



HONG KONG MONETARY AUTHORITY
香港金融管理局



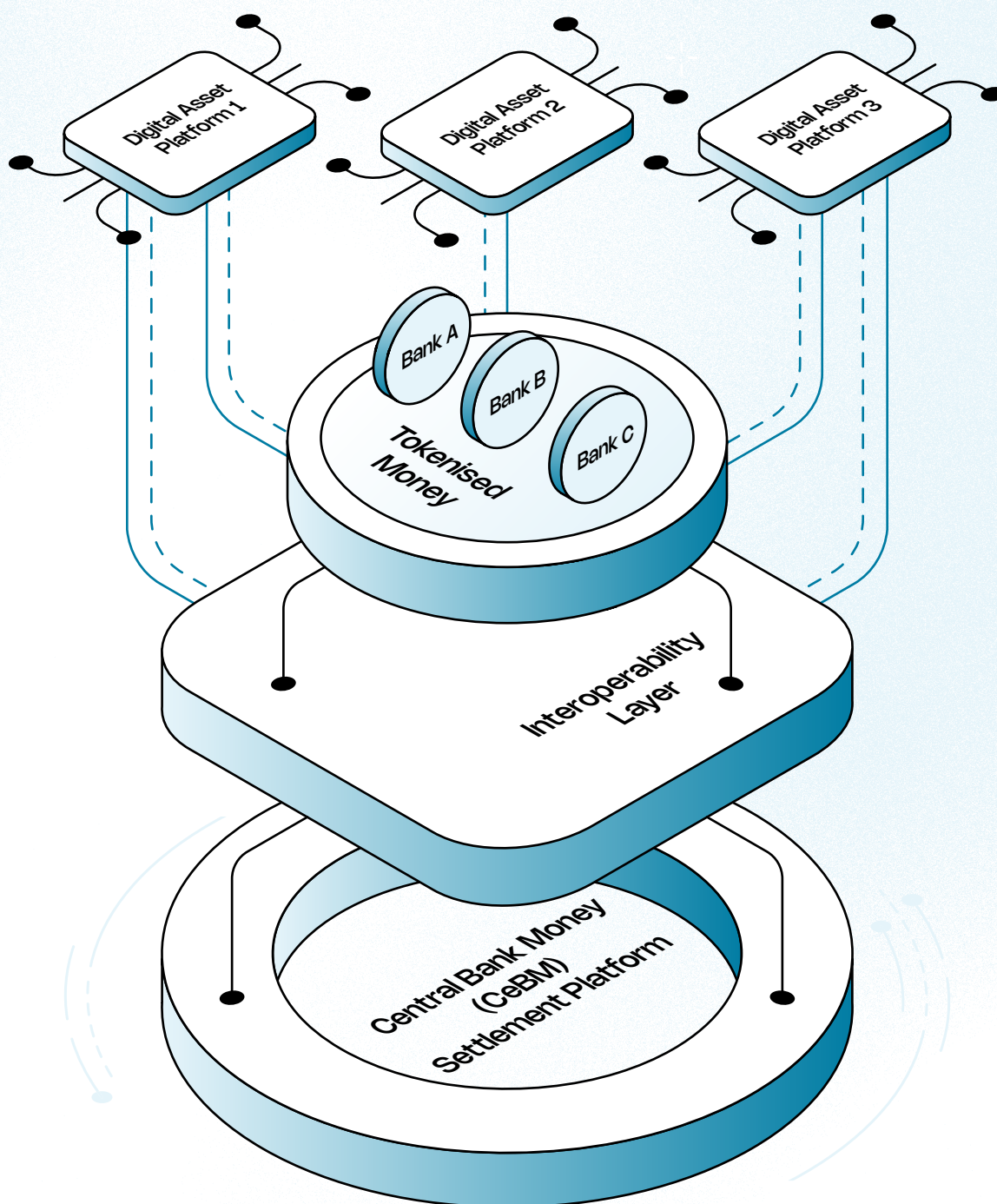
Project Ensemble Interoperability Standard

Unifying the Tokenisation Ecosystem

Project Ensemble Interoperability Standard

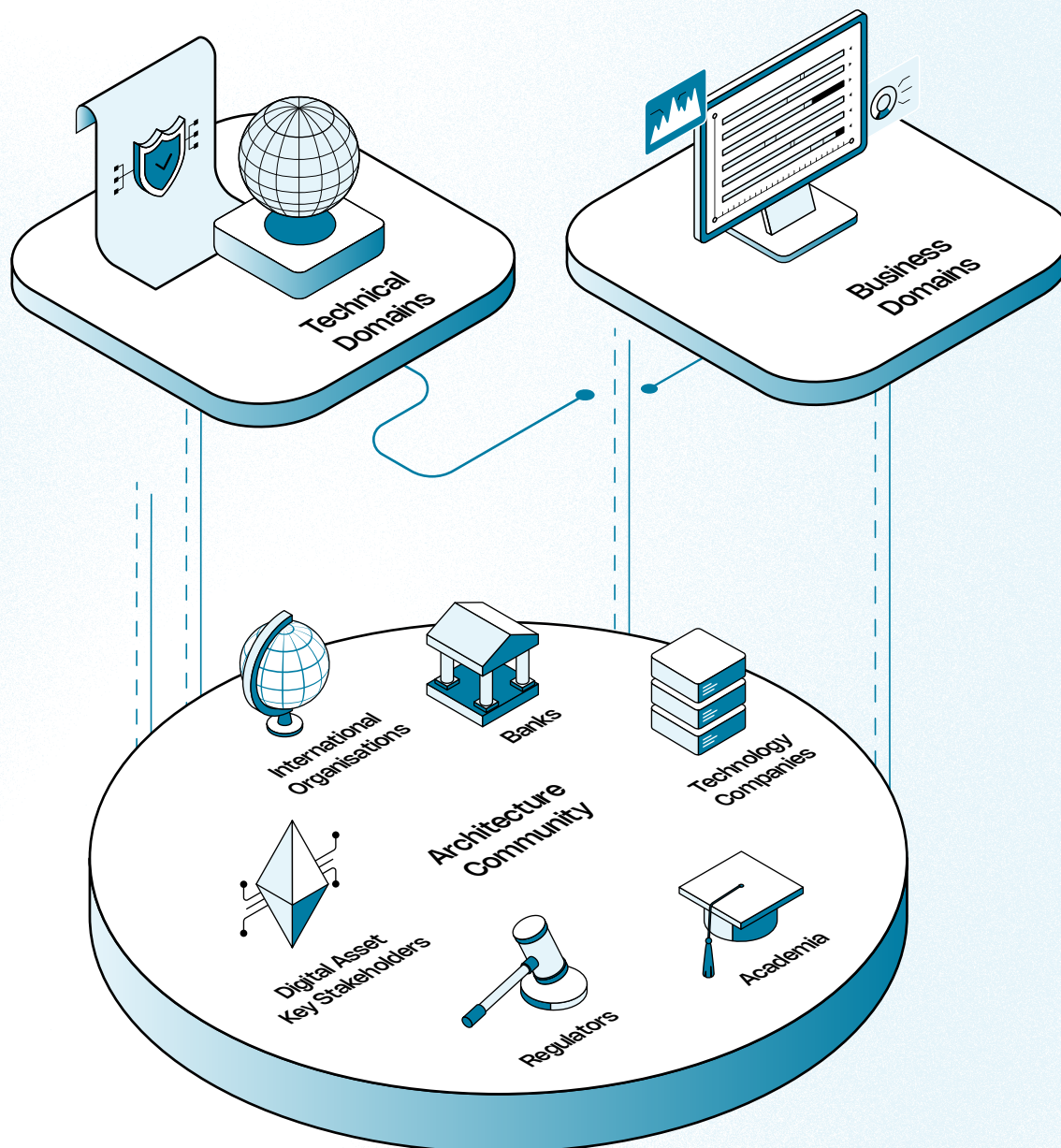
Tokenisation enables assets to be represented and transacted in tokenised form, with the potential to enhance efficiency, transparency, and programmability across financial markets. Its wider adoption, however, gives rise to new settlement requirements and heightens the need for arrangements that preserve monetary and financial stability. While private forms of tokenised money may support innovation, they also entail credit and settlement risks that are not present in central bank money, which remains the settlement asset of choice for wholesale financial transactions.

In this context, the Hong Kong Monetary Authority's (HKMA) Project Ensemble seeks to establish an interoperability standard that links tokenised assets, tokenised money, and central bank money within a coherent settlement framework. The standard is intended to provide a common technical foundation for interoperability across platforms and settlement arrangements, thereby reducing fragmentation and supporting more efficient digital settlement infrastructure.



A Collaborative Ecosystem for Tokenised Finance

The Project Ensemble Architecture Community, established by the HKMA, unites regulators, financial institutions, academia, and leading technology firms to build a shared digital financial infrastructure for Hong Kong's tokenised asset market. A fully operational Interoperability Standard is now live, built on open standards, modular design, and a hybrid architecture. This standard ensures scalability, strong privacy protection, and compatibility across diverse environments.



The Architecture Community has developed and advanced industry standards across six Technical Domains and eight Business Domains.

Technical Domains

- Base Chain
- Cross-Chain
- Interoperability
- Privacy
- Key Management
- Modern Architecture

Business Domains

- | | |
|---------------------|------------------------|
| • Wholesale CBDC | • Cross-border Payment |
| • Tokenised Deposit | • Foreign Exchange |
| • Tokenised Assets | • Custodian |
| • Domestic Payment | • Exchange Platform |

Design Principles

The interoperability standard is guided by a set of core design principles that support safe, scalable, and practical adoption across diverse platforms. These principles ensure the standard delivers reliable cross-platform settlement outcomes while remaining flexible enough to accommodate different technologies, market arrangements, and future developments.

1.

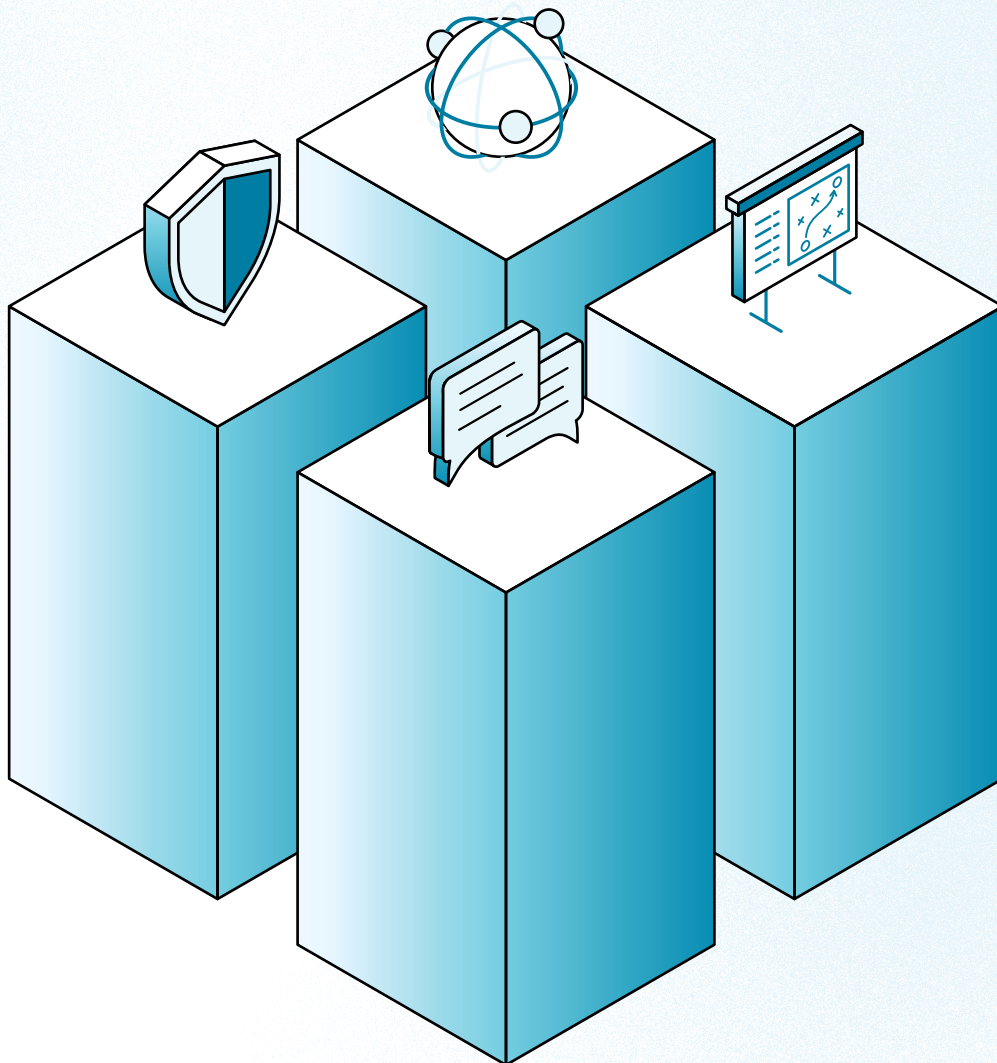
Safety by Design:

The standard is designed to protect settlement integrity, support clear finality, and manage exceptions in a controlled way.

2.

Technology Neutrality:

The standard sets common requirements for interoperability without prescribing the underlying technology used by participating platforms.



3.

Interoperability by Default:

The standard promotes a consistent approach to messaging, processing, and controls so that different platforms can work together effectively.

4.

Modularity:

The standard is structured so that its components can be adopted, implemented, and updated with flexibility, without disruption.

Structure of the Interoperability Standard

The interoperability standard is built on three core technical frameworks — covering messaging, settlement processing, and security — supported by a governance framework that ensures the standard remains consistent, controlled, and fit for purpose as it evolves.

Message and Event Framework

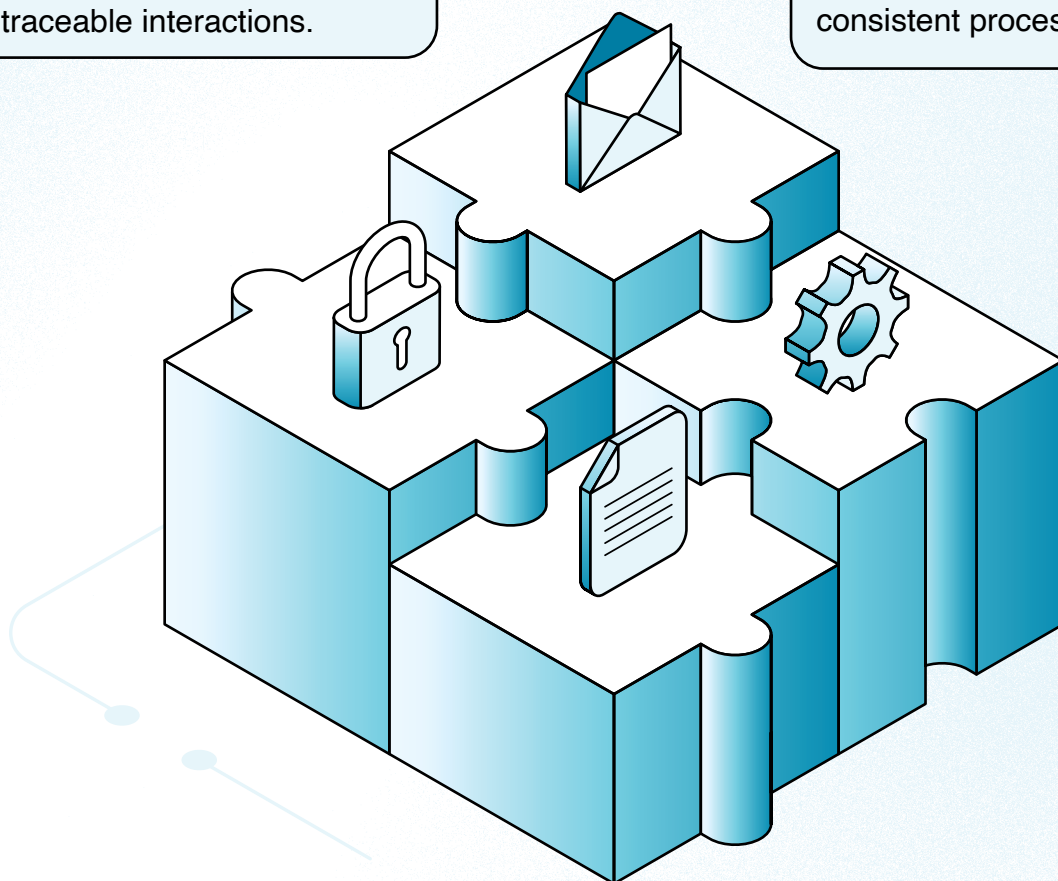
Defines a common language for instructions, updates, and finality events so that all platforms interpret key settlement messages consistently.

Security and Identity Framework

Defines the baseline requirements for identity and authentication, providing a trusted foundation for authorised and traceable interactions.

Settlement Processing Framework

Defines a shared transaction lifecycle, including states, transitions, and reason codes, to support predictable and consistent processing outcomes.



Governance Framework

Defines how the standard is managed, versioned, and updated, ensuring disciplined change and long-term interoperability across the ecosystem.

An Orderly Pathway to Next-Generation Settlement

To build an ecosystem fostering innovation, while maintaining robust, end-to-end settlement outcomes, the HKMA adopts a phased approach to the development of tokenised settlement arrangements. This ensures that safety, feasibility, and orderly market progression are maintained, while delivering tangible benefits at each stage.

1.

Settlement Anchored on HKD RTGS

HKD RTGS anchors interbank settlement to ensure finality. The standard synchronises tokenised workflows with RTGS for consistent messaging and integrity.

3.

Potential Future Models

Next-generation financial infrastructure may develop through different arrangements. Single-ledger delivery-versus-payment/payment-versus-payment is one possible longer-term model. Common standards can support consistency, interoperability, and future flexibility as technology and market practices evolve.

2.

24/7 Settlement via Tokenised Central Bank Money

This enables 24/7 multi-currency settlement. Common interfaces allow diverse ecosystems to operate consistently in a round-the-clock environment.

