



EUROPEAN CENTRAL BANK

EUROSYSTEM

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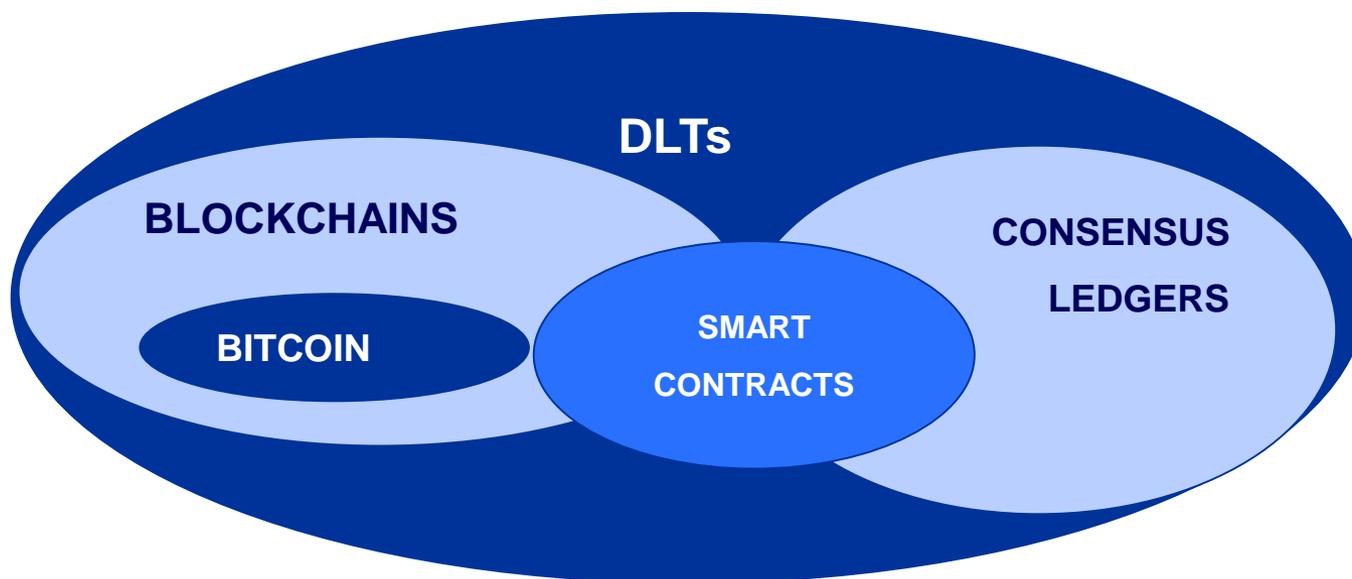
DG MIP/Market Integration Division

How DLTs might impact the financial sector

P2PFISY 2016

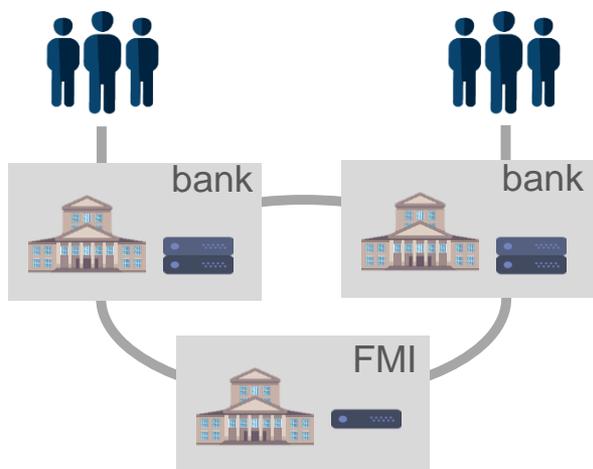
8 September

- A distributed ledger is a shared database to record either **transactions** or **account balances** for a set of assets and users
- DLT users can modify accounts in the distributed ledger and consider it as **authoritative** even **without central management system**
- The DLT landscape:



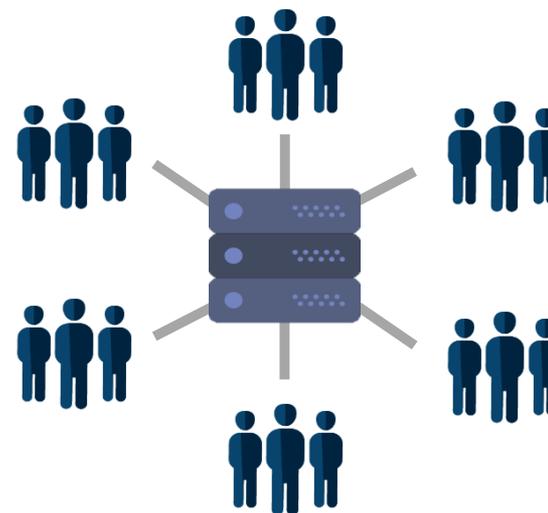
➔ Disruptive potential of DLTs lies in the fact that it enables shared databases and trust is embedded through cryptographic proof

Today



trusted parties operating
centralised ledgers

Tomorrow?



decentralised ledger with
trust as a built-in feature

- Some details certainly matter:

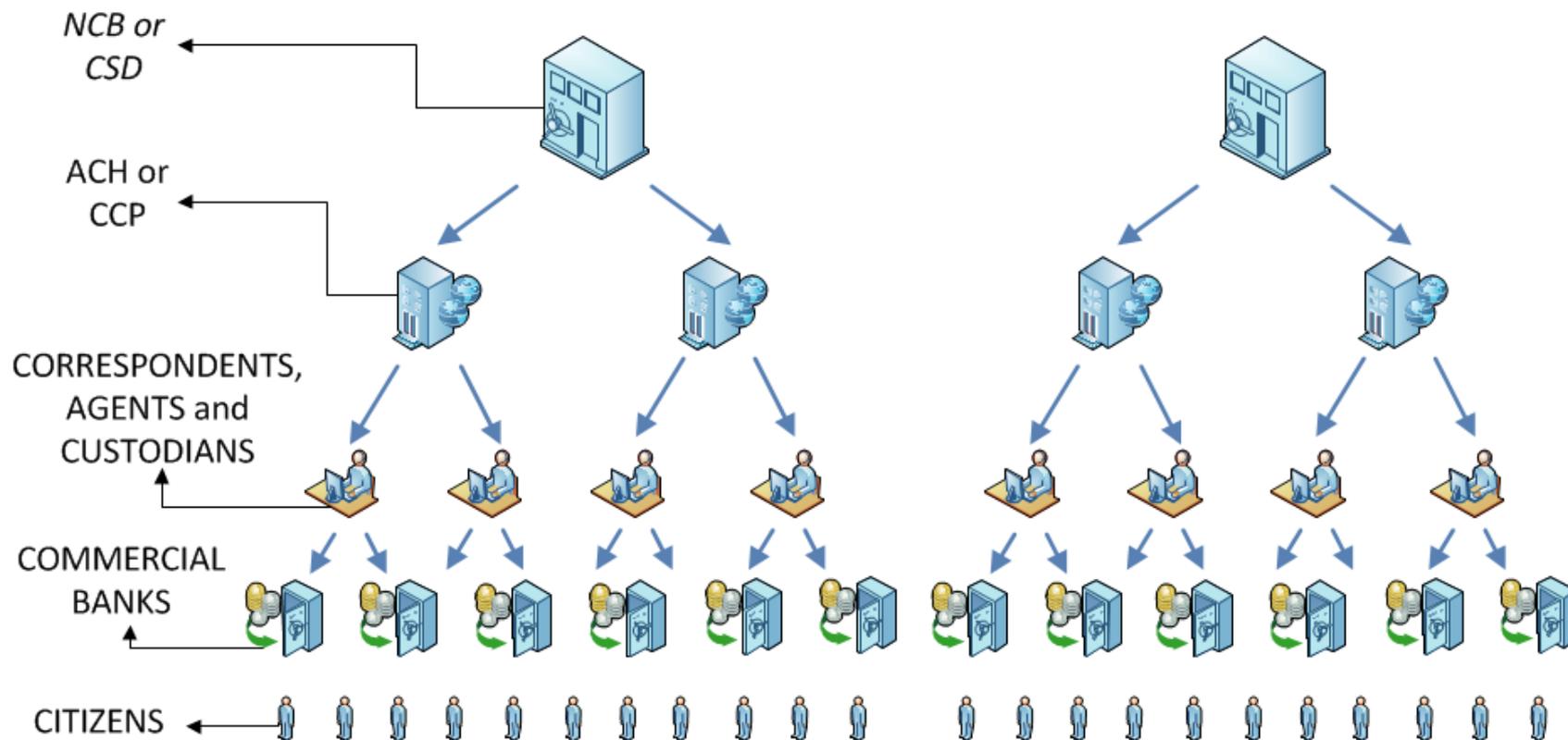
Restricted DLT network

closed system among
identified and accountable
entities

Unrestricted DLT network

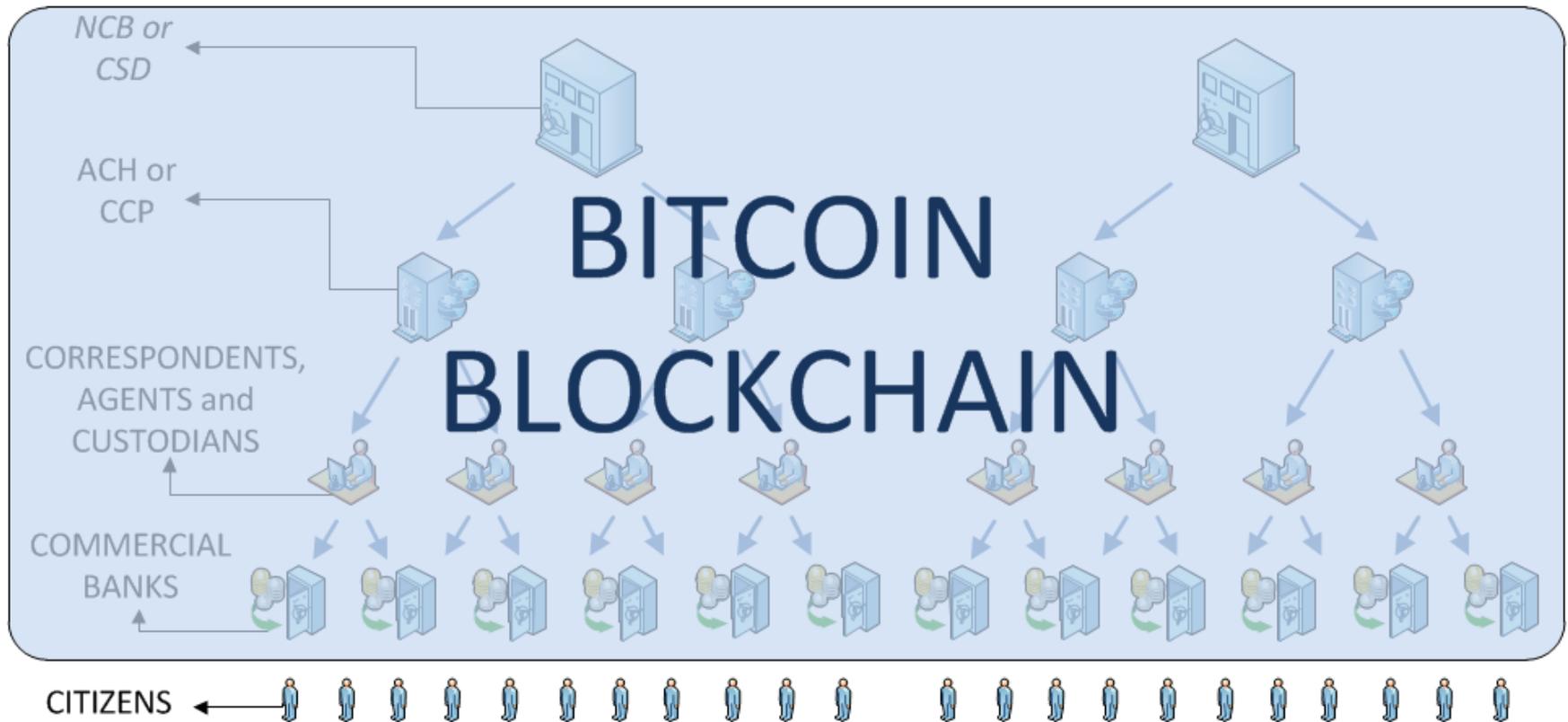
unknown entities can
propose/validate
transactions

- Unrestricted DLTs do **not** allow to:
 - punish **illicit** behaviour
 - ensure **compliance** with KYC, AML, and ATF provisions
 - use **efficient** validation methods
- Financial institutions are focusing on restricted DLTs
 - **Governance, authentication** and **accessibility** will be key issues

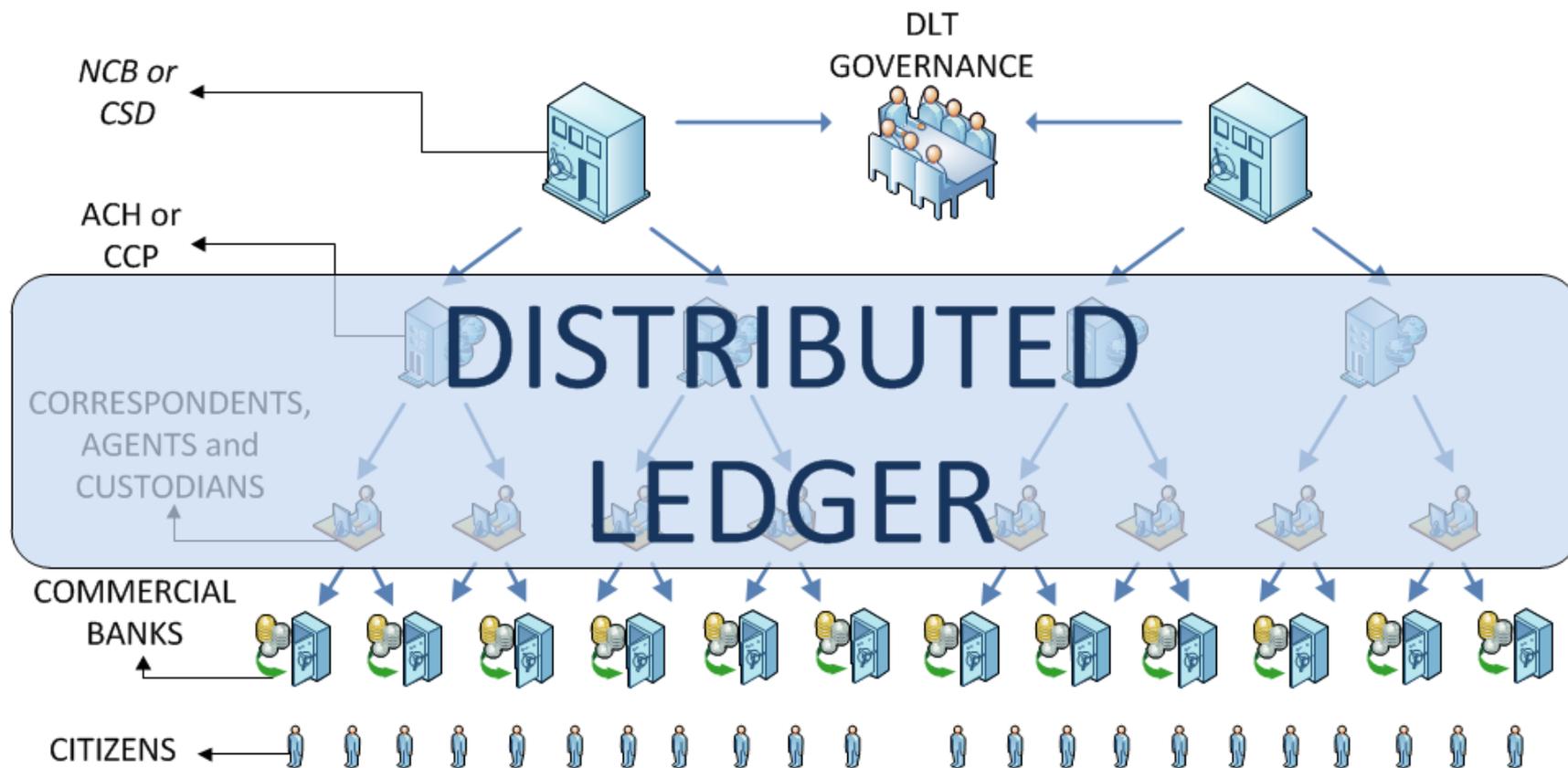


- **Layers of intermediation require reconciliation processes**

- both in the realm of payments and securities
- particularly in cross-border transactions
- before the settlement instruction reaches e.g. T2, T2S



- ***Some developers of DLTs still envisage full disintermediation***
 - Financial transactions would involve no regulated institution
 - Monetary policy might be affected in the case of wide adoption
 - No governance to take responsibility of what happens in the network (a deadlock?)



- ***DLTs might be useful to increase market efficiency***

- Settlement of transactions potentially instantaneous
- Some intermediaries and central clearing still in the picture (certainly for derivatives)
- Clear governance and responsibilities stay with regulated financial institutions

➔ *To reduce back-office costs*

- Reconciliation of information across different layers of financial markets
 - financial institutions expect to spend \$1.2bn to reconcile data in 2016 (AITE)
- Reporting data to different authorities
 - authorities could access the ledger with special privileges to get data

➔ *To lower risks to be hedged*

- Shorter settlement cycle (potentially instantaneous)
 - lower collateral needs
 - lower capital requirements
 - **but:** higher liquidity needs (possibly offset by automated lending on ledger)

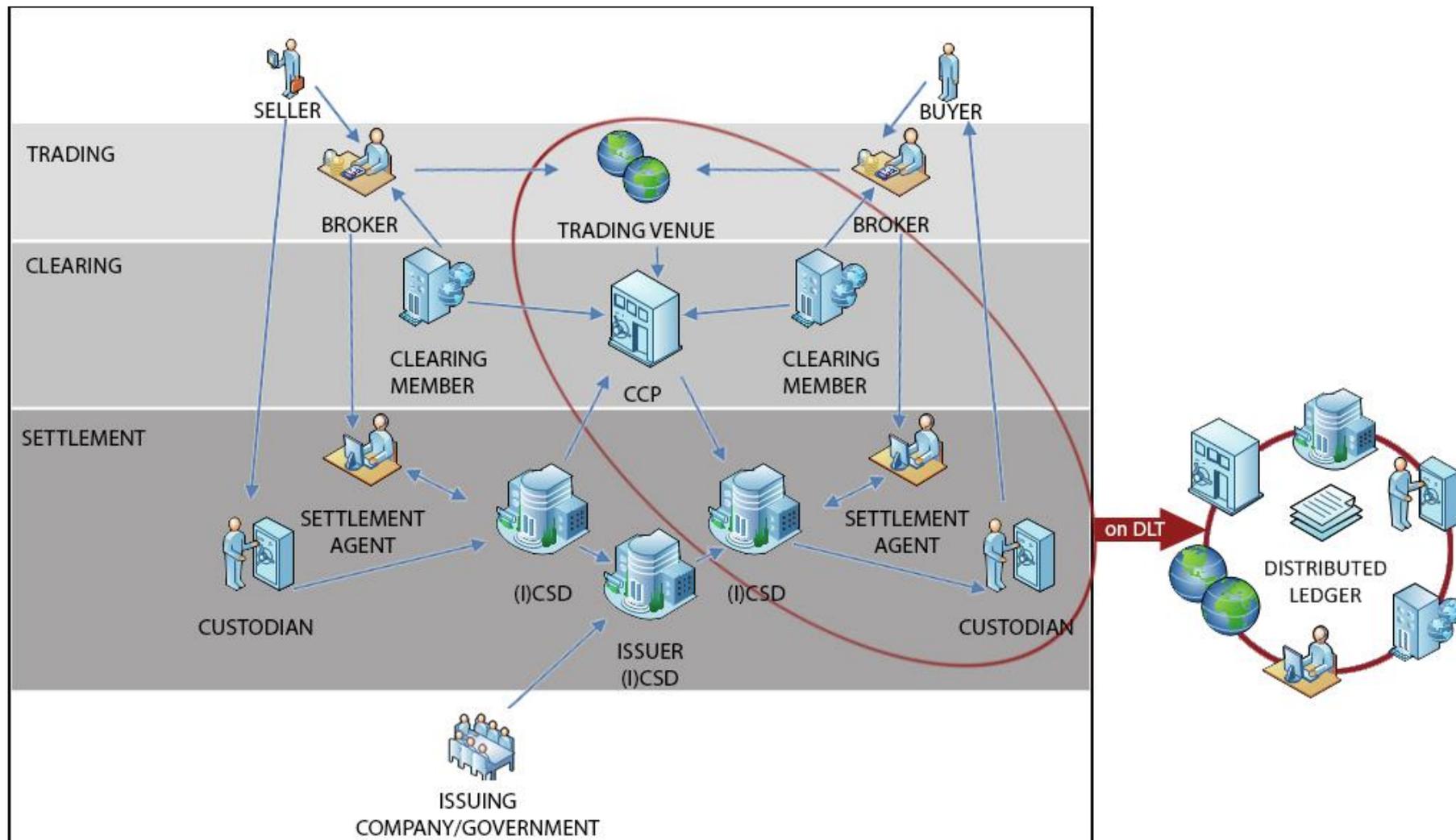
➔ *To increase cyber resilience*

- Multiplicity of validation nodes might make:
 - cyber attack more difficult (that depends on the cyber awareness of participants)
 - detection and recovery faster

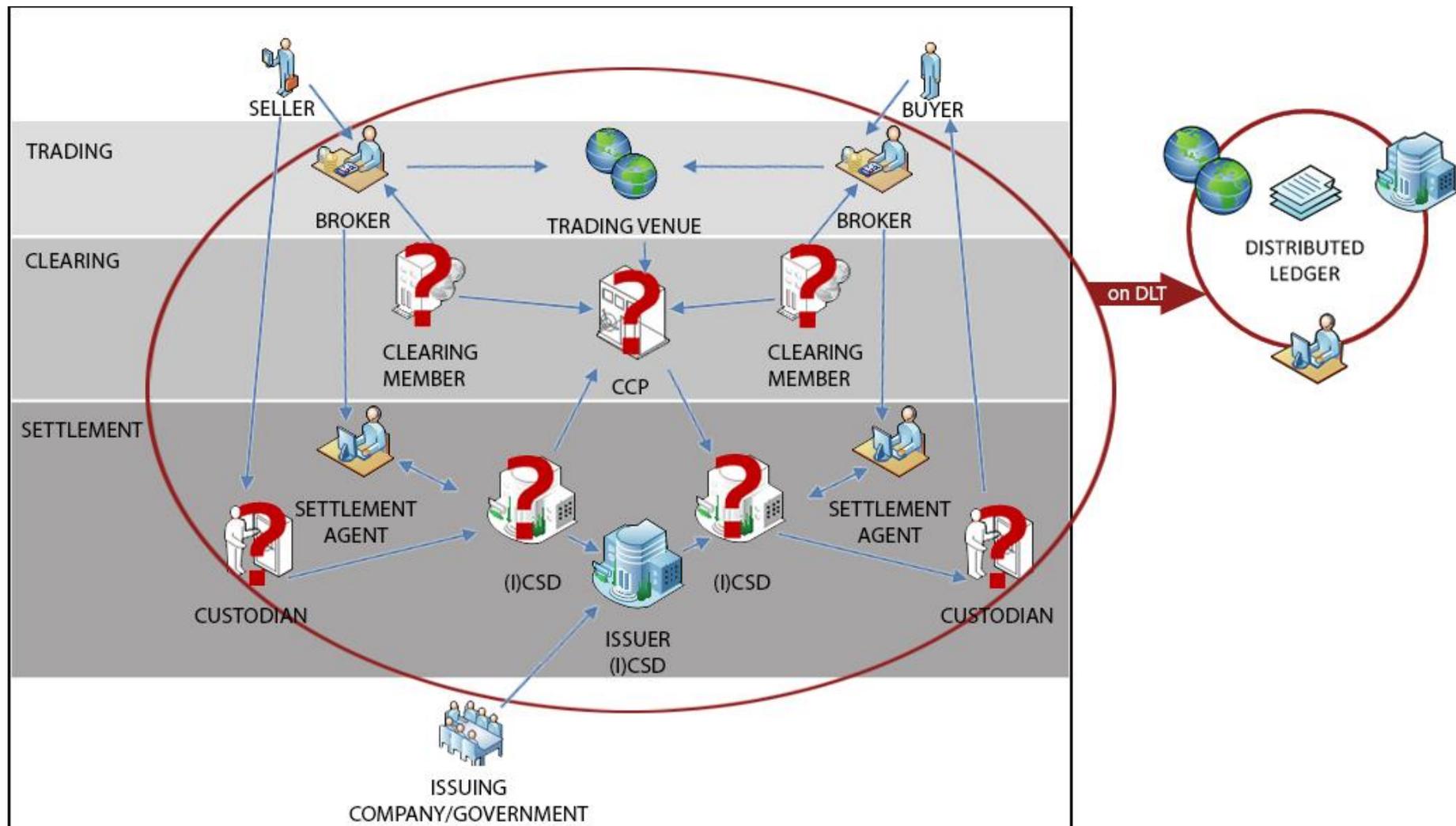
➔ *To flatten the value chain*

- Straight-through processing before the settlement layer (if standards are agreed)

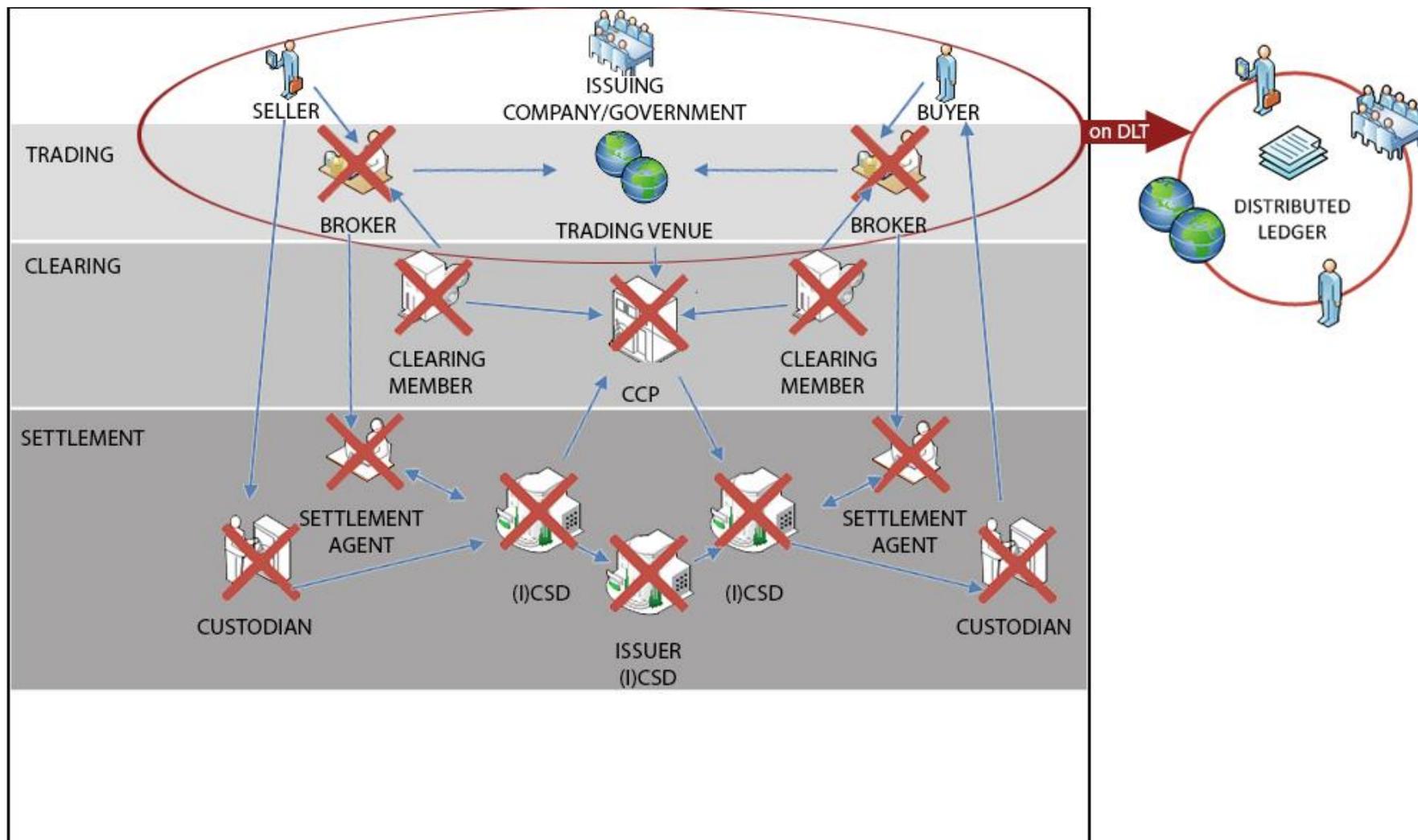
Scenario 1: DLT to improve cluster efficiency



Scenario 2: market-wide adoption



Scenario 3: peer-to-peer financial markets



➔ ***DLTs are a diverse set of technologies***

- It is important to find a **common understanding** before DLTs can even be considered
 - “Unrestricted”, “permissionless” (?!), “public” cannot be used interchangeably
- Need common approach and standards at a **global level** (e.g., CPMI, IOSCO, ISO)

➔ ***Some features of financial markets appear non-negotiable***

- Financial stability requires **finality** (irreversibility in DLTs often misunderstood)
- Consumers protection requires **accountability** (who is responsible under what law?)
- Efficiency requires a **governance** structure able to e.g. change protocol
- ➔ DLT as a technological innovation is unlikely to enable broad P2P financial systems

➔ ***DLTs seem to have a real business case only if standardised***

- DLTs do not offer better **performance** over central database technologies
- Potential gains are linked to **changes in industrial organisation** DLTs might facilitate

➔ ***Public authorities seek safe and efficient markets***

- Market participants are welcome to work towards **safe and efficient** innovations
- The ECB is committed to fully **understand** innovative technologies and their impact on financial markets, playing the role of **catalyst** when requested (e.g. T2S DLT TF)

The views expressed are those of the author and do not necessarily reflect those of the ECB