



EUROPEAN CENTRAL BANK

EUROSYSTEM

Introduction to the NTW-CG

Agenda item 1

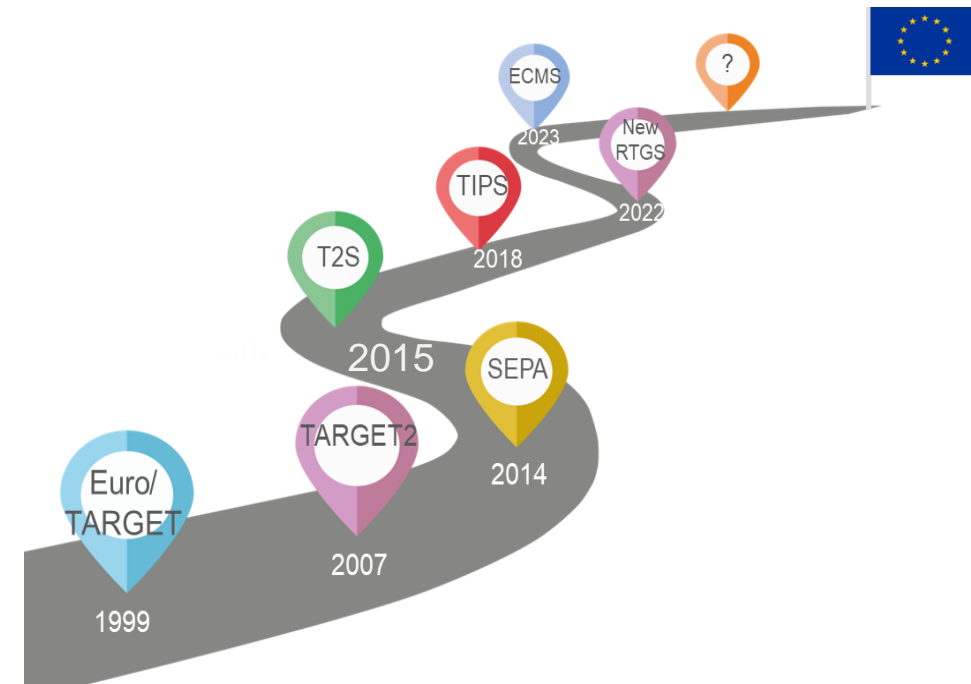
21/06/2023



Central bank money keeping pace with and contribute to digital innovation

Eurosystem continuously **modernises** the existing TARGET Services

- The Eurosystem seeks to ensure that developments in central bank money (CeBM) **keep pace with and contribute to digital innovation** in wholesale and retail payments
- CeBM remains a **monetary anchor** supporting stability, integration and efficiency of European financial and payments system
- CeBM fulfils a **crucial role** in the financial system, as reflected in the PFMI:
 - Reduces risk
 - Establishes trust: safe settlement asset
 - Safeguards financial stability



Recalling the purpose of the NTW-CG: facilitating an active dialogue between the Eurosystem and financial market stakeholders

The contact group provides a forum to its members in the context of new technologies for wholesale settlement

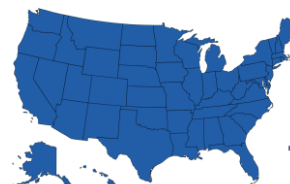
- articulate **needs of the market**
- share information on **DLT market developments and initiatives**
- provide **views on Eurosystem proposals**, and
- act as a **sounding board** for the organisation and direction of Eurosystem exploratory work

The NTW-CG will have **no formal steering or advisory responsibilities** vis-à-vis the Eurosystem exploratory work on new technologies for wholesale CeBM settlement

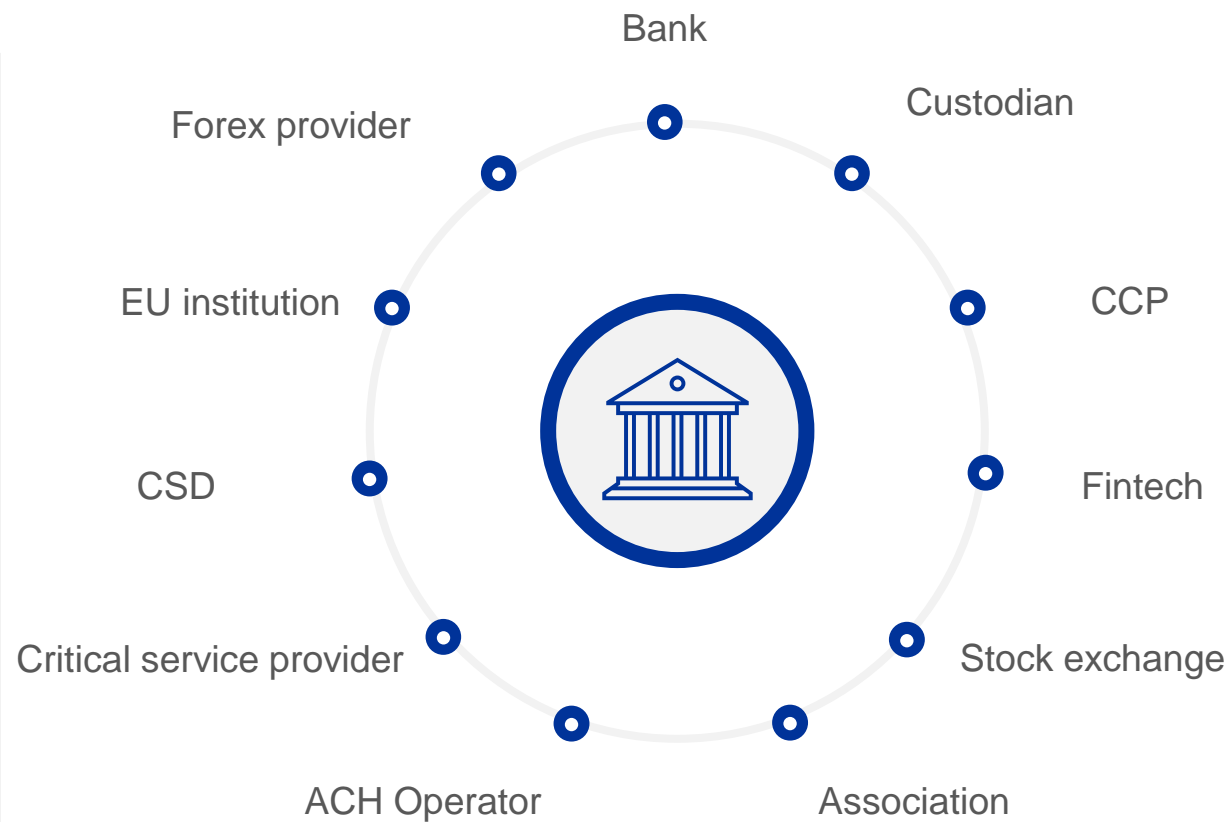
Composition of the NTW-CG



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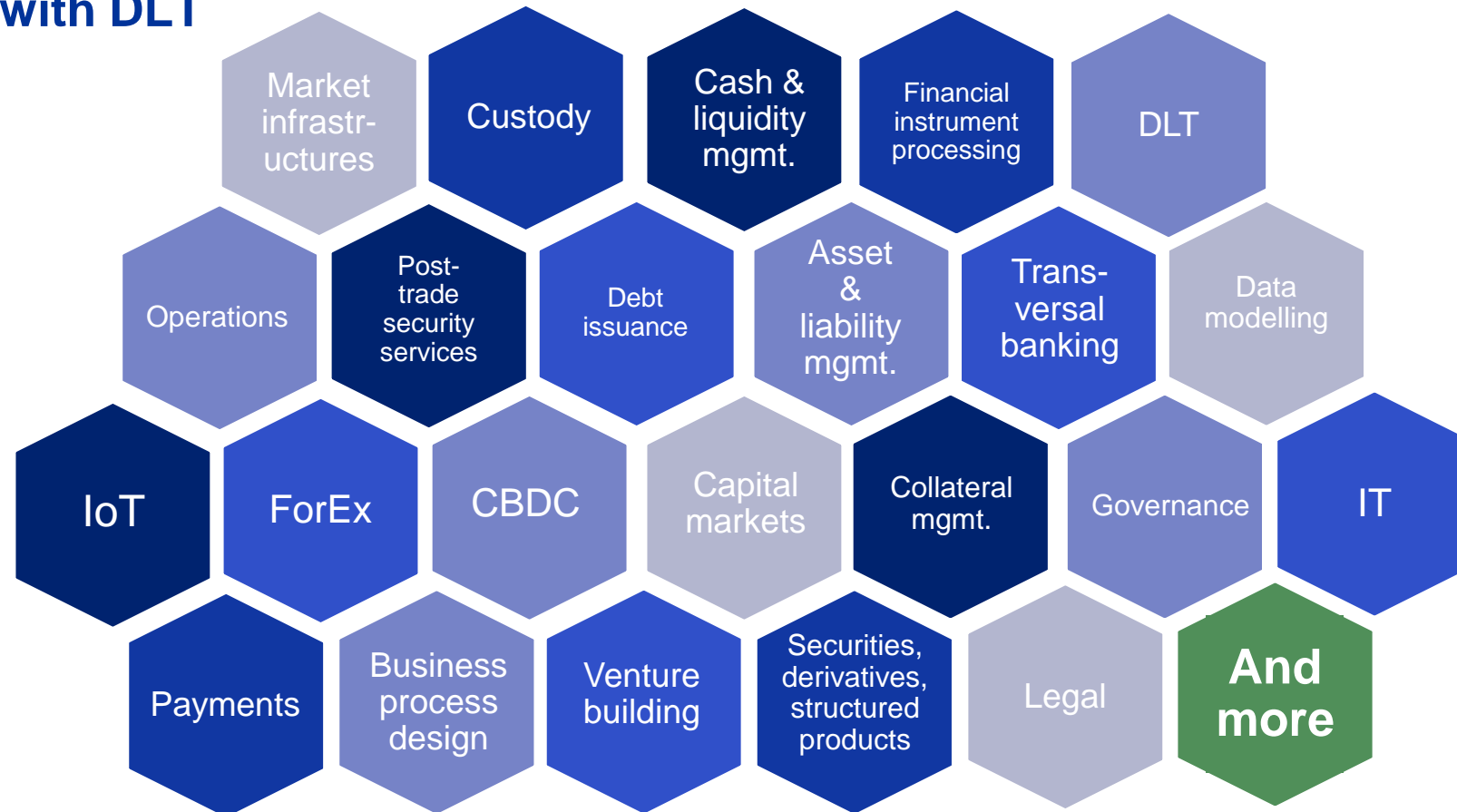


All countries for which we received nominations are represented in the NTW-CG. Countries represented: BE, DE, DK, ES, FR, IT, LU, NL, PL, PT, UK, US + EU institutions/associations



A wide variety of expertise and considerable amount of DLT expertise

International group with a wide variety of expertise, **over 80% of members confirmed to have expertise with DLT**





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Background and scope of Eurosystem exploratory work

Agenda item 2

21/06/2023

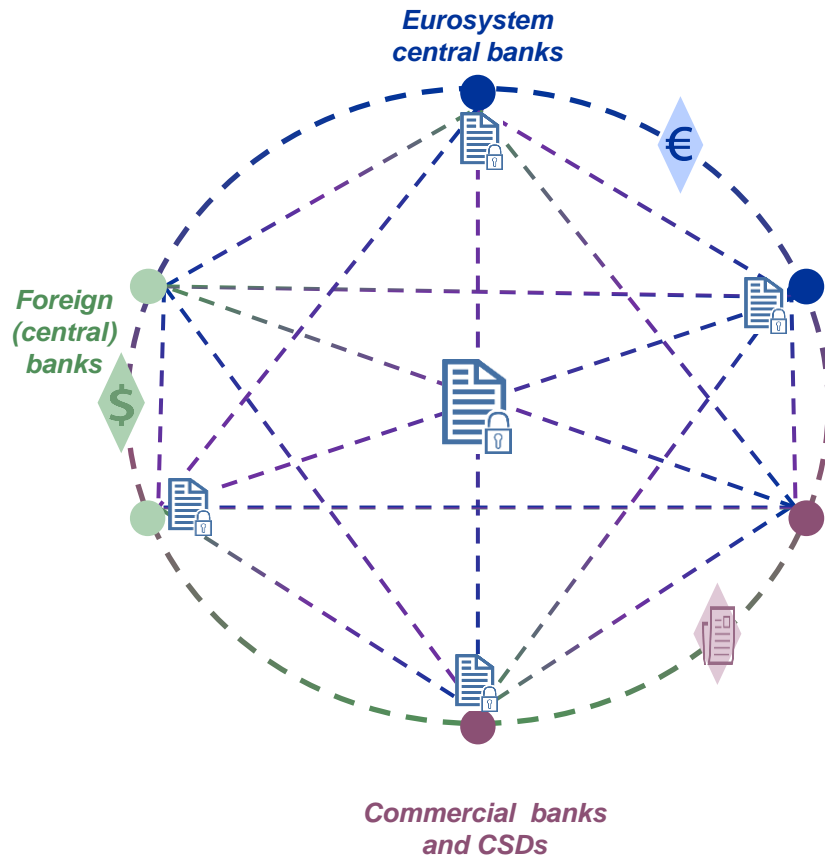


Settlement in CeBM in presence of new technologies

Eurosystem has conducted:

- **market outreach activities:** to better assess the market's needs, demands and development regarding new technologies for settling wholesale financial transactions in CeBM
- **analyses of various technical solutions for settling in CeBM using new technologies:** from a policy, operational and legal perspective

What are the perceived merits of DLT?



With distributed ledger technologies, money, securities or any other digital asset could be recorded on a shared network in the form of tokens

CSDs, central banks, and commercial banks jointly share the roles of book-keepers and operators of market infrastructures

Potential benefits: atomicity, (decentralised) programmability and ease of reconciliation

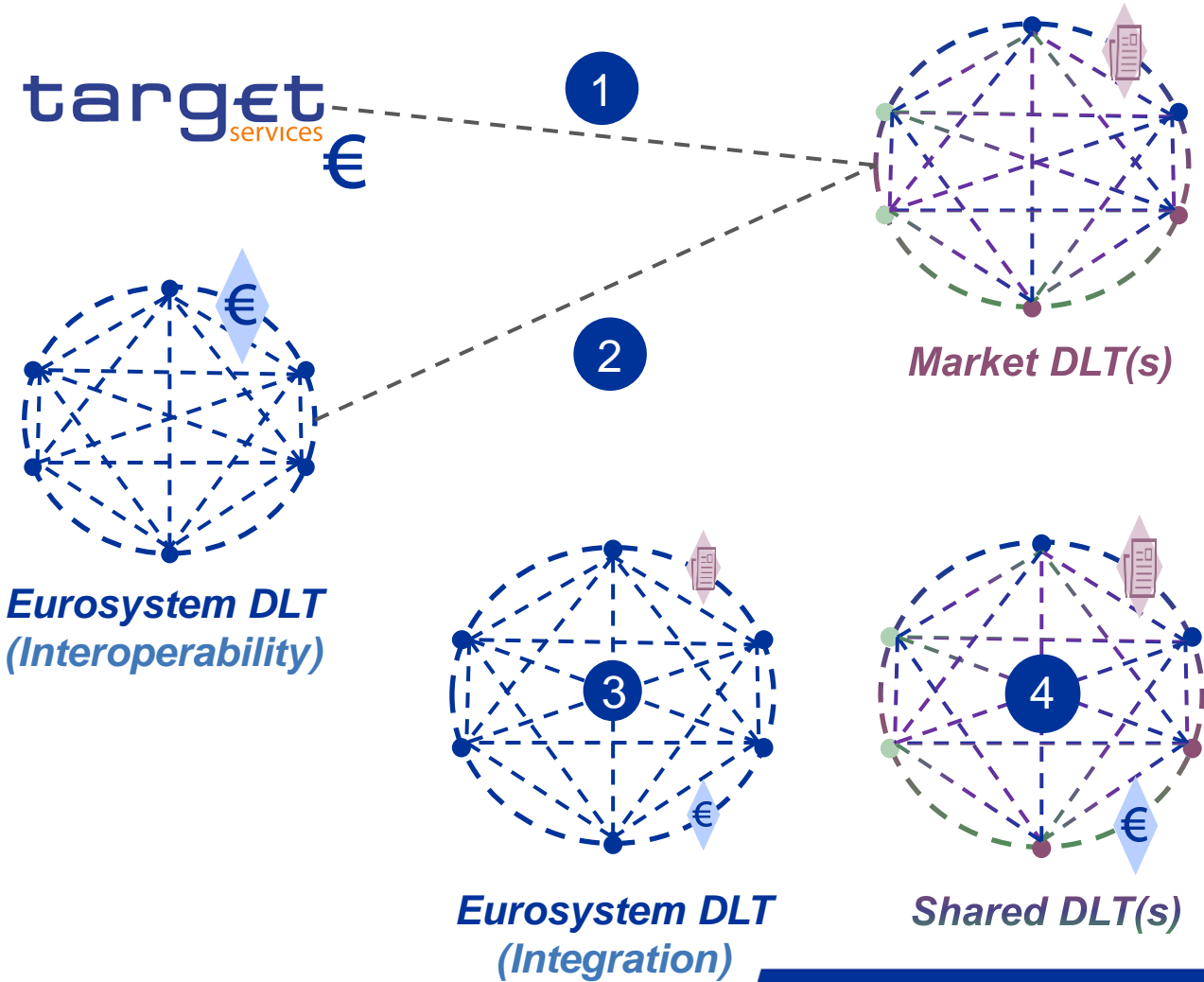
Key takeaways from market outreach

- Market expects **uptake of DLT** for the settlement of wholesale financial transactions **likely to occur in the next 5-10 years**
 - Uncertainty over the number of DLT platforms, but market expects multiple DLT platforms to be used
- **Extracting a broadly shared conclusive assessment** on the merits of DLT (preferable in which circumstances, consequences on market functioning) **proved difficult to obtain** at the current moment

Understanding the needs of the market

- Market expressed the need for close dialogue with the Eurosystem regarding further exploration of new technologies for settling in CeBM
 - No market stakeholder has first-hand experience with all possible solution concepts
 - There is currently no definite conclusion of the best approach for settling in CeBM using new technologies that could emerge from practical experience with all solutions
- Eurosystem has set up the NTW-CG
- Eurosystem exploratory work being established to gain practical insights into different solutions together with the market

CeBM cash leg for settlement of transactions on DLT – Conceptual solutions



1. CeBM settlement in current TARGET Services through adding a *Trigger / Bridge* component

2. CeBM settlement on Eurosystem DLT interoperable with market DLTs (*Interoperability*)

3. CeBM and **securities** settlement on own Eurosystem DLT (T2S DLT) (*Integration*)

4. CeBM and **securities** settlement on DLTs shared between Eurosystem and other stakeholders (*Distribution*)

Focus on interoperability-type solutions for exploratory work

Current focus of exploratory work is on **interoperability-type solutions** (#1 and #2 on the previous slide)

Interoperability-type solutions:

- Easier to develop compared to the other two solutions
- Too early to make technological choice and better to compare different DLT technologies
- Market expects multiple market DLTs (tokenised asset legs). Interoperability might facilitate allowing numerous DLT platforms to offer central bank money settlement
- Multiple asset DLTs may create fragmentation, which will be assessed further

Focus on interoperability-type solutions for exploratory work

The other two solutions Integration and Distribution will need more investigation

- **Full-DLT Integration:** offering single platform would be complex, takes more time to establish, implicitly assumes that market platforms play no role (but potential to reduce market fragmentation)
- **Full-DLT Distribution:** raises questions including the controllability of CeBM and necessary requirements on governance arrangements

Focus on interoperability-type solutions for exploratory work

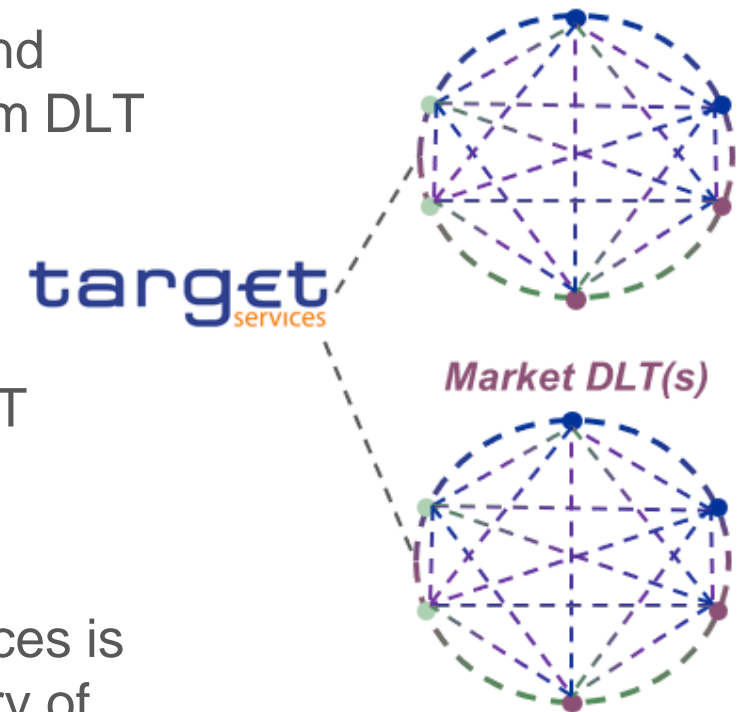
In scope of Eurosystem exploratory work:

- Trigger solution of Deutsche Bundesbank ([link 1](#); [link 2](#))
- TIPS Hash-Link solution of Banca d'Italia ([link](#))
- Full-DLT Interoperability solution of Banque de France ([link](#))

Trigger solution

Bridge is built between market DLT(s) and the existing TARGET Services

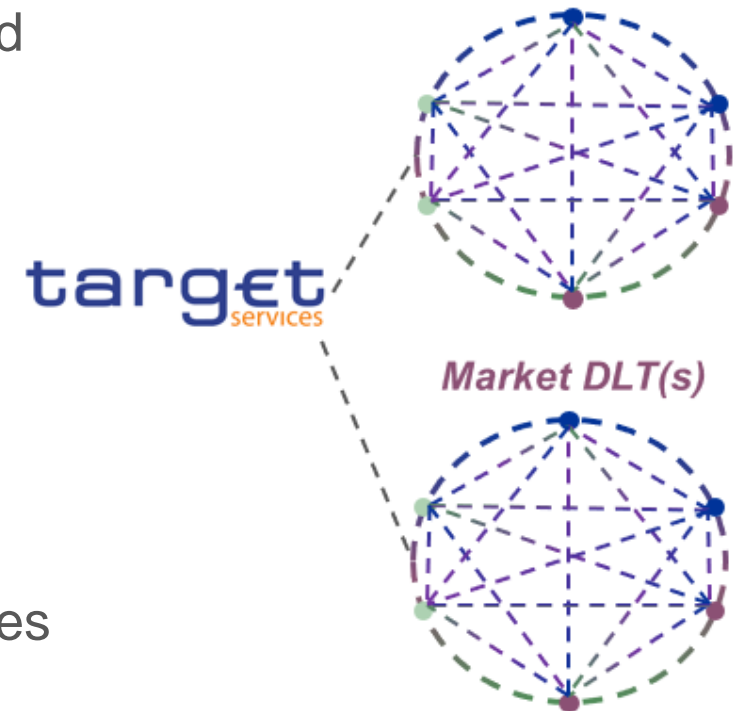
- **Asset leg:** smart contract on a market DLT locks asset/payment and triggers the payment transaction via the *Trigger Chain* (Eurosystème DLT platform acting as “technical bridge”) using an interoperability mechanism
- **Cash leg:** settlement of the payment occurs in the current TARGET Services (i.e. RTGS component of T2)
- **DvP/PvP:** confirmation of payment in CeBM in the TARGET Services is forwarded to the market DLT (via the Trigger Chain) for the delivery of the asset/payment on the market DLT



TIPS Hash-Link solution

API is built between market DLT(s) and TIPS-like platform

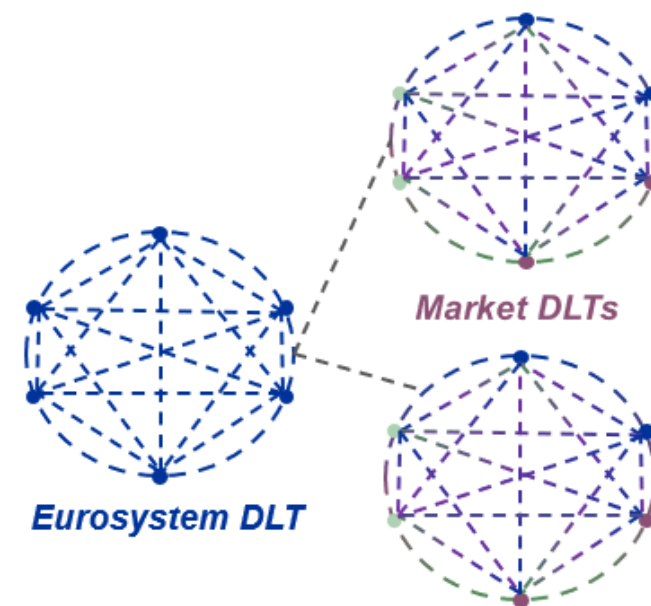
- **Asset leg:** smart contract on a market DLT locks asset/payment and forwards payment transaction via an *API* and an interoperability mechanism (hash link)
- **Cash leg:** settlement of the payment takes place via TIPS-like platform (which could become part of the central bank-run infrastructure and services in the future)
- **DvP/PvP:** confirmation of payment in CeBM in the TARGET Services results in the delivery of the asset/payment on the market DLT



Full-DLT Interoperability

CeBM would be issued in the form of a cash token and settled on a Eurosystem DLT platform connected to market DLT(s)

- **Asset leg:** smart contract on a market DLT locks asset/payment and forwards payment transaction to the *DL3S* DLT (Eurosystem DLT platform for CeBM settlement) via an interoperability mechanism
- **Cash leg:** settlement of the cash leg occurs in the *DL3S* DLT (which could become part of the central bank-run infrastructure and services in the future)
- **DvP/PvP:** interoperability mechanism is responsible for finalising the delivery of cash leg (in form of cash token) on the *DL3S* DLT, which releases the asset/payment on the market DLT



Moving towards Eurosystem exploratory work together with market stakeholders

The three **objectives** of Eurosystem exploratory work in addition to ensuring that central bank money remains a monetary anchor that supports the stability, integration and efficiency of the European financial system and payments system:

1. Improving the Eurosystem's knowledge and understanding of the different solutions
2. Gaining consistent and coordinated market feedback on the different potential solutions
3. Showing the Eurosystem's interest and readiness to support innovation

Scope of Eurosystem exploratory work

Eurosystem does not commit to any future implementation of a CeBM settlement solution or future policy stance of the Eurosystem with regards to technological developments

Ad hoc limited trials and experiments



Real settlement of CeBM



Mock settlement of CeBM

- Exploratory work would focus both on **Delivery-versus-Payment** and **Payment-versus-Payment**
- The Eurosystem will **minimise any potential impact** of the exploratory work on TARGET Services

High-level questions

To gain information and support assessment during exploratory work:

- A. Settlement performance
- B. Liquidity management
- C. Reliability of the solutions
- D. Integration with the existing environment (compared to traditional platforms, such as ISO 20022, ESMIG)
- E. Integration with new environments (connectivity, operational effectiveness)
- F. Cost effectiveness (time to market, integration with existing infrastructure, migration to new infrastructure) and efficiency (energy consumption)
- G. Financial information management (reconciliation, transparency versus privacy, data integrity, reliability)
- H. Automation capabilities (programmability, smart contracts)



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Trials and Experiments – envisaged approach

Agenda item 3

21/06/2023



Participation in Trials and Experiments

- The exploratory work will be organised with a “**euro area approach**”: the Eurosystem central banks cooperate to offer settlement of wholesale transactions in euro central bank money in presence of new technology
- Participation in the exploratory work is without prejudice to the **existing rules on access to euro central bank money**
- The provision of CeBM settlement could support market participants’ own DLT-related activities including those in the context of the **DLT Pilot Regime Regulation** or other legal frameworks enabling the use of DLT for the settlement of financial instruments.

How can one participate in Trials and Experiments?



Later during preparatory phase, the Eurosystem intends to **publicly share relevant information on Trials and Experiments** via a publication and/or information session



Subsequently, a **public call for expression of interest** is going to be launched – without preferential treatment for NTW-CG members



Interested and eligible participants would be onboarded and could participate in Trials and/or Experiments

Conditions during the Trials and Experiments



The Eurosystem will provide a legal arrangement to govern the relationship with the market participants throughout the Trials and Experiments



Market participants sign a contract with their respective national central bank



To gain consistent and coordinated feedback, participants are expected to report findings to the Eurosystem