EUROPEAN CENTRAL BANK

EUROSYSTEM

Tokenisation and the future of finance: the role of central bank money

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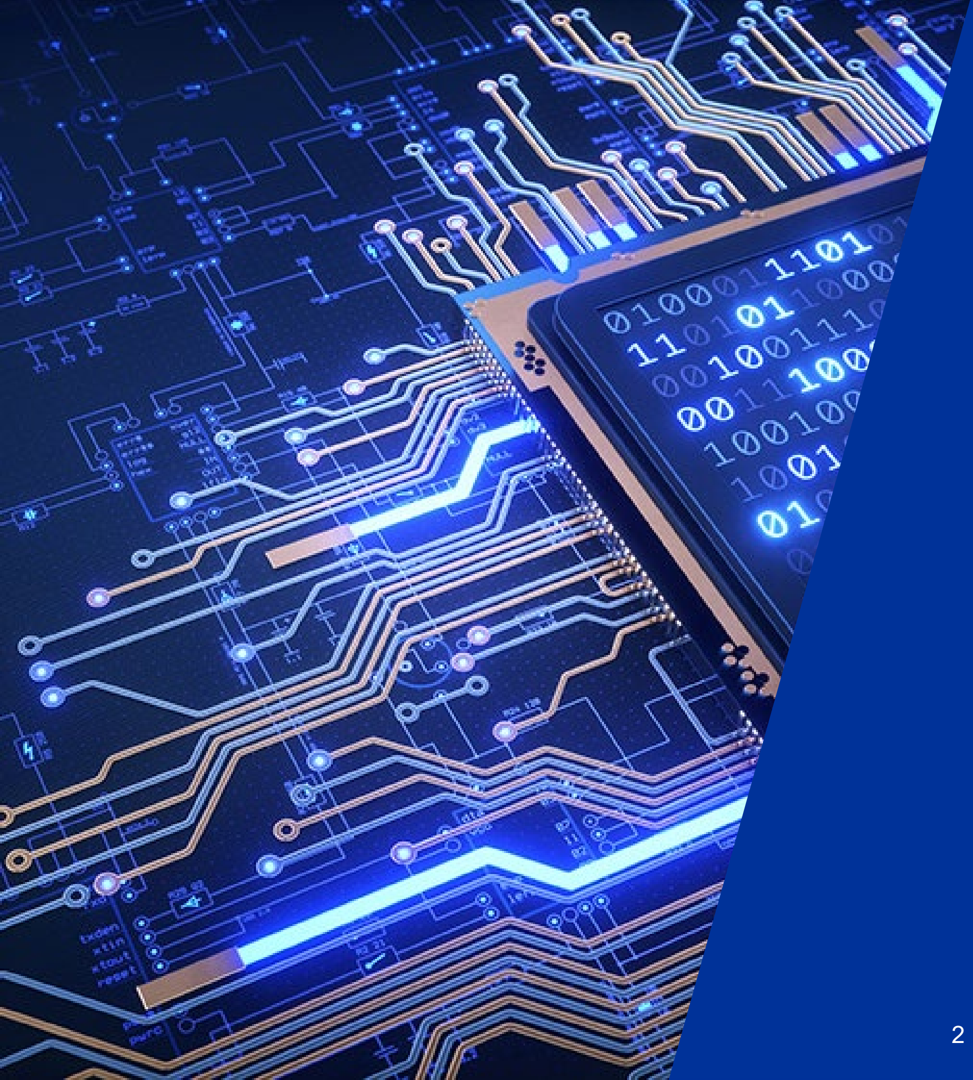


1.

The digital asset landscape

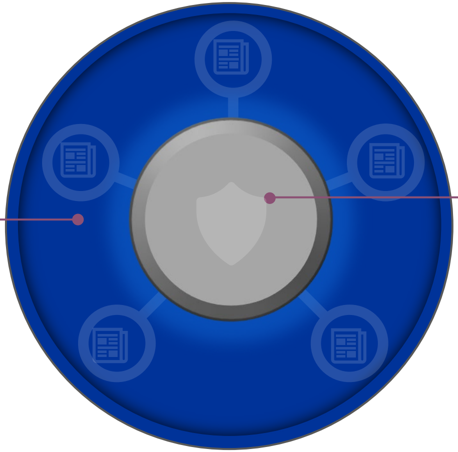
What are DLT and tokenisation?

Distributed ledger technology (DLT) is used to manage and maintain a decentralised database, or "distributed ledger", allowing information to be shared and kept synchronised across a network.

Asset information

What the asset is, who issued it, who owns it, etc.

Token



Rules

What can and cannot be done with the asset (e.g. be used in smart contracts)

Tokenisation is the process of **converting** or **issuing** assets as **programmable tokens** that carry their **ownership record** and **rules**, using DLT.

Source: Aldasoro, I. et al. (2023), "The tokenisation continuum", *BIS Bulletin*, No 72, Bank for International Settlements.

Expected benefits

ENHANCED EFFICIENCY

- **Trading**, **settlement** and **custody** on the **same platform**
- **24/7/365** operating hours
- Use of **smart contracts** to **automate** and **speed up** processes between issuers and investors

LOWER BARRIERS TO ENTRY

A shared DLT platform could **enable small and medium-sized enterprises to access capital markets**

Digital asset types

Settlement assets

Assets or claims on assets that a beneficiary accepts for the final settlement of an obligation

- **Public settlement assets**
  - Central bank money for retail digital transactions
  - Central bank money for wholesale digital transactions
- **Private settlement assets**
  - Tokenised deposits
  - Stablecoins

Trading or investment assets

A security or financial instrument held for investment, income generation, hedging or speculation

- **Tokenised traditional assets**
  - Tokenised financial assets (bonds, equities, etc.)
  - Tokenised non-financial assets
- **Unbacked crypto-assets**
  - Bitcoin, Ether, etc.

2.

Opportunities and risks

Developing a European market for digital assets is key

Preserving **European sovereignty**

Fostering **innovation**

Advancing the **savings and investments union**

This requires:

EU infrastructure

Euro-denominated settlement assets

EU-wide regulation

Why should a central bank care?

- Preserving the anchor role of central bank money
- Implications for financial intermediation and stability
- Regulation and banking supervision
- Monetary policy implementation
- Monetary policy transmission
- Payments and market infrastructures
- International role of the euro
- Financial stability

Tokenised deposits in their current form imply trade-offs

Tokenised deposits: digital representation of commercial bank money, mirroring traditional deposits on DLT

Two types:

- (transferable) **bearer tokenised deposits:** market price may deviate from par
- (non-transferable) **non-bearer tokenised deposits:** no transfer to holders outside of issuing bank, no market price – therefore, no deviation from par

Non-bearer tokenised deposits **are safer** as they maintain the singleness of money

Moving non-bearer funds across banks **requires a settlement platform**

➡ **Coordination issue**

Stablecoins are only one application of tokenisation, with inherent limitations and risks

Fragmentation of liquidity

Risk to bank intermediation

Limited elasticity

Currency

Euro-denominated stablecoins could add another layer of EU resilience (DLT payment rails)

Stablecoins denominated in foreign currencies could undermine strategic autonomy, monetary sovereignty and the international role of the euro

Jurisdiction

EU-issued stablecoins could reduce risks of dependence on stablecoins issued abroad

Third-country issuance exposes euro area to risk of regulatory arbitrage and external shocks

AML/CFT controls vary by usage and are strongest within EU-regulated crypto-asset service providers

Entity

Stablecoins, including when issued by banks, lack the benefit of fractional reserves. Their expansion could lead to retail deposit outflows

Issuance by non-banks may weaken bank intermediation

Risk and opportunities of stablecoins require robust regulation

Stocktake of suggested targeted amendments to the Markets in Crypto-Assets Regulation (MiCA):

EU-wide consistent, proportionate and risk-based supervision

- Centralised supervision of significant crypto-asset service providers alongside revising significance criteria
- Enhanced and standardised data reporting framework for crypto-asset service providers at EU level

Preserving a level playing field

- Third-country multi-issuer schemes not permissible, safeguards as an alternative (see ESRB Recommendation)

Mitigating risks of stablecoins denominated in third-country currency

- Assess suitability of MiCA limits to maintain euro area's monetary sovereignty

3.

The role of tokenised central bank money

The Eurosystem’s policy response: tokenised central bank money

Central bank money as the **risk-free settlement anchor** alongside private settlement assets

Enables digital asset market expansion

- Safety
- Standardisation
- Finality

Elasticity and scalability

- Does not face stablecoins’ constraints (100% reserve backing, asset scarcity) and downsides (liquidity risk, impact on bank intermediation)

Connects siloed private asset networks

- Fungibility
- Liquidity
- Interoperability

- **Strong market demand** for central bank money settlement of DLT-based wholesale transactions – the lack of provision of central bank money is viewed as a major impediment to the growth of the DLT ecosystem
- **Key to building an integrated European market for digital assets from the outset** (see Cipollone (2024), “Towards a digital capital markets union”, speech at the Bundesbank Symposium on the Future of Payments, 7 October)

The Eurosystem conducted exploratory work in 2024

Practical work with **market stakeholders** running from **May to November 2024** focusing on **interoperability solutions**

Implementation of use cases

Experiments: mock settlement of cash and asset legs in test environments

Trials: actual settlement of transactions in central bank money in a limited setting for a limited period of time

Three solutions

[Trigger Solution]() by Deutsche Bundesbank

[TIPS Hash-Link]() by Banca d'Italia

[Full DLT Interoperability]() by Banque de France

The Eurosystem's exploratory work has been a success

Largest initiative of its kind among central banks and **successful public-private** partnership

64 stakeholders (central banks, commercial banks, CSDs, DLT Pilot Regime applicants) from **9 countries**

Unprecedented number of experiments and trials (more than 50) with a wide range of payments and securities **use cases covering the full value chain beyond settlement**

See our comprehensive overview of trials and experiments

More than 200 real transactions settled, with a total value of **€1.6 billion**

The next steps: Pontes and Appia

PONTES

Offering a Eurosystem DLT-based solution, linking DLT platforms and TARGET Services to settle transactions in central bank money **from the third quarter of 2026**

APPIA

Focusing on a longer-term approach for an innovative and integrated payments and securities ecosystem in Europe that also facilitates safe and efficient operations at the global level

- Increase safety and efficiency across the financial ecosystem
- Market integration and further competition
- International role of the euro and connection to the rest of the world

The Eurosystem is committed to supporting innovation without compromising on safety and efficiency in financial market infrastructures

How will it work?

Pontes

- combines the features of the three **interoperability** solutions used during the exploratory work
- operates as a **dual-settlement model**: participants will be able to settle transactions on the Eurosystem DLT platform with cash tokens, or in T2, the Eurosystem's real-time gross settlement system
- enables **delivery versus payment** and supports enhanced automation through end-to-end processing and seamless interaction with T2

Enhancements

Following its launch in the third quarter of 2026, we aim to gradually enhance Pontes with new functionalities.

For instance, the Eurosystem could consider:

- **alignment** with the operational, legal and technical standards of TARGET Services
- **24/7 availability** for operation of Eurosystem DLT and settlement
- **decentralised programmability** to enable the market to deploy automated smart contracts directly on the Eurosystem DLT

Appia: integrating the new ecosystem

Appia will explore the following two approaches, with the potential to combine them:

- a **European shared ledger** that brings together central bank money, commercial bank money and other assets on a single platform on which market stakeholders can provide their services
- a **European network of interoperable platforms** that reduces current frictions in the market

It will also explore the **international dimension**, including cross-border settlement and interactions with infrastructures in other jurisdictions

Conditions for a more integrated ecosystem

Fostering a more integrated ecosystem through Appia requires the following issues to be considered together:

- **Interoperability and standardisation**
- **Compatibility between applications** across the value chain
- **Fostering competition**

Tokenisation and DLT

Exploratory work

Pontes

Appia

Focus session

Thank you