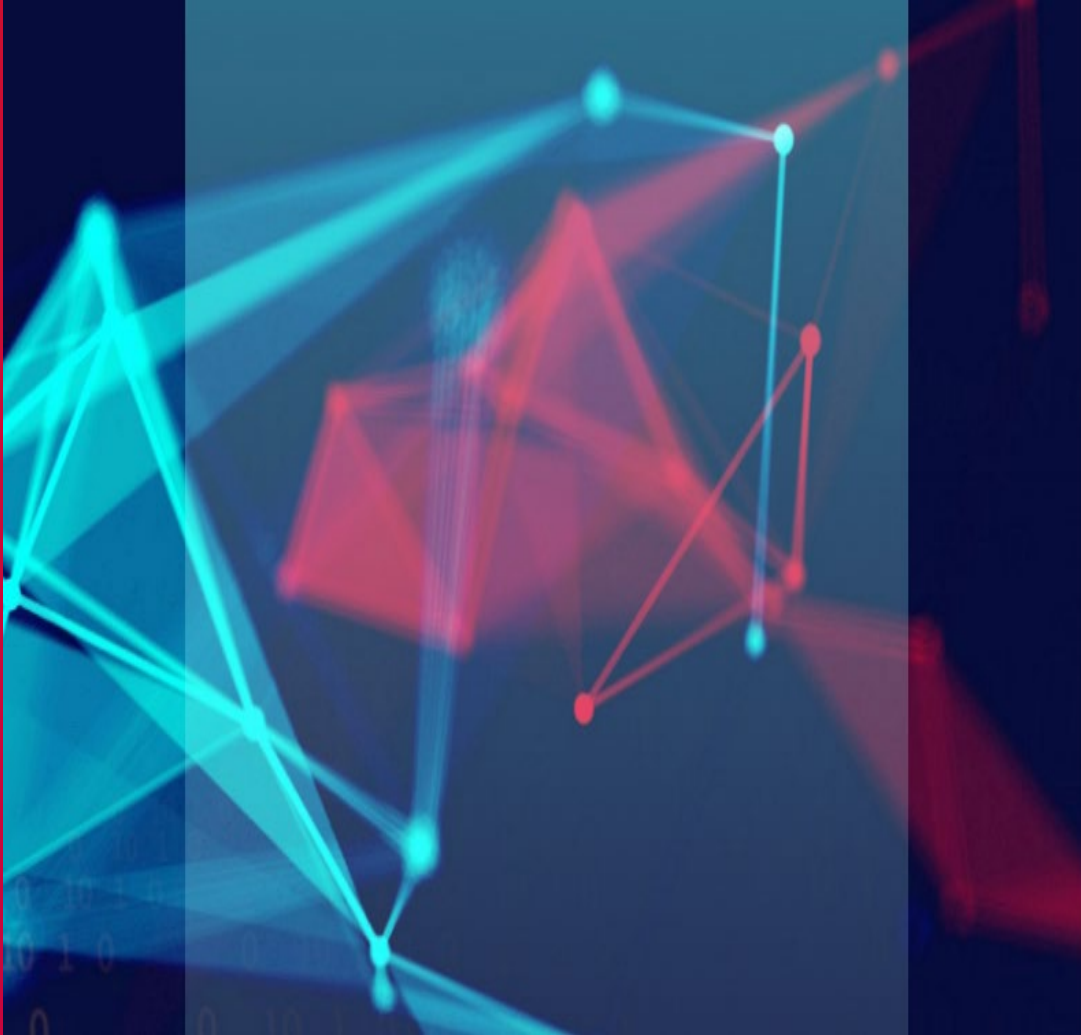


Tokenisation of cash and securities

March 2022





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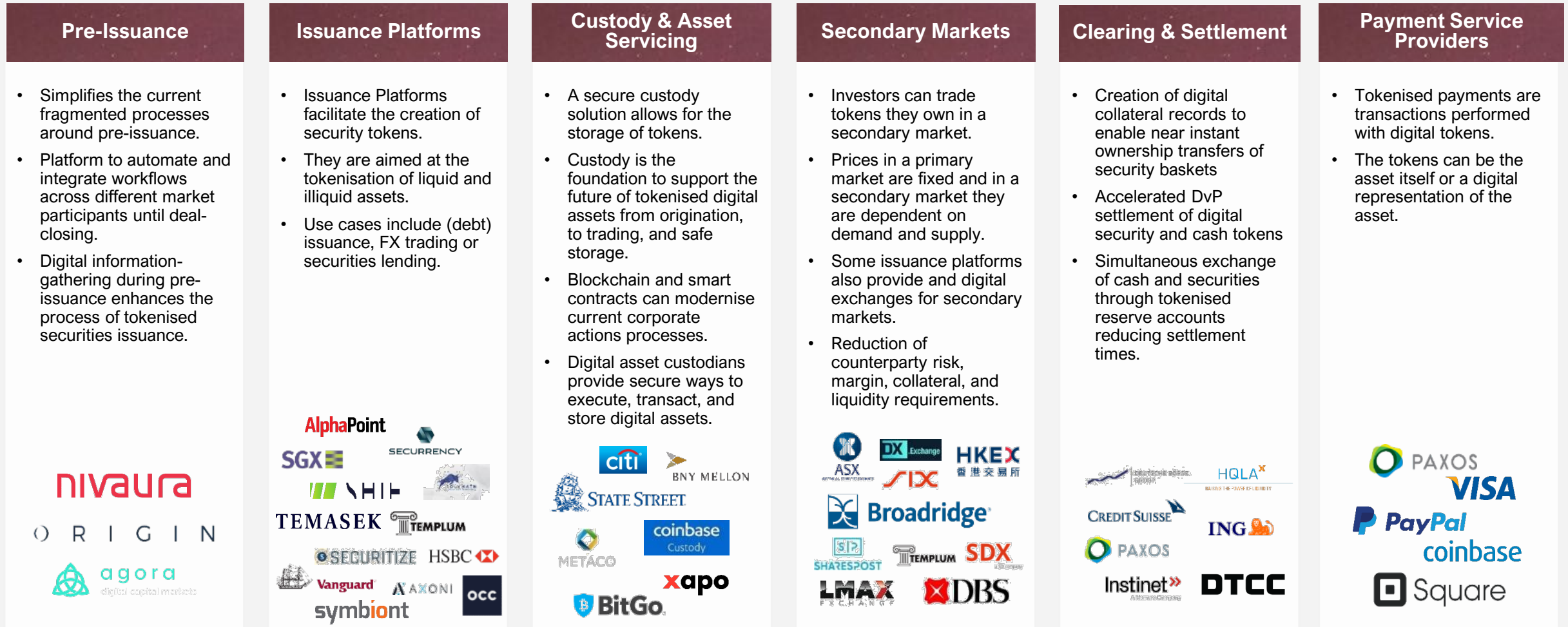
02 BANQUE DE FRANCE EXPERIMENTATION | GOVERNMENT BONDS

03 D-FMI | EUROCLEAR INITIATIVE

04 Q & A

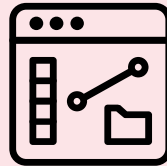
The market is developing new services across the value chain

As the value proposition of blockchain becomes clearer, capital market institutions are pursuing dedicated initiatives – both incumbents and new actors.



Euroclear is equipped with innovative R&D to take the next step

The great strides we have made in business and IT innovation through our comprehensive blockchain initiatives have equipped us with the internal preparation and fundamental knowledge base to act now.



Business Innovation #1:
Proof of Concept for
Commercial Paper instruments

When
2019

Participants
EIB, Santander, E&Y, and
Euroclear Bank

Scope
Issuance of a CP in a
blockchain platform with
integration into Euroclear
Bank's settlement platform.
The pre-issuance process and
the back-office execution took
place on the blockchain
platform.

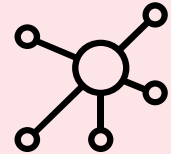


Business Innovation #2:
Settlement in CBDC

When
2021

Participants
Banque de France, Agence
France Trésor, BNPP, Société
Générale, Crédit Agricole CIB,
HSBC and Euroclear France

Scope
CBDC settlement of French
sovereign debt where the
primary distribution and the
secondary market transactions
(such as standard settlement
instructions, repo transactions,
auto-collateralisation
transactions) took place on the
blockchain platform.



IT Innovations

Definition of the best technology
fit for the Euroclear business

Assessment of the best
providers for the selected
technology



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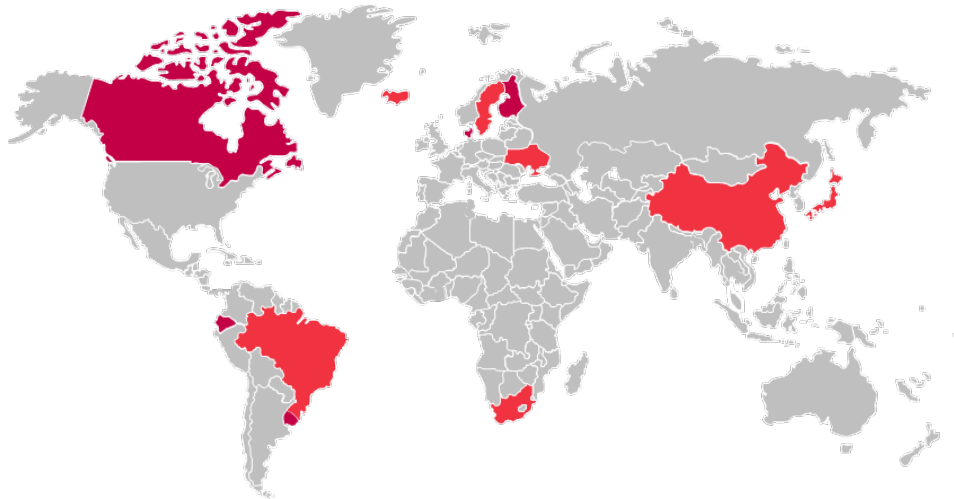
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Central banks have increased CBDC initiatives...

Central banks are now actively experimenting or implementing blockchain (CBDC) solutions – arising from the desire to improve international payments as well as geo-political considerations around reserve currencies.

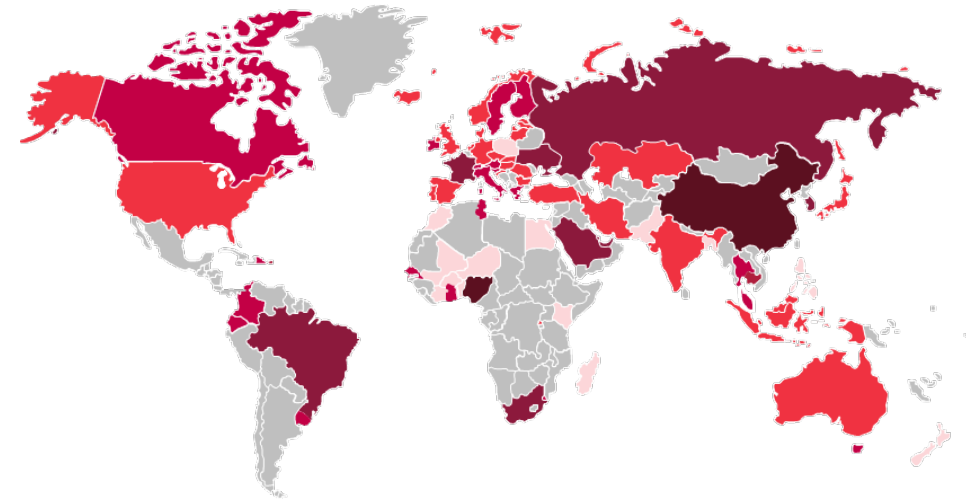
Jan 2018



CBDC Initiatives (Jan 2018)

0	Interest	Countries declaring interest and initial research to explore CBDC feasibility
10	Research	Countries that published CBDC research reports and/or conducted early PoCs
6	Experimentation	Countries experimenting and piloting CBDC with limited number of parties
0	Implementation	Countries preparing their CBDC for a full-scale launch
0	Launched	Countries that officially launched a CBDC

Jan 2022



CBDC Initiatives (Jan 2022)

15	Interest	Countries declaring interest and initial research to explore CBDC feasibility
25	Research	Countries that published CBDC research reports and/or conducted early PoCs
15	Experimentation	Countries experimenting and piloting CBDC with limited number of parties
6	Implementation	Countries preparing their CBDC for a full-scale launch
2	Launched	Countries that officially launched a CBDC





CBDC Programme of Banque de France

Experiment led by Euroclear with a consortium of banks

Euroclear Consortium



Euroclear IT partner



Experiment Objectives of Euroclear

Could Blockchain technologies make crypto asset payments cheaper, safer, easier, and more accessible?

- ❑ Several market PoC and pilots on DLT have already tested core DVP settlement process and registry management on Blockchain. We wanted to go the extra mile and include in our tests, more post trade operations including liquidity management and inter-operability with T2S.
- ❑ However, making substantial developments to deploy blockchain solutions to replicate the 'as is' situation would not bring a lot of value for the capital market. Blockchain will emerge only if it brings additional features and benefits.
- ❑ The objective is to assess the added value that blockchain could bring in terms of facilitating access and process of post trade operations, and opening doors to new opportunities



Use Case 1 (Primary Distribution)

- ISIN dissemination by the AFT
- Rationalization of the distribution model

Use Case 2 (Trading)

- Simplified process in terms of matching
- Benefits identified for the centralization of settlement instructions reference data
- Possibility to finance purchases and sales with « autocollat mechanism » within the blockchain

T+0

Use Case 3 (REPO)

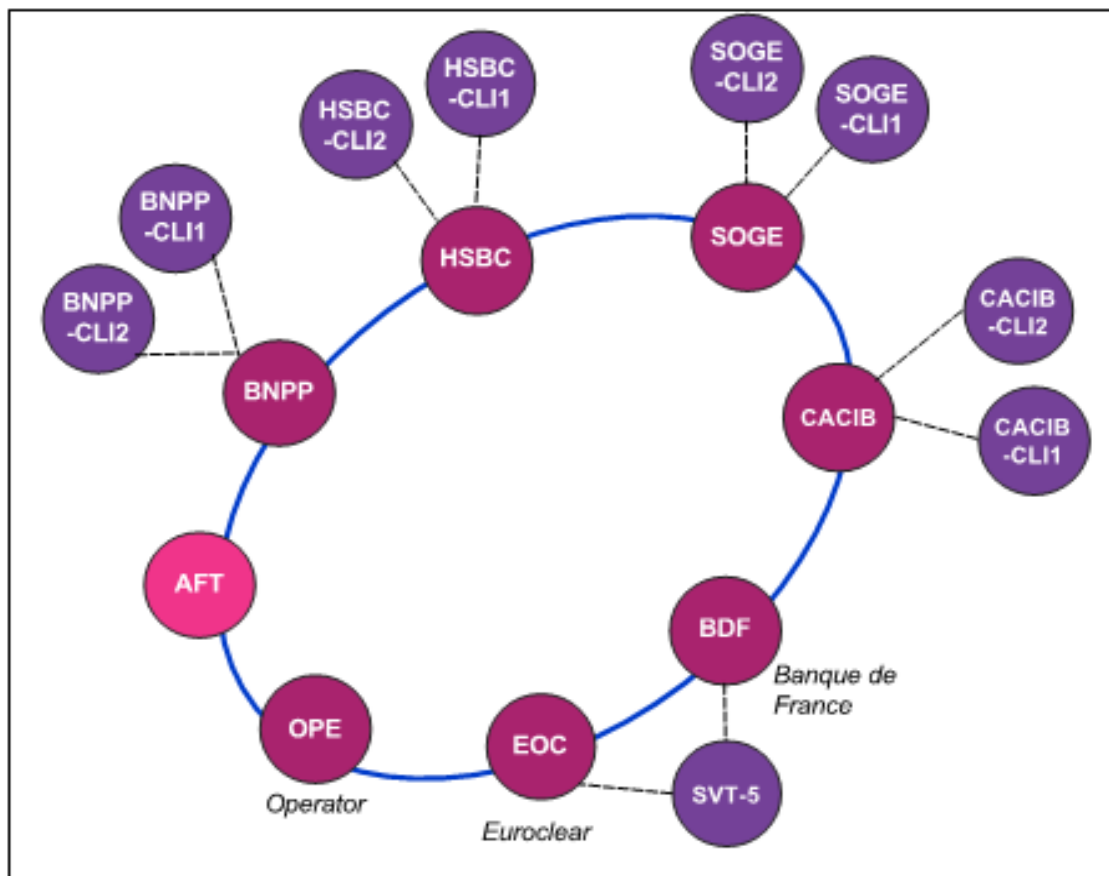
- Simplified process in terms of matching (one matching instead of two)
- Interoperability : get liquidity in CBDC based on securities held in T2S.

Use Case 4 (Coupon)

- Two models identified : Omnibus or segregated account and/or granularity at the level of the beneficial owner in the blockchain



Role Management and Wallet Set-up



For Securities and for CBDC independently

- Activity guarantor & validator
 - CSD (Euroclear) for Securities
 - Central Bank (BdF) for CBDC
- Instructions validator
 - Sellers, buyers
 - CSD and Central Bank
- Wallet
 - Manager
 - Owner
 - User
- Issuer
- ISIN Manager
- IPA
- Auditor

Feasibility

- The implementation of the business requirements were manageable and delivered on time
- The consortium members did not face blocking factors on their side (front and back systems) for a potential future connectivity to a blockchain platform

Benefits at client level

- Cheaper and easier access to settlement services (lower entry barrier)
- Removal of reconciliation process across the chain of intermediaries
- Increased interconnectivity with back-office system. Removal of matching constraints on settlement agents
- Real-time view on investor holding data for issuers and regulators. Real-time report generation for investors



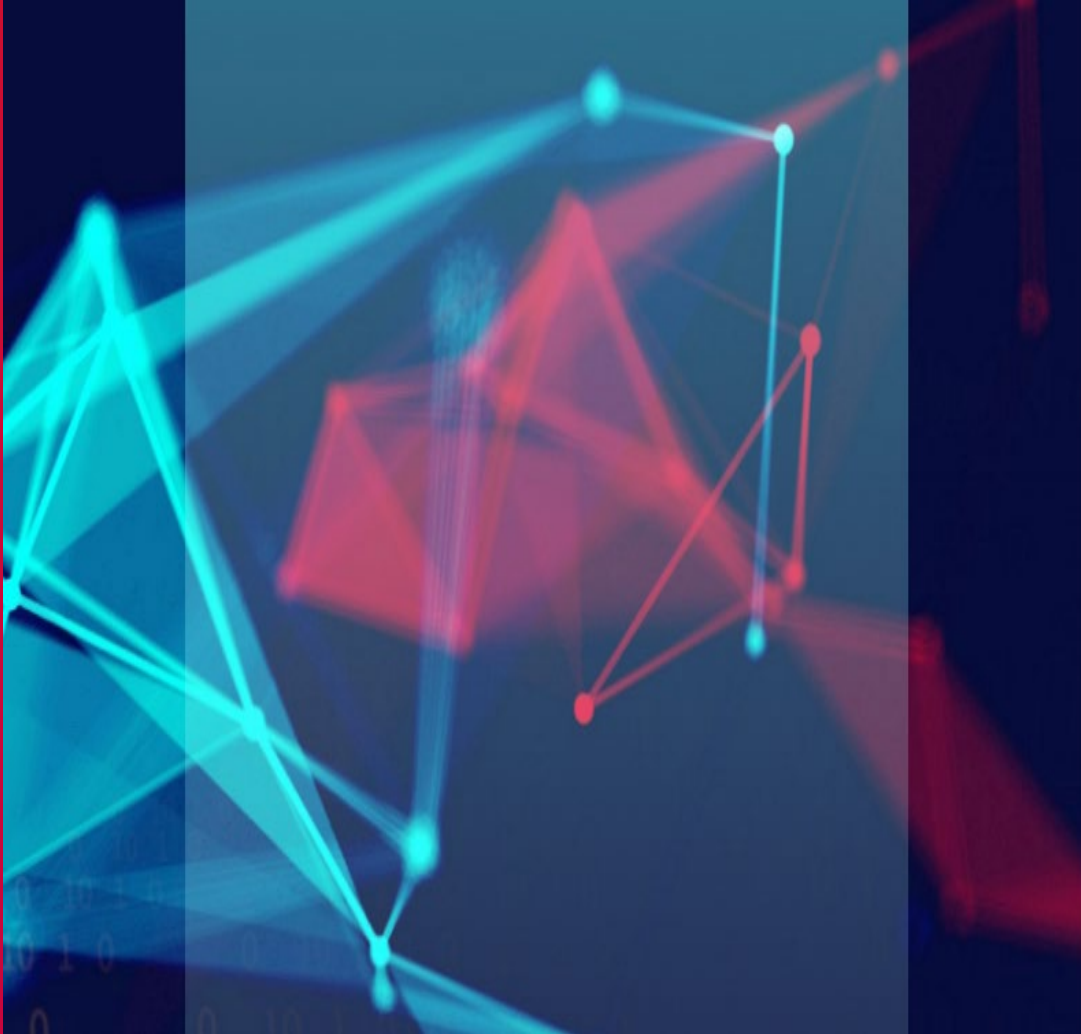
Subsequent benefits at market level

- Shorter settlement cycles, down to T+0 EoD
- Larger trade windows, up to 24/7
- Lower operational costs and higher efficiencies

Experimentation Report

Report:

<https://www.euroclear.com/newsandinsights/en/Format/Whitepapers-Reports/cbdc-to-settle-french-government-bonds.html>



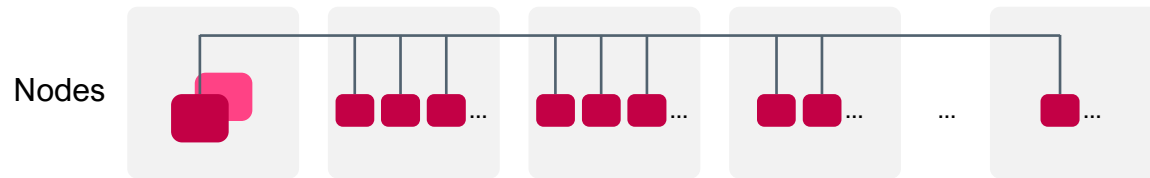
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Euroclear can remove pain points and unlock operational efficiencies for the market...

Key characteristics of DLT...

Distribution and dissemination of trustable and immutable data across the ecosystem can **remove reconciliation needs** between members, **reduce input and reporting** across systems, and **minimise the risk of centralised failure** disrupting key services:



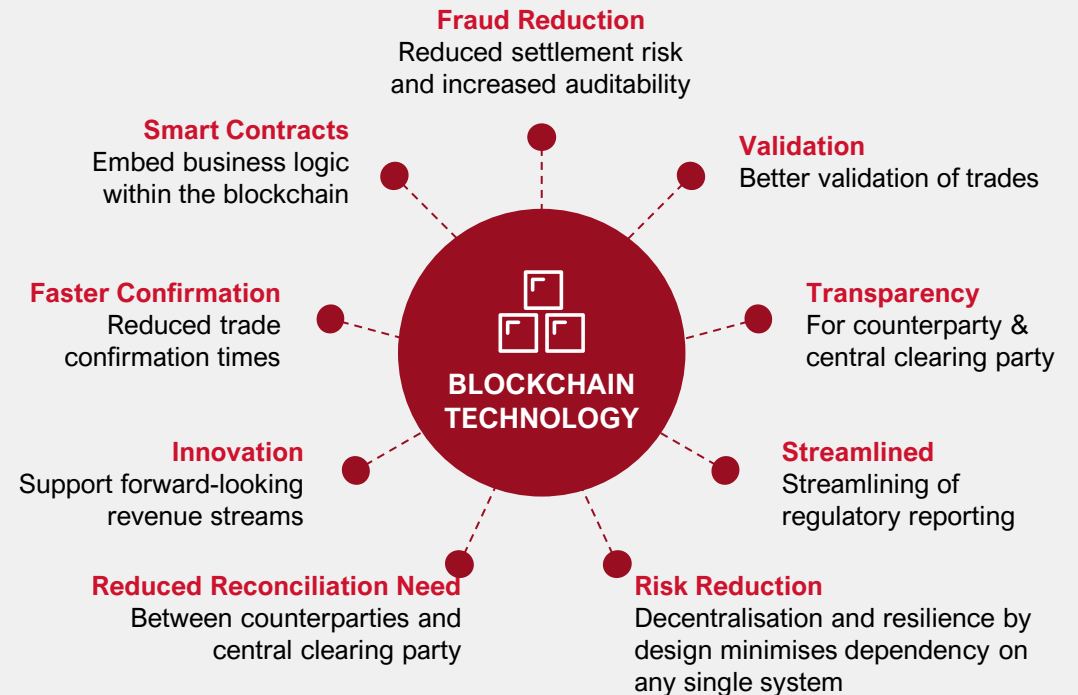
...will provide cross-industry benefits...

-  **Holistic View** Universal view of information from a single source
-  **Transparency** Providence and greater transparency for regulatory reporting
-  **Simplified** Decreased operational costs and complexity
-  **Speed** Can enable faster data transfer times
-  **Security** Data is immutable, logged transactions cannot be altered
-  **Resilience** Resilience by design, reducing systemic risks



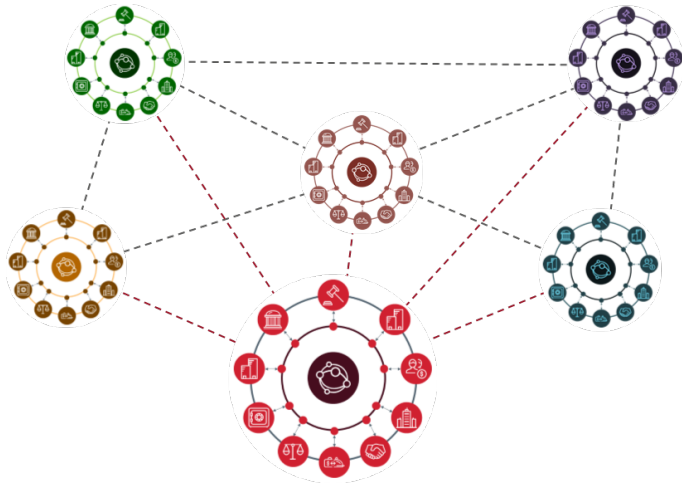
Value for Capital Markets

DLT can alleviate pain points and unlock market efficiencies:



Euroclear can be an ecosystem orchestrator


Euroclear's New Ecosystem Role




The next form factor will likely consist of a multitude of ecosystems interacting with one another. Euroclear can be a key driver and orchestrate one or more sub-ecosystems, while being a participant in others depending on the context.

Euroclear is **well-positioned to be an ecosystem orchestrator** for several reasons:

 **Neutral and trusted** 3rd party

 Existing **interoperability** with markets and currencies across the globe

 Existing access to **cash legs** (including central bank money)

 Existing **settlement and position-keeping** commodity services

As market infrastructure Euroclear provides the institutional knowledge to **understand which services can be commoditised.**

We can **unlock value for the market** by providing a common data layer, as well as other FMI utility services.

We will provide market participants that connect to the network with the ability to **build value-add applications** for their clients that **can resemble existing services or provide entirely new market services.**

However, the participants will keep the **autonomy and flexibility to manage their own client ecosystems.**

Throughout the course of our **market research and assessment**, we will determine the necessary **requirements** to become an **FMI ecosystem orchestrator.**

...which will allow us to offer new services and lead market discussions

Investing in DLT will allow Euroclear **new opportunities to service dedicated ecosystems** and equip us with the **credentials to facilitate market leading discussions.**

Value for Euroclear

New Opportunities for Euroclear to Serve Dedicated Ecosystems



Pre-Issuance

Capturing securities data as soon as the deal is done, and data is generated



Securities Issuance

Orchestrating the securities data workflows among all parties of the issuance process



BO Ledger

Setting up a BO ledger of the BO handled by the custodians



Tax

Setting up an E2E digital workflow for tax documents and leveraging BO data to manage tax relief at source and other processes



Registry

Offering registrar capabilities to issuers and agents directly on platform and blurring workflow process between registered and bearer security holdings



Funds

Gathering distribution and transfer agent flows to the benefits of fund managers and TAs



Additional Services

Allow for the white labeling of other commoditized client services for (e.g., cash ecosystem, ESG)

Leading Market Discussions on Blockchain Solutions



Market Leadership

Be a leader in removing pain points for the market



Facilitate Discussions

Drive discussions with key market players (e.g., BNYM, Citi, JPM, Clearstream) on reshaping the industry



Regulatory Presence

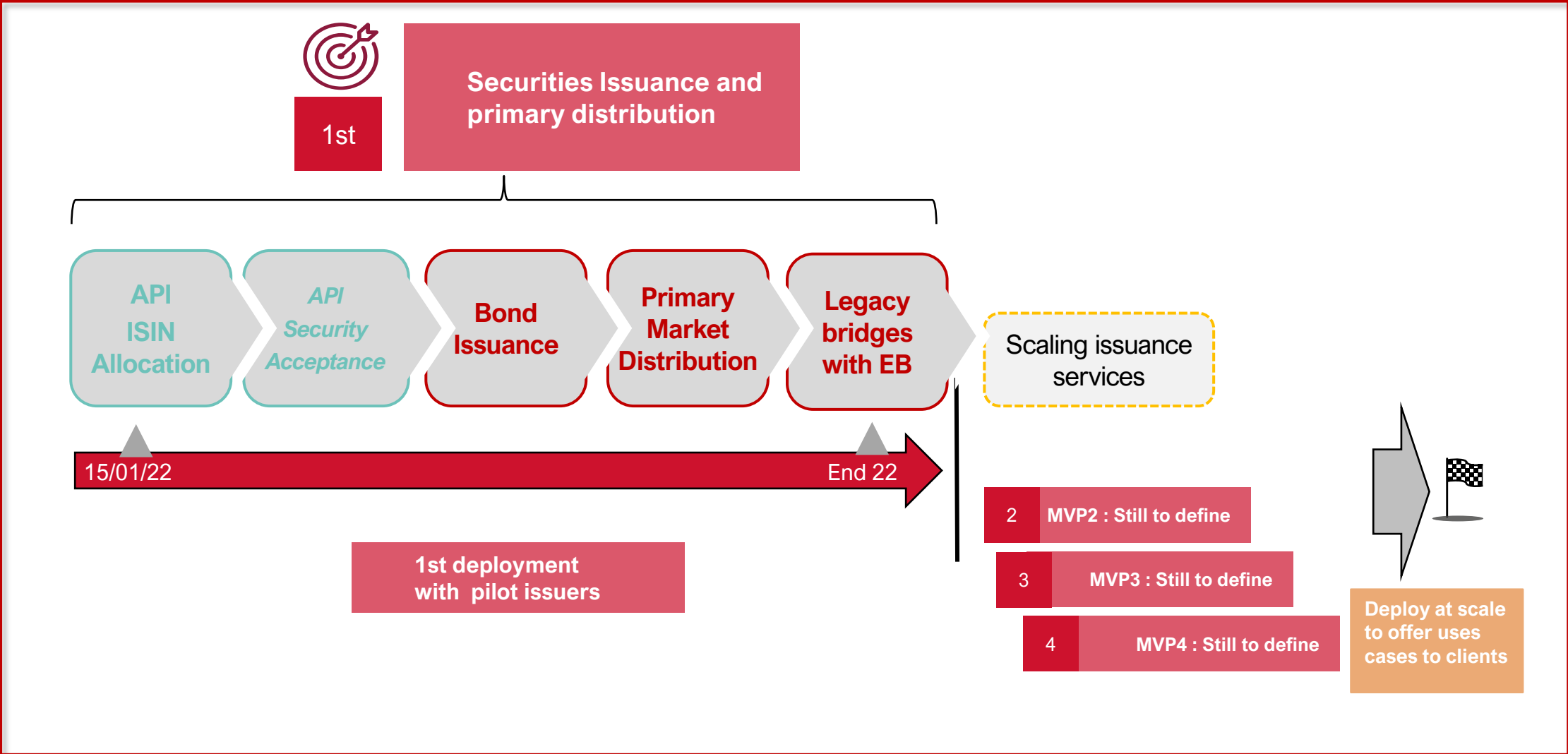
Sit on the table of regulators (e.g., ISSA, group regulators, NCBs) and the EU



Securing Our Position

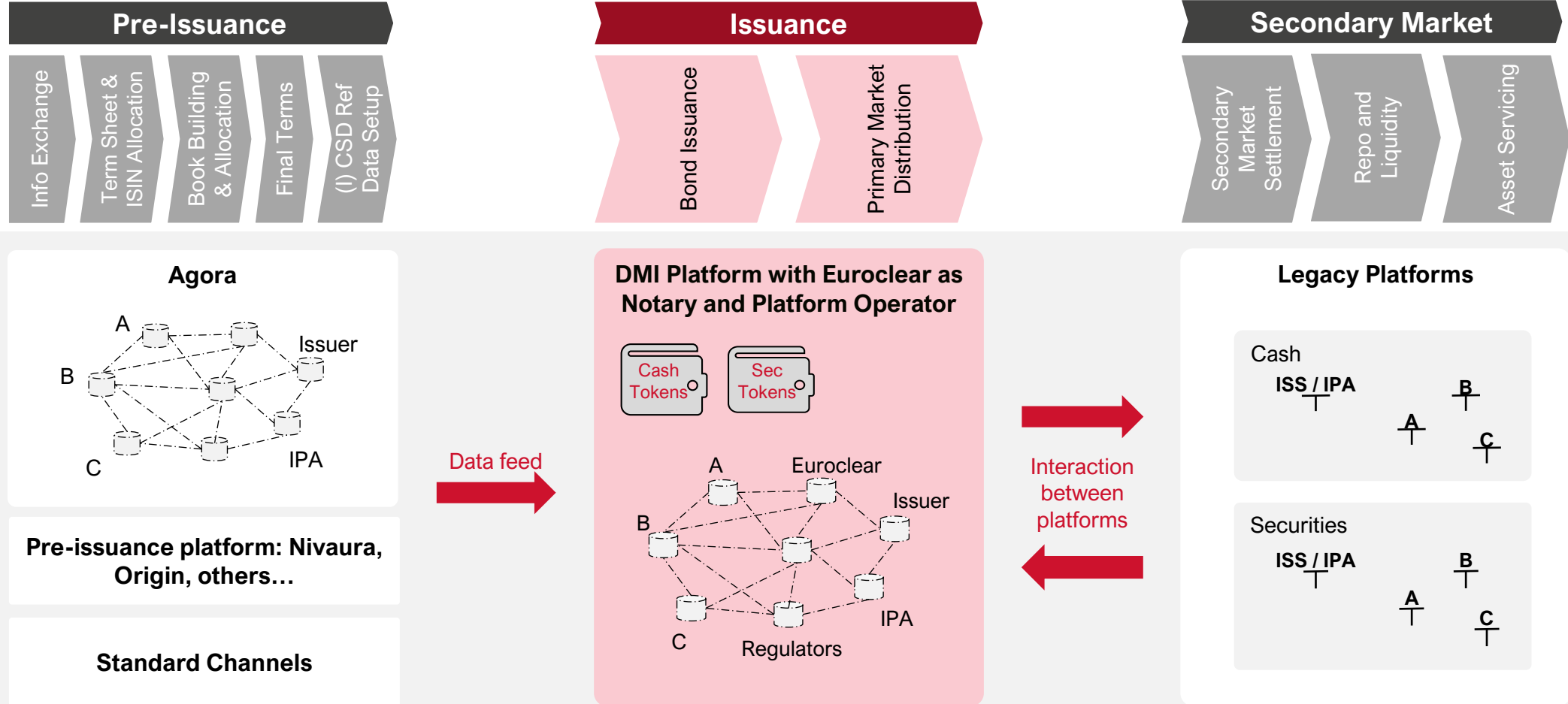
Defend our leadership position in securities market infrastructure

The journey towards end-state starts with a first step: Securities Issuance



Securities issuance platform overview

The first step of our go-to-market will be a DLT securities issuance platform, as a reusable component with full listing and secondary market liquidity in the legacy system.

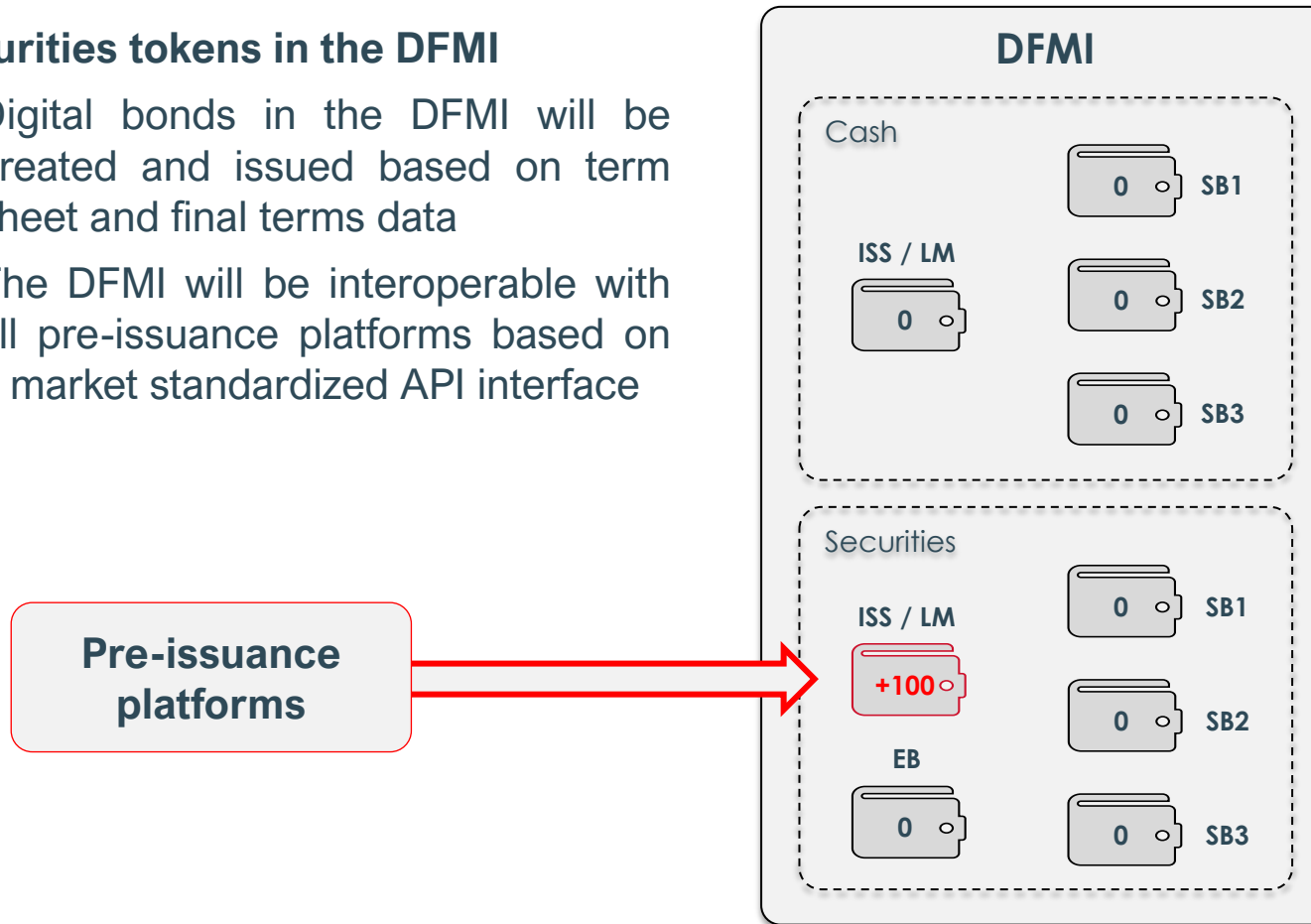


Key features of the DFMI

The DFMI will interact with external platforms to create its digital tokens

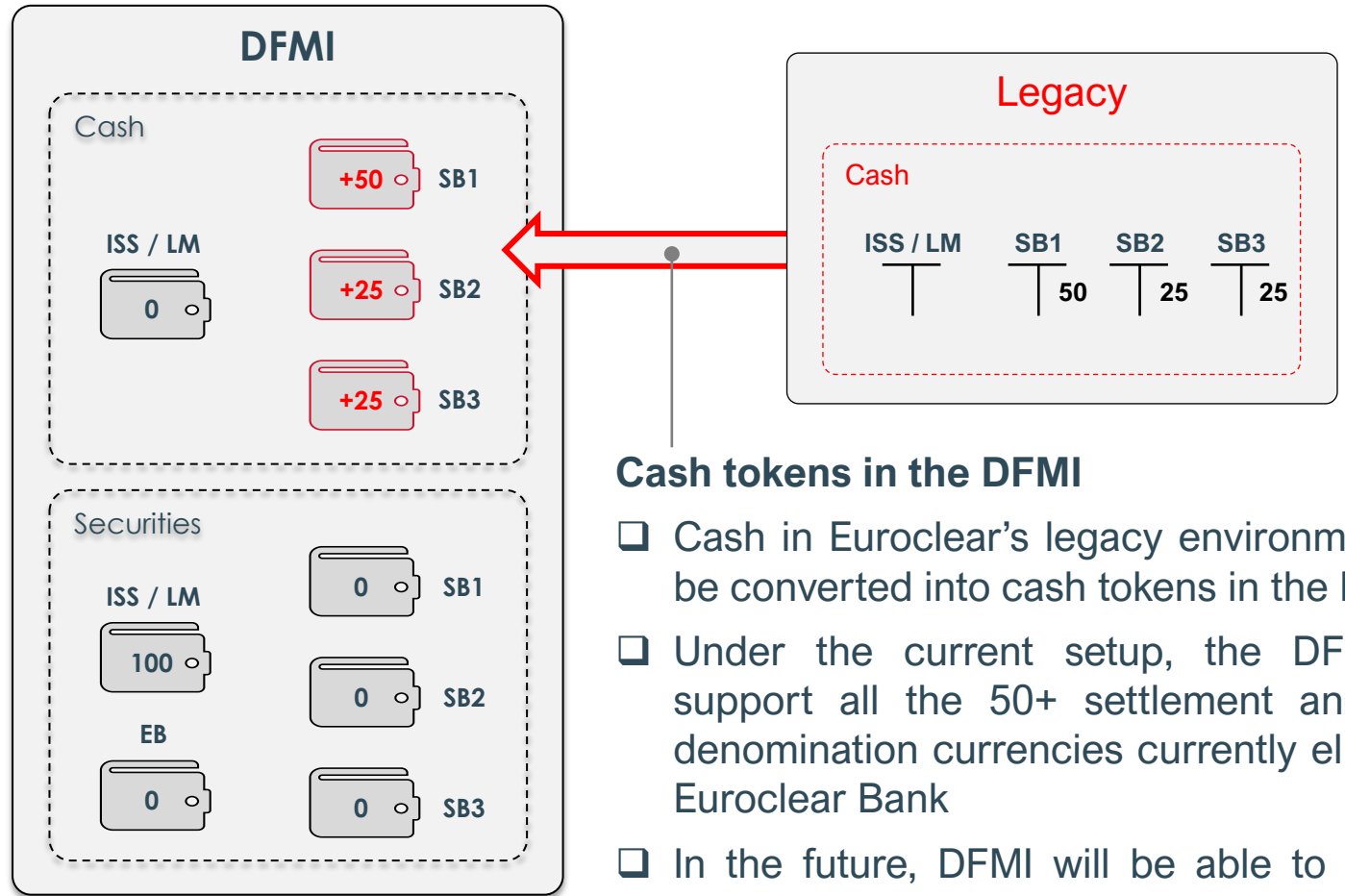
Securities tokens in the DFMI

- ❑ Digital bonds in the DFMI will be created and issued based on term sheet and final terms data
- ❑ The DFMI will be interoperable with all pre-issuance platforms based on a market standardized API interface



Key features of the DFMI

The DFMI will interact with our legacy platform to create its digital cash tokens



Cash tokens in the DFMI

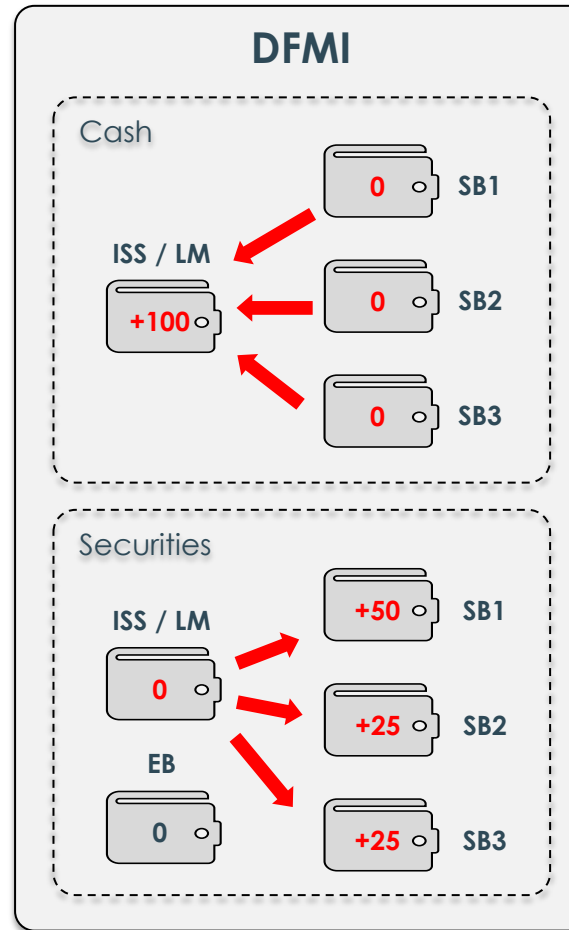
- ❑ Cash in Euroclear's legacy environment can be converted into cash tokens in the DFMI
- ❑ Under the current setup, the DFMI can support all the 50+ settlement and 100+ denomination currencies currently eligible in Euroclear Bank
- ❑ In the future, DFMI will be able to support other cash tokens such as CBDC

Key features of the DFMI

The primary market settlement will take place in the DFMI

Atomic DVP settlement

- ❑ The settlement instructions will be entered matched and positioned in the DFMI based on the securities and cash tokens of the participants in the DFMI
- ❑ On closing date, the atomic DVP settlement will take place whereby cash tokens and securities tokens are moved simultaneously between the relevant wallets

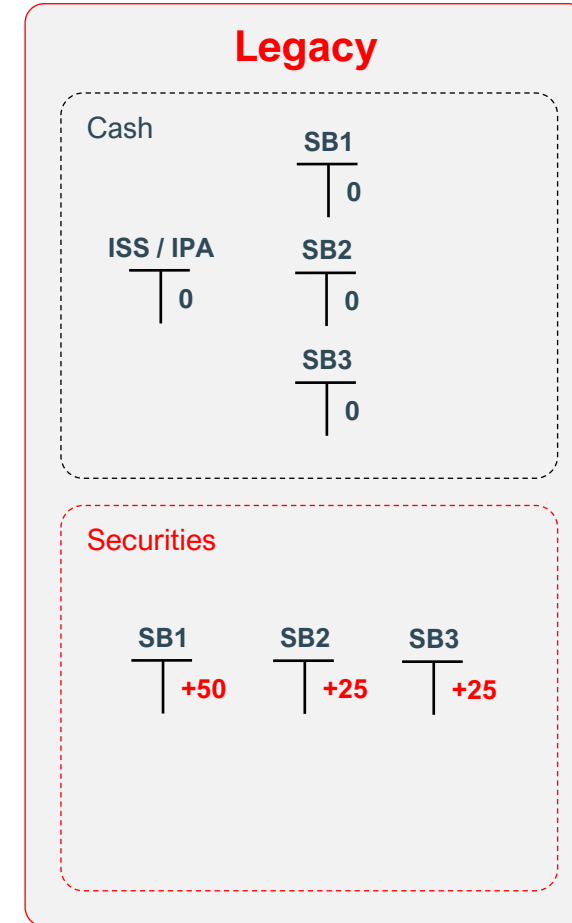
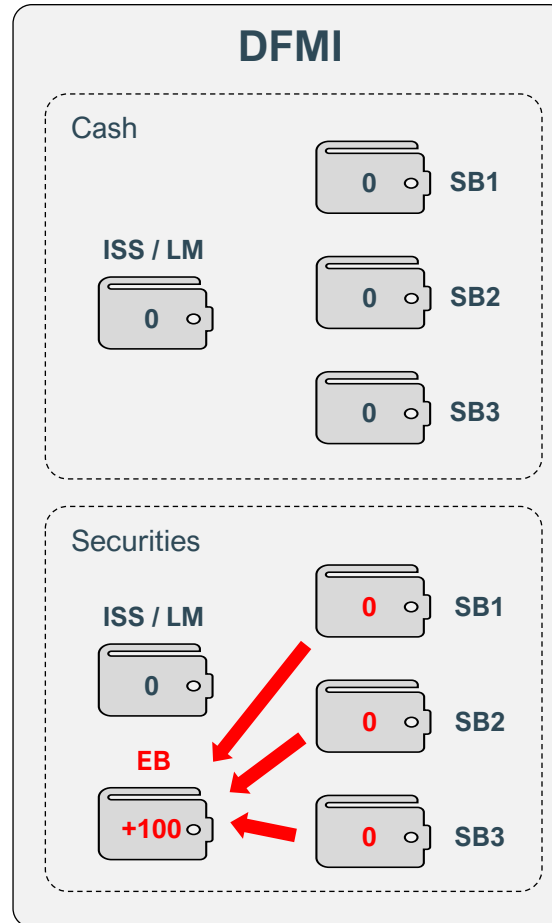


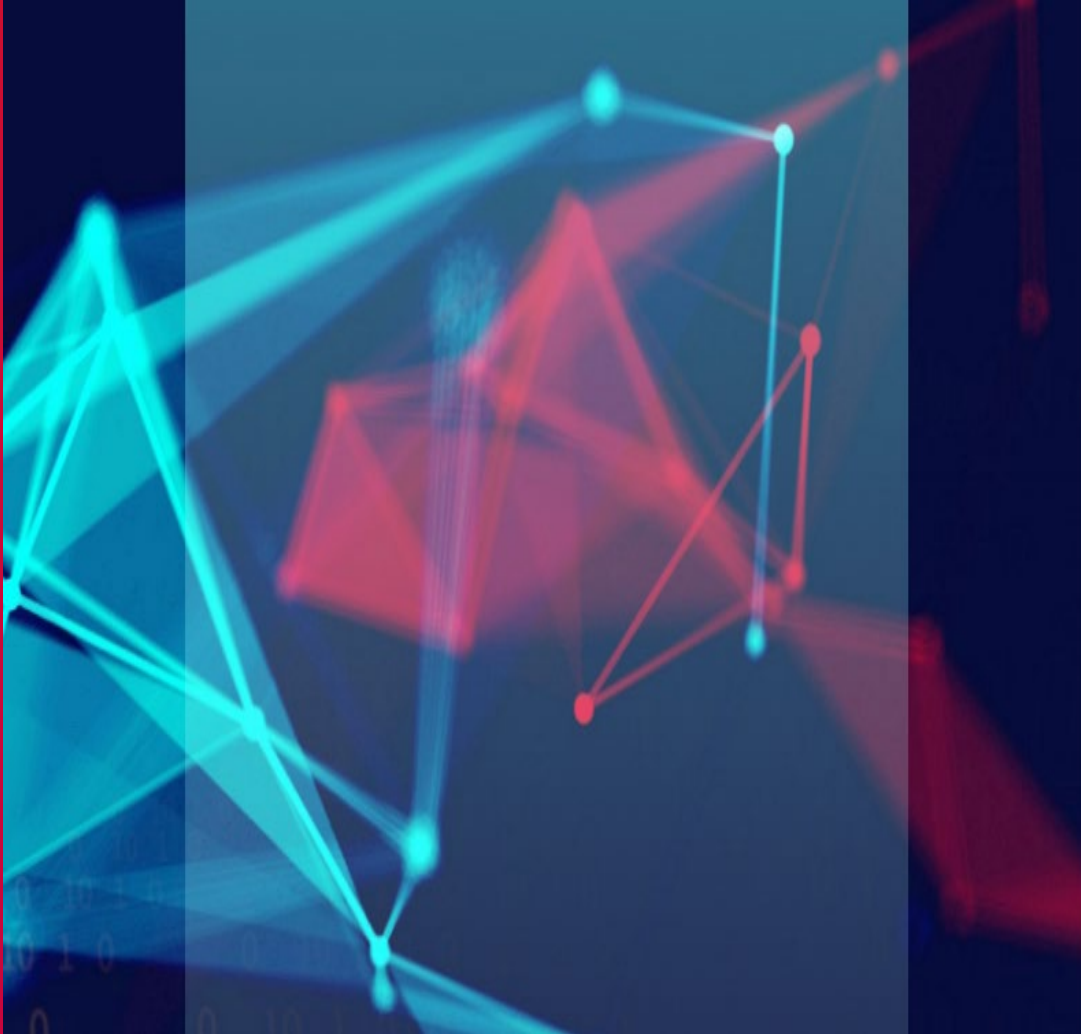
Key features of the DFMI

Legacy bridges will be temporarily put in place to ensure immediate access to digital securities for all investors

Legacy bridge

- ❑ Euroclear's technical wallet serves as the bridge with the legacy environment
- ❑ By transferring the securities tokens to the Euroclear wallet, the securities accounts of the syndicate members in the legacy environment will be credited
- ❑ The entire digital bond will remain in Euroclear Bank's technical wallet until redemption





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