- Parse and validate e-QR payloads.
- Perform Merchant Registry lookups.
- Pre-fill the SEPA Instant payment order.
- Execute SCA and PSP-side risk checks (including AML and sanctions filters).
- Submit the SCT Inst message via SEPA rails.
- Deliver real-time confirmation to the consumer.

Scope Boundaries

PSPs retain complete freedom in:

- UI/UX design.
- Deep-linking strategies for payment initiation.
- Internal fraud, AML, and risk evaluation mechanisms.
- Pricing models for consumer-facing products and any merchant services.

However, the e-QR rulebook prohibits scheme-level charges to merchants by the MTÜ or any certified Technical Operator. PSPs retain full freedom to set overall merchant pricing independently, subject to competition law. All scheme-level costs (MTÜ governance, Registry operation, certification) are recovered from PSPs and other institutional participants rather than from merchants.

Integration Simplicity

Because e-QR does not introduce any domestic switch or clearing layer:

- PSP implementation is limited to payload parsing, Registry lookup, and payment initiation.
- No complex routing or real-time settlement logic is added.
- Integration timelines remain short and cost-efficient.

5.6 Risk, Liability, and Service Levels

e-QR deliberately separates technical responsibilities between the MTÜ, the Technical Operator, and participating PSPs. At a conceptual level:

- The MTÜ and Technical Operator are responsible for the correct operation and availability of the Merchant Registry, the Merchant Dashboard, and related interoperability services, within clearly defined service-level agreements (SLAs). This includes maintaining accurate registry data based on validated onboarding and change processes.
- PSPs are responsible for correctly implementing the e-QR specification, performing Merchant Registry lookups and validation steps, and applying their own strong customer authentication, AML, sanctions, and fraud-monitoring controls.

Detailed allocations of liability for specific scenarios - such as incorrect merchant data in the Registry, operational outages, or onboarding errors - will be defined in the e-QR rulebook and in contractual arrangements between the MTÜ, the Technical Operator, and PSPs. These arrangements will be designed in consultation with regulators and will be subject to independent legal review to ensure alignment with applicable law and supervisory expectations.

At a minimum, the rulebook will define: baseline SLA targets for Registry and Directory availability; incident notification and remediation processes; audit and logging expectations; responsibilities for onboarding accuracy and change controls; revocation and suspension handling; and the principle that Technical Operators do not execute payments or assume PSP obligations under PSD2, AML, or the Instant Payments Regulation.

6. Payment Flows (Conceptual)

This section outlines the conceptual interaction models supported by e-QR. The v1.0 reference carrier is merchant-presented QR, but the same payload semantics and Registry verification model can be carried via NFC or other channels; only the carrier layer changes. These flows illustrate the logical sequence of interactions between the consumer, merchant, Merchant Registry, PSPs, and banks.

e-QR supports:

- Merchant-presented static payload (QR in v1.0; NFC tag possible later).
- Merchant-presented dynamic payload (QR in v1.0; NFC terminal possible later).
- Customer-presented payload/token (optional; QR or NFC token).

All models rely on the same e-QR encoding standard and the Merchant Registry for authoritative merchant identification.

End-to-end conceptual sequence for merchant-presented dynamic payload initiation (illustrative, non-normative).

6.1 Merchant-Presented Static QR

Overview

A static merchant-presented payload (most commonly rendered as a QR code) is a fixed, pre-generated code that contains the merchant's e-QR identifier and optional default metadata. It does not vary per transaction and does not include the payment amount.

Consumers scan the code using their bank or PSP application. The application retrieves merchant information from the Merchant Registry and displays a payment screen where the consumer enters the amount manually.

Static QR is the simplest payment model and requires no merchant hardware or integration. It supports rapid deployment and broad accessibility across all merchant segments, including micro-merchants, cafés, kiosks, and vendors relying on printed QR signage.

When to Use

Static QR is recommended when:

- Merchants do not use POS equipment.
- Onboarding must be extremely fast and low-cost.
- Fixed signage is sufficient.
- Consumer-entered amounts are acceptable.
- Transaction values are typically low.

Static QR serves as the baseline method ensuring universal acceptance and interoperability across the ecosystem. For higher-risk contexts, additional controls (such as enhanced UI display of merchant details and mandatory Registry checks) are recommended.

End-to-end conceptual diagram for merchant-presented static QR initiation (illustrative, non-normative).

6.2 Merchant-Presented Dynamic QR

Overview

A dynamic QR code is generated for each transaction by a merchant's POS system, cash register, or other electronic terminal. The QR embeds:

- The merchant's e-QR identifier.
- The transaction amount.
- An invoice or order reference.
- Optional metadata relevant for reconciliation.

When the consumer scans the code, their banking application retrieves merchant information from the Merchant Registry, automatically pre-fills the amount and reference, and presents a confirmation screen. This reduces manual input, eliminates human error, and accelerates checkout.

Dynamic QR is intended for medium and large merchants with POS systems and for environments where automated reconciliation and high-speed throughput are required.

When to Use

Dynamic QR is suitable when:

- The amount varies per transaction.
- Speed, automation, and reconciliation matter.
- POS or terminal infrastructure is already in use.
- Integration with merchant back-office systems is desirable.
- High transaction volumes must be handled efficiently.

Dynamic QR is expected to become the primary model for supermarkets, retail chains, restaurants, ticketing, transport, and other structured retail environments.

End-to-end conceptual diagram for merchant-presented dynamic QR initiation (illustrative, non-normative).

6.3 Customer-Presented QR (Optional)

Overview

In the customer-presented model, the consumer's banking or PSP application generates a QR code containing a payer token or session identifier. The merchant scans this code, obtains a payer token or session identifier, and triggers a request-to-pay flow or initiates a deep link back to the consumer's banking application for payment confirmation.

This model is optional within e-QR and intended for scenarios where merchants have scanning hardware and where customer-presented tokens improve throughput or match operational requirements. It does not define any pull-payment mechanism; all payments remain consumer-initiated SEPA Instant transfers.

When to Use

Customer-presented QR is applicable in:

- Transit systems (gates, validators).
- Self-checkout environments.
- Petrol stations.
- High-volume retail requires fast consumer identification.
- Kiosks or unattended terminals.

It supplements the two merchant-presented models and allows e-QR to support a broader range of operational use cases without introducing additional complexity into the standard.

6.4 Risk and Fraud Considerations

Static and dynamic QR payments are subject to certain attack patterns observed globally in markets with large-scale QR deployments. e-QR incorporates explicit mitigations.

Static QR Risks

- Sticker replacement / tampering: attackers overlay a fraudulent QR pointing to their own account.
- Merchant impersonation: fake merchants display a QR with a name similar to a well-known merchant.
- Replay of screenshots or copied codes: static QR images are reused in unintended contexts.

Dynamic QR Risks

- Terminal compromise: POS malware injects alternate IBANs or changes amounts.
- Session hijacking: QR codes generated for one transaction are reused or relayed to another consumer.

Mitigation Measures in e-QR

- **Registry-based IBAN validation**: payer apps verify that the IBAN in the payload matches the IBAN bound to the merchant's MID in the Registry; mismatches are blocked or flagged.
- **Prominent merchant-name display**: payer apps must show the verified merchant name (from the Registry) on the confirmation screen, not just a free-text label from the QR.
- **Static QR usage guidance**: static QR is recommended primarily for low-value contexts and micro-merchants. For higher-value or higher-risk scenarios, dynamic QR is recommended.
- **Dynamic QR integrity**: dynamic QR implementations should ensure that the amount and reference are generated from trusted POS systems, with secure interfaces to payment terminals and robust logging.
- **PSP-side risk controls**: PSPs remain responsible for behavioural monitoring (e.g. unusual amounts, mismatched locations), enforcement of daily limits, and stepped-up SCA when risk increases.
- **Consumer education**: the MTÜ and participating PSPs should publish simple guidelines (e.g. "Always confirm the merchant name on screen" and "Do not pay if the merchant name looks wrong").

e-QR does not introduce pull payments or automatic debits; all flows remain payer-initiated SEPA credit transfers subject to SCA. This significantly reduces the attack surface compared to certain mandate-based models.

e-QR flows remain payer-initiated SEPA credit transfers subject to PSD2 strong customer authentication requirements; no mandate-based pull payments are introduced. This limits the attack surface compared to some other retail payment models, while still requiring robust PSP-side monitoring and consumer awareness.

6.5 Remote and Online Use Cases

While much of the focus is on physical POS, e-QR is equally applicable to remote and online contexts:

- **Invoices and bills**: utilities, telecoms, and public-sector entities can print or display e-QR codes on invoices, allowing consumers to pay by scanning and confirming in their bank app, with amount and reference pre-filled.
- **E-commerce checkout**: online merchants can display a dynamic e-QR code at checkout, giving consumers an alternative to cards and pay-by-link flows.
- **Email / PDF billing**: QR codes can be embedded in PDF invoices or emails, providing a consistent experience across channels.

The same Merchant Registry and SCT Inst initiation flow apply. This ensures that consumers encounter a single, familiar QR payment experience across physical and digital channels.

7. Stakeholder Impact Assessment

The successful adoption of e-QR depends on delivering clear and measurable benefits to all ecosystem participants. This section outlines the expected impact on merchants, consumers, banks and PSPs, POS vendors, regulators, government stakeholders, and the broader fintech ecosystem.

7.1 Merchants

Cost and Pricing Model

e-QR is designed to provide merchants with a low-cost acceptance channel at the scheme and Registry level for SEPA Instant payments. Unlike traditional card-based systems, e-QR does not require scheme-specific card terminals or acquirer infrastructure. Static QR codes can be deployed at negligible cost, while dynamic QR implementations integrate with existing POS systems without additional proprietary components.

The MTÜ and Technical Operator do not charge merchants onboarding, participation, or per-transaction fees. Participating PSPs and banks remain free to define their overall commercial models for merchant services (including account packages, terminal fees, and value-added services) independently, subject to competition law. e-QR does not prescribe merchant pricing; it removes technical fragmentation and reduces the need for card-specific infrastructure, enabling lower-cost offerings where market competition supports it.

Simplified Onboarding

Merchants can be onboarded seamlessly through their existing bank or PSP, without needing separate contractual relationships with card acquirers or terminal providers. The Merchant Registry centralises merchant identification and verification, ensuring that once a merchant is registered, they become discoverable by all e-QR-enabled applications.

This reduces operational friction, shortens time-to-activation, and enables merchants to accept payments quickly upon registration.

7.2 Consumers

Easier Payments

Consumers gain a simple, intuitive payment experience using the mobile banking applications they already trust. Payments are initiated by capturing a merchant-presented e-QR payload (e.g. scanning a QR code or tapping NFC) and confirming the pre-filled details within their bank's app. No additional apps, accounts, or wallets are required.

By standardising the QR format and interaction flow, e-QR ensures a consistent user experience across all banks and PSPs, reducing cognitive load and increasing familiarity.

Privacy

e-QR preserves consumer privacy by avoiding any central storage of payer information. All payments remain direct SEPA Instant transfers between the consumer's bank and the merchant's bank.

The Merchant Registry stores only merchant identification data and associated account bindings. It does not process or retain consumer data. PSPs remain fully responsible for compliance with GDPR, PSD2, and other applicable data-protection and payment regulations.

7.3 Banks and Payment Service Providers (PSPs)

Transaction and Engagement Growth

e-QR increases the relevance and everyday usage of mobile banking applications by offering a fast, interoperable payment alternative to cards for both physical and remote commerce. As QR-based acceptance expands, SEPA Instant transaction volumes grow correspondingly. Banks benefit from higher customer engagement in their own digital channels and from deeper integration into day-to-day retail payments.

Economics and Cost Structure

For many domestic transactions, the internal cost of processing an SCT Inst payment can be lower than the combined scheme, interchange, and acquirer costs associated with card acceptance. By shifting a portion of C2B traffic from card rails to instant credit transfers, banks and PSPs can improve unit economics while still offering merchants competitive pricing.

New Merchant Services and Differentiation

Banks and PSPs can differentiate through enhanced merchant services around e-QR, including reconciliation and reporting tools, ERP integrations, dynamic QR support in POS systems, analytics dashboards, loyalty and rewards integration, and bundled acceptance packages combining QR, cards, and online payments. The shared standard removes fragmentation so that innovation can focus on value-added capabilities rather than basic interoperability.

Strategic Positioning

By adopting a unified QR-based A2A payment model, banks reduce long-term dependence on global card schemes and external wallets, strengthen their strategic position in the domestic payments market, and align with EU objectives for European-led payment solutions. e-QR provides a pragmatic path to implementing QR-initiated instant payments in production, ahead of any future pan-European harmonisation.

7.4 POS Vendors

Unified Integration Target

POS vendors gain a single QR integration standard that works across all participating banks and PSPs. Instead of implementing multiple proprietary QR formats or maintaining fragmented integrations, vendors integrate once with the e-QR specification.

This reduces development costs, simplifies certification, and enables vendors to deliver QR-enabled checkout experiences more rapidly. A unified standard also opens new commercial opportunities, such as offering dynamic QR functionality, reconciliation tools, and device-level enhancements.

7.5 Regulators and Government

Digitalisation

e-QR accelerates the adoption of instant digital payments and reduces reliance on cash. The standard aligns with national and EU priorities for modernising payments infrastructure, supporting financial inclusion, and enhancing the resilience of the retail payment ecosystem.

By expanding merchant acceptance of SEPA Instant and strengthening integration between consumer-facing payments and national digital strategies, e-QR supports broader digitalisation objectives.

Strategic Autonomy

By reducing dependency on global card schemes and proprietary international networks, e-QR advances European strategic autonomy in payments.

A neutral, open, and interoperable QR standard supports domestic innovation and enhances control over critical payment infrastructure. Governments benefit from increased transparency, lower systemic risk, and stronger alignment with the European Retail Payments Strategy and related EU initiatives.

7.6 Fintech Ecosystem

New Products

e-QR provides fintech companies with a standardised layer on which to build new services, including merchant applications, analytics dashboards, reconciliation tools, loyalty platforms, and automated billing or invoicing.

Because the standard is openly governed by an MTÜ with clear rules, fintech innovators can rely on stable interfaces and predictable evolution.

Innovation

A unified QR standard removes fragmentation and lowers barriers to building payment-related solutions. Fintechs can innovate on top of the e-QR infrastructure without needing to negotiate bilateral agreements with individual banks.

The ecosystem benefits from increased competition, faster experimentation cycles, and reduced integration complexity.

8. Benefits and Economic Impact

The introduction of e-QR as a unified QR-based payment initiation layer for SEPA Instant Credit Transfers delivers a broad range of economic and structural benefits across the European retail payments ecosystem. The impact spans merchants, consumers, banks and PSPs, POS vendors, public authorities, and the wider economy.

8.1 Cost Reduction

Lower Acceptance Costs for Merchants

Traditional card acceptance imposes fixed and variable costs, including interchange fees, acquirer margins, terminal rental, and settlement-related fees. e-QR reduces dependence on card-specific terminal infrastructure by enabling direct A2A payments using SEPA Instant and simple QR presentation, which can be as low-cost as printed signage. Dynamic QR codes integrate with existing POS systems without the need for proprietary terminals.

Because the MTÜ and certified Technical Operators do not charge merchants, QR-initiated SCT Inst can be offered without introducing scheme-level merchant fees specific to e-QR. Participating PSPs and banks remain free to determine their overall merchant pricing structures independently, subject to competition law and competitive pressure. The cumulative effect can be a substantial reduction in acceptance costs, particularly for SMEs, micro-merchants, and cash-heavy segments.

Reduced Infrastructure Duplication

By defining a single interoperable initiation profile (QR carrier in v1.0) and a market-level Merchant Registry, e-QR removes the need for banks and PSPs to implement multiple proprietary formats or parallel integration layers. This streamlines development and compliance costs, reducing the overall burden on the financial sector.

Operational Efficiency

Automated reconciliation enabled by dynamic QR codes reduces manual workflows and errors. Banks benefit from increased efficiency in payment processing, while merchants benefit from simplified bookkeeping and fewer disputes.

8.2 SME Enablement

Lower Barriers to Entry

Small businesses and micro-merchants often face disproportionate costs and friction when attempting to accept digital payments. e-QR offers a universally accessible, low-cost alternative that requires no specialised equipment, enabling even the smallest merchants to participate in digital commerce.

Faster Activation and Broader Reach

The shared Merchant Registry enables rapid onboarding. Once a merchant is registered, all e-QR-enabled banking and PSP applications can transact with them immediately, reducing delays and avoiding fragmented acceptance ecosystems.

Access to Modern Payment Capabilities

SMEs gain access to capabilities previously limited to larger merchants, such as automated invoice matching, dynamic QR-based billing, and instant settlement. This improves cash flow, business predictability, and operational agility.

8.3 Reduced Dependency on Global Schemes

Strategic Autonomy

The European Retail Payments Strategy identifies overreliance on non-European card networks as a structural risk. e-QR addresses this by providing an A2A retail payment initiation model fully aligned with SEPA Instant Credit Transfers and EPC mobile payment guidance. By enabling merchant-presented instant payments directly from bank and PSP applications, e-QR supports a gradual shift of retail transaction volume to European-controlled payment infrastructure.

Economic Retention

Fees paid to international card schemes represent a sustained economic outflow from European markets. By enabling A2A payments over SEPA Instant, e-QR allows a greater share of transaction value to remain within the European payments ecosystem, supporting local innovation, investment, and long-term resilience.

8.4 Increased Competition

More Choice for Merchants and Consumers

By creating an open, interoperable acceptance layer, e-QR allows multiple banks and PSPs to compete on user experience, merchant services, analytics, and value-added applications. This reduces barriers to market entry and ensures that no single provider controls the acceptance ecosystem.

Innovation-Driven Market Dynamics

Fintechs and vendors can build on top of a common standard without negotiating proprietary integrations. This encourages the creation of new products and enhances competitive pressure on established providers to improve capabilities and reduce pricing.

8.5 Improved Resilience

Diversification of Payment Channels

e-QR enables a robust alternative to card-based payments, reducing systemic concentration risk. In situations where card networks experience outages or operational disruption, e-QR provides an independent payment pathway to maintain continuity of commerce.

Decentralised Architecture with Central Verification

Because e-QR relies on SEPA Instant transfers rather than centralised clearing through proprietary card networks, transactions are less exposed to single points of failure inherent in those systems. The Merchant Registry serves as a verification layer without controlling the payment flow itself.

Regulatory and Operational Transparency

The MTÜ governance model ensures transparent versioning, regular consultation with stakeholders, and public oversight. This increases confidence in continuity, reduces operational risks, and supports the long-term stability of the payment infrastructure.

8.6 Digital Euro Readiness

The digital euro, expected to become available around 2029, will require merchant acceptance infrastructure that does not yet exist at scale across Europe. e-QR provides a pathway to building this infrastructure in advance, generating practical benefits well before the digital euro launches while ensuring readiness when it does.

Established Merchant Ecosystem

e-QR's Merchant Registry creates a verified database of merchant identities, IBANs, and QR codes that can be extended to support digital euro acceptance without requiring merchants to re-onboard or deploy new infrastructure. Markets that adopt e-QR early will have a functioning, trusted merchant network ready for digital euro day one.

Consumer Familiarity with QR Payments

By normalising QR-based payment interactions at the point of sale through e-QR and complementary initiatives like Wero, consumers will already be accustomed to scanning merchant QR codes when the digital euro launches. This reduces the behavioural adoption barrier that has challenged other CBDC rollouts globally.

Growing Market Opportunity

The European QR code payments market is projected to grow significantly in the coming years, driven by consumer demand for convenient payment alternatives and the regulatory push towards instant payments. Standardised QR-based acceptance could generate substantial cost savings for merchants across Europe by eliminating redundant proprietary integrations and reducing dependence on card terminal infrastructure. e-QR positions early adopters — merchants, PSPs, and markets — to capture this value both in the current SCT Inst context and in the forthcoming digital euro environment.

8.7 Summary and Indicative Impact Metrics

Collectively, e-QR enhances economic efficiency, strengthens the competitiveness of payment service providers, expands digital payment acceptance among SMEs, and reduces reliance on non-European payment networks. It supports European policy objectives by providing a low-cost, resilient, and interoperable framework for A2A retail payments based on SEPA Instant.

Indicative, non-binding impact metrics for the first three years of adoption in reference implementation environments could include:

- e-QR acceptance available to a majority of merchants that already accept card payments, alongside a substantial share of SMEs that previously did not accept digital payments.
- A meaningful minority of consumer-to-business payments (for example, 15–25% in selected verticals such as hospitality, small retail, and services) executed as SCT Inst via e-QR.
- Widespread use of e-QR for invoice and bill payments in both private and public sectors.

These metrics are indicative only and may be refined through further consultation with banks, PSPs, merchants, regulators, and other stakeholders.

9. Governance & MTÜ Structure

The long-term viability of e-QR depends on a governance model that ensures neutrality, transparency, and predictable evolution of the standard, while providing stability and protection for the initiative during its bootstrap phase. A core design principle is institutional resilience: the system is designed to survive any single person and any single operator. The MTÜ is the permanent establishment; individual contributors, board members, and Technical Operators can change over time without disrupting the standard or its operations. This is how critical shared payment infrastructure should work. To achieve this, the e-QR framework is stewarded by a dedicated non-profit organisation (MTÜ), which oversees the standard, manages stakeholder participation, and ensures that technical and operational decisions remain aligned with the public interest and EU competition principles.

9.1 Role of the MTÜ

The MTÜ acts as the steward of the pan-European e-QR specification. Adoption is voluntary and implementation is market-driven, with reference implementations undertaken by participating banks, PSPs, or other licensed payment institutions in one or more SEPA markets. The MTÜ does not process payments, manage settlement, or provide financial services; instead, it governs the rulebook, ensures interoperability, and defines the conditions under which participants operate.

Key responsibilities include:

- Maintaining the e-QR technical specification.
- Managing the Merchant Registry governance framework.
- Publishing updates, clarifications, and compliance requirements.
- Coordinating multi-stakeholder consultation.
- Overseeing certification frameworks.
- Ensuring alignment with EU-level regulatory and policy developments.
- Selecting and supervising the Technical Operator through formal agreements.

9.2 Independent Stewardship, Founding Members, and Bootstrap Phase

The MTÜ was established by founding members to initiate and steward the e-QR standard. The e-QR initiative, concept design, and early development work - including the initial Registry prototype and reference applications - are led by the initiating founding member together with its development team.

During an initial bootstrap phase, the initiating founding member provides continuity and technical leadership, while the MTÜ operates in the public interest with open membership. Independence is ensured through a clear separation of governance (MTÜ) from operations (Technical Operators), open participation for banks, PSPs, vendors, and merchants, and explicit safeguards against anti-competitive behaviour.

The bootstrap phase is explicitly time- and milestone-bounded. It concludes when:

- the e-QR Technical Standard v1.0 has been formally adopted by the MTÜ; and
- at least two licensed PSPs or banks are live in production with e-QR in one or more reference implementation environments; or, in any event, no later than 24 months after the first e-QR production go-live, whichever occurs first.

Following the bootstrap phase, governance evolves to a more balanced model as described in Sections 9.6–9.8, with expanded voting rights and representation for additional stakeholder categories.

9.3 Transparency

Transparency is essential for the legitimacy of a payment standard. The MTÜ ensures transparency through:

- Publicly available documentation.
- Clear and accessible version history.
- Open publication of governance decisions.
- Documented rule changes and rationale.
- Defined communication channels for clarifications and proposals.
- Open participation pathways for industry stakeholders.

9.4 Versioning

The MTÜ maintains a formal, structured versioning process for the e-QR standard. This includes:

- Periodic release cycles (e.g. annual or biannual updates).
- Maintenance releases for clarifications or minor amendments.
- Major version updates for structural or functional changes.
- Deprecation timelines for outdated features.
- Backward-compatibility guidelines.
- Clear migration paths for implementers.

Each version of the standard is released with:

- Complete technical documentation.
- Change logs.
- Updated compliance test suites.
- Certification requirements corresponding to the new version.

9.5 Industry Consultation

To maintain relevance, interoperability, and market acceptance, the MTÜ conducts structured industry consultation processes. These include:

- Working groups for banks, PSPs, and certified vendors.
- Consultation rounds prior to major version updates.
- Technical working sessions for addressing implementation issues.
- Expert advisory panels for security, regulatory, and architectural matters.
- Public comment periods for draft releases of the standard.
- Collaborative sessions with regulators and relevant associations.

Industry consultation ensures that e-QR remains responsive to market needs, operational realities, technological progress, regulatory changes, and merchant and consumer expectations.

9.6 Stakeholder Representation

To ensure balanced governance, the MTÜ's statutes define stakeholder classes and representation principles, for example:

- Banks and credit institutions.
- Non-bank PSPs and fintechs.;
- POS vendors and technology providers.
- Merchant associations (including SME representation).
- Observers from relevant public bodies and regulators.

Voting rules and conflict-of-interest safeguards are designed to prevent capture and ensure neutrality. At a minimum, these include: disclosure of material interests by decision makers; documented recusals where a participant has a direct financial interest; constraints on related-party arrangements; and transparency obligations for reserved matters affecting interoperability, certification, or Operator roles.

9.7 Economic Sustainability and Technical Operator Model

Long-term viability requires a funding model that is sufficient, predictable, and fair, without creating unnecessary barriers to participation. At the same time, the Technical Operator role must be contestable and subject to transparent oversight.

Funding Principles

- Cost-recovery and prudent reserves at the MTÜ level, not profit maximisation.
- Transparent and non-discriminatory fee structures.
- No scheme-level or Operator-level charges to merchants.
- Alignment with EU competition law.

Funding Components

The MTÜ covers its operational costs through two primary revenue streams:

- Membership fees from participating PSPs, banks, POS vendors, and other institutional participants.
- Certification fees for PSPs, POS vendors, and other participants seeking compliance with the e-QR standard.

These two streams ensure the MTÜ remains financially self-sustaining without reliance on any single member or external grant. No direct fees are charged to merchants by the MTÜ or the Technical Operator for e-QR participation or usage. The fee model and rulebook will be subject to independent competition-law review before adoption.

Operator Revenue Model

The Technical Operator's costs are recovered through a hybrid fee model charged to participating banks and PSPs (never to merchants). This model combines:

- **A fixed monthly access fee** covering API access, SLA guarantees, production support, and ongoing platform maintenance.

- **A per-lookup fee** charged each time a bank or PSP application resolves a merchant's IBAN through the Registry API. This fee is designed to be very small (indicatively in the range of €0.01–0.02 per lookup), making it negligible at the individual transaction level while providing sustainable and scalable revenue as adoption grows. The MTÜ sets a ceiling for the per-lookup fee (indicatively a maximum of €0.05) to prevent excessive pricing and ensure the system remains cost-competitive.

This hybrid structure aligns the Operator's revenue with actual usage while providing baseline stability through fixed fees. Importantly, the Operator's entire cost base is borne by institutional participants (banks and PSPs), not by merchants or consumers. The MTÜ retains oversight of fee levels to ensure alignment with cost-recovery principles and competition law.

Operator Selection and Oversight

One or more Technical Operators may be designated to operate components of the e-QR shared infrastructure (for example: Merchant Registry services, Operator Directory publication, and scheme-level tooling) under formal agreements with the MTÜ.

During the bootstrap phase, the MTÜ may appoint an initial Technical Operator to ensure continuity of development, PoC delivery, and early production readiness. The initial appointment is explicitly limited to the bootstrap phase as defined in Section 9.2 and requires formal re-confirmation (or replacement) when the bootstrap phase ends.

All Technical Operator appointments are non-exclusive by design: additional accredited operators may be introduced in parallel where this improves resilience, capacity, or adoption. In practice, if the incumbent Operator is performing well and meeting its SLA and cost-recovery obligations, there is no structural reason to replace it. However, as the market matures (indicatively after one to two years of production operation), additional operators may join if market demand warrants it, for instance to serve additional geographies or to provide competitive alternatives. Operators are replaceable by design, but a well-functioning operator relationship provides continuity and stability that benefits the entire ecosystem.

Technical Operators must comply with the e-QR rulebook, technical specification, security requirements, and service-level obligations defined by the MTÜ. Operator agreements include defined exit and handover provisions (including data portability, key rotation, and continuity plans) to prevent ecosystem lock-in and ensure operational continuity for integrators.

Replacement or suspension of an Operator during its term is possible only in clearly defined circumstances (for example: material breach of security requirements or SLAs, insolvency, or regulatory prohibition) and requires explicit approval by the MTÜ's board.

After the bootstrap phase, the MTÜ may run a transparent competitive process for one or more Operator roles, or re-appoint existing operators, based on objective criteria (security posture, operational performance, cost recovery, neutrality), while ensuring continuity for integrators and participants.

Initial Development and Pilot Phase

The development of the first complete e-QR production system — including the Merchant Registry, Merchant Dashboard, sandbox environment, and reference integrations — is funded by the initiating founding member together with its development partner. This private investment ensures that the initial infrastructure is built without imposing upfront costs on banks, PSPs, or the MTÜ itself.

During the pilot phase, participating banks and PSPs can integrate with the e-QR platform at no cost, allowing them to validate the technical integration, test the Registry API, and assess the end-to-end payment flow in a production-like environment without financial commitment. This lowers the barrier to early adoption and enables banks to evaluate the system on its merits before entering into commercial arrangements.

Formal commercial contracts between the Technical Operator and participating banks/PSPs are concluded for mass production deployment. The initial objective is to recover the founding development investment through the hybrid fee model described above; subsequent revenue sustains ongoing operations, platform evolution, and ecosystem growth. Until revenue is generated, the e-QR Operator function operates as an investment-stage venture, not a going business.

9.8 Bootstrap Governance and Evolution

During the bootstrap phase - until the criteria in Section 9.2 are met - governance is founder-led:

- The MTÜ's board, chaired by the initiating founding member, provides continuity and overall technical direction, with development and expert contributions delivered by the founding member's team and external subject-matter specialists.
- External stakeholders (banks, PSPs, vendors, merchant representatives) participate through advisory and working groups, providing input and feedback without assuming decision-making authority.
- Final decisions on the core technical architecture and specification are taken by the MTÜ's board after considering expert input and stakeholder feedback, ensuring stability during early development while incorporating broad consultation.

Conflict-of-interest and related-party safeguards apply during the bootstrap phase. Board members and key contributors must disclose material interests. Decisions relating to Operator appointment, remuneration, or material changes to Operator agreements are treated as reserved matters and must be documented with written rationale. Where an arrangement involves a founding member or a related party, it must be supported by an independent external review (legal and/or compliance) and approved by all disinterested board members. The MTÜ will publish a non-confidential summary of Operator obligations (scope, SLA targets, security requirements, and termination triggers) to support transparency for implementers.

Once e-QR reaches production maturity (Standard v1.0, live banks, established Registry operations) and the bootstrap phase ends, governance evolves to a more balanced model with expanded voting rights for additional stakeholder categories, such as:

- Banks and credit institutions.
- Non-bank PSPs and fintechs.
- POS vendors and technology providers.
- Merchant associations, including SME representation.
- Non-voting observers from relevant public bodies and regulators.

Voting rules and conflict-of-interest safeguards are defined in the MTÜ statutes to prevent any single participant or stakeholder group from dominating decisions and to ensure that changes continue to support the broader ecosystem and public interest.

9.9 Summary

The governance framework is designed to ensure that e-QR is a durable, transparent, and trusted pan-European payment initiation specification, while protecting the initiative from early capture or fragmentation. The MTÜ provides the institutional structure required for representation, predictable development, and independent oversight. Through a clear separation of governance and operations, structured versioning processes, open industry consultation, a merchant-free fee model, and founder-led bootstrap safeguards, the MTÜ ensures that e-QR remains aligned with European payments strategy and EU regulatory and competition requirements, while supporting implementation across multiple SEPA markets.

9.10 Intellectual Property and Patent Policy (non-normative)

e-QR is intended to be implementable on a royalty-free basis. The MTÜ will maintain and publish an intellectual property policy designed to prevent patent or copyright barriers to implementation and to protect long-term interoperability.

The policy objective is that implementing the e-QR specification and associated conformance artefacts should not require payment of royalties to the MTÜ. Contributors to the specification, schemas, and reference artefacts are required to grant the MTÜ the rights needed to publish, maintain, and version the work, and to disclose any known patents that may be essential to implementation. Where essential patent claims exist, contributors are expected to provide a royalty-free license or a non-assert covenant for compliant implementations.

The MTÜ manages trademarks and certification marks (e.g. “e-QR Payment Standard”) to prevent misleading use and to support clear signalling of conformance.

10. Implementation Roadmap

The implementation of e-QR follows a phased strategy designed to ensure technical soundness, stakeholder alignment, regulatory compliance, and progressive ecosystem adoption. Each phase builds on the previous one, enabling a controlled transition from conceptual design to reference implementations and pilots, and ultimately to broader interoperability across SEPA markets.

10.1 Phase 1 - Whitepaper Publication

The publication of this whitepaper serves as the formal starting point of the e-QR initiative. It defines the purpose, scope, architecture, governance model, and expected ecosystem impact.

Objectives:

- Present a clear problem statement and the rationale for e-QR.
- Establish a unified conceptual framework for e-QR (payload-initiated) SEPA Instant payments (QR carrier profile in v1.0);
- publish the proposed governance structure under the MTÜ;
- initiate discussion and seek feedback directly from banks, PSPs, POS vendors, merchants, regulators, and industry partners;
- invite stakeholders to contribute to the drafting of the technical standard.

Phase 1 concludes when the whitepaper is publicly available and acknowledged as the reference document for the next phase.

10.2 Phase 2 - e-QR Standard v0.1 Draft

Phase 2 focuses on developing the first public draft of the e-QR Technical Standard (v0.1). This draft defines the foundational technical elements necessary for implementation.

Key deliverables include:

- Payload schema + QR carrier profile encoding specification (profiled from EPC/MSCT QR guidelines).
- Merchant Registry data model and access rules.
- High-level API definitions for Registry lookup.
- Error codes and interoperability requirements.
- Merchant identification formats.
- Basic compliance and certification criteria.
- Preliminary guidelines for static and dynamic QR usage and risk controls.

During this phase, the MTÜ conducts initial industry consultation, gathers feedback, and prepares the specification for Proof-of-Concept implementation. Phase 2 concludes with the publication of e-QR Standard v0.1 as a working draft.

10.3 Phase 3 - Proof-of-Concept (PoC) Development

Phase 3 demonstrates the technical feasibility and basic usability of the e-QR concept. The PoC is not intended for production use but for validating:

- QR encoding and decoding.
- Registry lookup flows.
- Basic merchant onboarding.
- Interaction patterns with banking applications (e.g. deep linking or request-to-pay triggers).
- Dynamic QR generation from sample merchant interfaces.

- Consumer user flow consistency.

PoC components typically include:

- A PoC Merchant Registry.
- A PoC merchant dashboard or QR generator.
- A PoC consumer-facing reference application.
- A sandbox environment for testing.

During the PoC phase, a reference e-QR application is provided to demonstrate user flows and enable payment initiation via existing channels (e.g. bank links or licensed PIS interfaces) prior to native e-QR integration by banks and PSPs. After native integrations are deployed, the reference app becomes optional and functions solely as a supplementary demonstration tool.

Findings from this phase are used to refine the technical design and inform updates for the v0.2 and v1.0 specification.

10.4 Phase 4 - Pilot Deployment

Phase 4 introduces live, limited-scope testing with selected pilot participants. The goal is to validate real-world performance, operational processes, and user experience.

Pilot activities typically include:

- Onboarding a controlled set of merchants.
- Enabling QR acceptance in pilot environments (static and dynamic).
- Integrating participating banks or PSPs on a test or limited-production basis.
- Validating Registry performance under real conditions.
- Testing reconciliation flows and settlement reliability.
- Collecting structured feedback from merchants, consumers, and technical teams.

The pilot phase is critical for identifying technical, operational, and regulatory adjustments required. A revised version of the technical standard (v1.0) is prepared based on pilot results.

10.5 Phase 5 - Initial Production Deployment

Phase 5 formalises e-QR as a production-ready payment initiation standard for SEPA Instant Credit Transfers. This phase involves full production deployment of the required components in one or more reference implementation environments, based on outcomes from the pilot phase.

Key elements include:

- Publication of e-QR Standard v1.0.
- One or more production-ready Merchant Registry instances operated under defined SLAs.

- A certification programme for banks, PSPs, and POS vendors.
- Merchant onboarding through participating PSPs.
- Consumer access through mobile banking and PSP applications.
- Operational monitoring, incident response, and ongoing version maintenance.

Initial production deployments establish e-QR as a consistent, interoperable payment initiation method in live environments and provide operational evidence to support broader adoption.

10.6 Phase 6 - EU Alignment and Future Evolution

This phase focuses on long-term evolution and alignment with European payment initiatives. European alignment does not imply centralised operation, mandatory adoption, or exclusive governance by any single market or operator.

Future-oriented activities may include:

- Engagement with EU policy bodies and standardisation working groups (e.g. EPC MSCT, ERPB).
- Ongoing alignment with SCT Inst scheme evolution and the Instant Payments Regulation.
- Expansion to additional SEPA markets through further reference implementations.
- Cross-border interoperability scenarios.
- Enhancements based on new use cases, security developments, or operational feedback.
- Digital euro integration: extending the e-QR payload model and Merchant Registry to support the digital euro as an additional settlement rail alongside SCT Inst, once the regulatory framework is finalised and the digital euro becomes operational.
- Coordination with ECB digital euro service platform providers and Wero to ensure e-QR merchant acceptance infrastructure is technically compatible with digital euro wallets and offline payment modes.
- Continuous stakeholder consultation for future versions (e.g. v1.1, v2.0).

The MTÜ remains responsible for governance and stewardship, ensuring that e-QR evolves in line with European payments strategy and remains interoperable, secure, and future-proof.

11. Call for Collaboration

The development and adoption of e-QR as a unified payment initiation standard for SEPA Instant Credit Transfers requires coordinated effort across the payments ecosystem. This whitepaper establishes a shared technical and governance framework, but its impact depends on active participation from stakeholders who operate, innovate, and regulate payment systems across SEPA markets.

The MTÜ invites all relevant parties to contribute to the refinement, implementation, and future evolution of the e-QR standard:

- **Banks**: to enable consumer access, integrate Merchant Registry lookups, test interoperability, and provide feedback on operational, risk, and compliance considerations.
- **Payment Service Providers (PSPs)**: to support merchant acceptance, onboarding, reconciliation, and value-added services, and to ensure that the standard reflects practical merchant needs.
- **POS vendors**: to implement dynamic QR solutions efficiently across retail environments, ensuring merchants benefit from consistent and reliable checkout experiences.
- **Merchants**: to provide operational insights, highlight practical requirements, and validate usability so that e-QR delivers tangible cost benefits and process improvements.
- **Regulators and public authorities**: to ensure alignment with national and European payment strategies, consumer protection, and competition policy, and to support broader digitalisation and instant-payment initiatives.
- **Technology companies and fintech innovators**: to build new tools, applications, and services on top of the e-QR technical framework, expanding the ecosystem and driving innovation.

Collaboration across sectors is essential for establishing e-QR as a resilient, interoperable, and future-ready component of payment acceptance infrastructure across SEPA markets, and for unlocking its potential as a reusable model for broader European adoption.

12. Scope and Limitations

To manage expectations and ensure clarity, the following scope and non-goals are explicitly recognised for e-QR v1.0:

In scope (v1.0):

- e-QR payload initiation of SEPA Instant and, where necessary, standard SCT transfers (QR carrier profile).
- Merchant-presented static and dynamic interaction models (QR carrier profile).
- Optional customer-presented token flows (QR carrier profile).

Out of scope for v1.0

- Card-rail QR acceptance (e.g. EMVCo card-based QR).
- Introduction of new consumer dispute rights or chargeback mechanisms beyond those already applicable to SCT Inst.
- Credit or instalment products.
- P2P-only QR schemes and closed-loop wallets.
- Changes to PSP obligations under PSD2, AML, or the Instant Payments Regulation.
- Additional carrier profiles (e.g. NFC) - supported by design but not specified in v1.0.

e-QR does not replace or diminish existing consumer rights under PSD2, the Instant Payments Regulation, or national consumer-protection law. Instead, it provides a technical and governance payload-initiated (QR carrier profile in v1.0) SCT Inst payments within which these rights continue to apply. The rulebook and implementation guidelines will include best-practice recommendations for merchant refund processes, standardised use of payment references to support refunds, and clear communication of merchant refund policies to consumers.

Limitations and dependencies

- e-QR cannot guarantee overall merchant pricing; cost outcomes depend on PSPs' broader commercial policies and competitive dynamics. The framework prohibits scheme-level charges to merchants by the MTÜ or certified Technical Operators, but does not set, recommend, or coordinate merchant pricing. The intention is to remove technical fragmentation and avoid scheme-level merchant fees while preserving competition.
- e-QR cannot eliminate all fraud risk; it provides structural mitigations while leaving behavioural and transaction monitoring to PSPs.
- The long-term success of e-QR depends on sufficient adoption by banks, PSPs, and merchants; the MTÜ cannot enforce adoption and must work through incentives, collaboration, and alignment.

By explicitly stating these boundaries, the initiative ensures focus and transparency while leaving room for future extensions once the core standard is stable.

Risks and Mitigations

- **Adoption risk:** banks, PSPs, or merchants may not prioritise e-QR due to competing projects or limited resources.
  – *Mitigation:* low integration complexity, clear economic benefits, phased pilots, and early anchor participants.
- **Regulatory and competition risk:** concerns about pricing, fair access, or governance could delay approvals.
  – *Mitigation:* independent competition-law review, open access for licensed PSPs, transparent governance evolution, and observer roles for public authorities.
- **Operational and security risk:** Registry outages, incorrect data, or QR tampering may impact trust.
  – *Mitigation:* strong SLAs, redundancy, strict onboarding and update processes, Registry-based validation, and PSP-side risk controls.
- **European alignment risk:** future EU-level QR standards may differ from the e-QR profile.
  – *Mitigation:* e-QR is built as a profile of existing EPC/MSCT guidelines and explicitly commits to alignment with any future EU-level QR standards, minimising re-work.