

ECB DLT trials

An industry debrief

In partnership with

clearstream | DEUTSCHE BÖRSE
GROUP

the ValueExchange 

ECB DLT trials

Key industry findings



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Over 200 transactions, conducted by over 60 organisations in 2024

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Viable cash, clearing, contracts: the game changers

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Momentum, continuation and return-on-investment



ECB DLT trials: an industry debrief

Overview



In 2024, the European Central Bank led an extensive group of industry participants in an unparalleled programme of DLT trials and experiments.

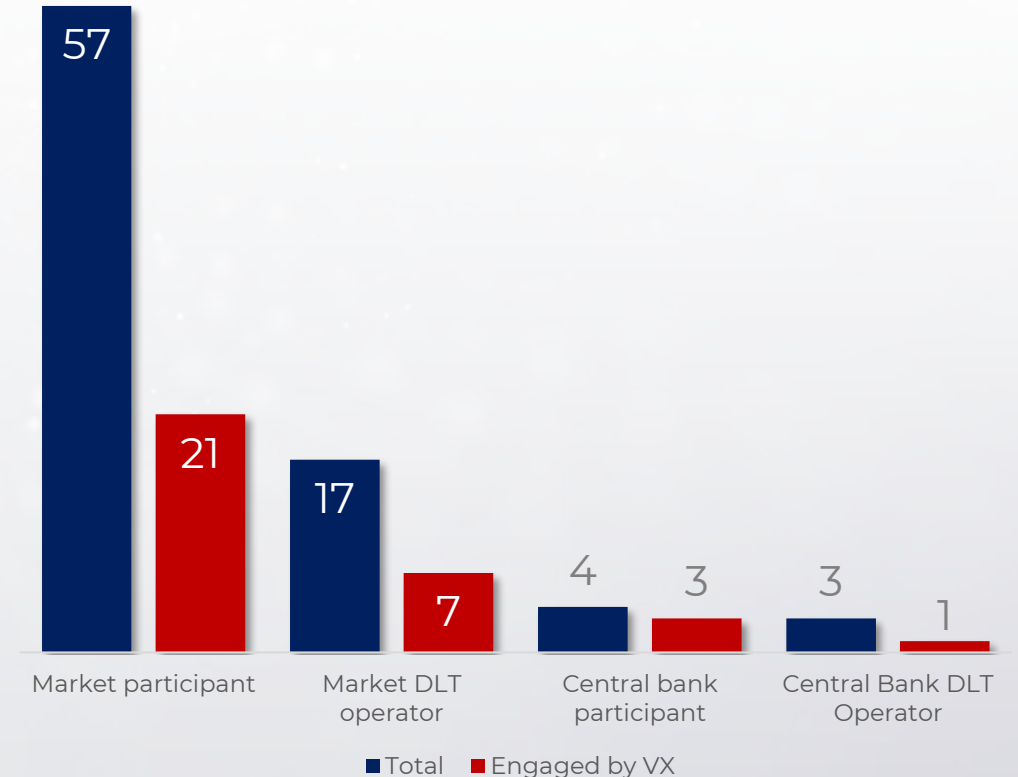
With 64 participating entities (including Central Banks, Issuers, Banks, Market Infrastructures, Investors and Technology providers), the “**ECB DLT trials**” were unique in the scale and breadth of their activity.

Across the 200+ transactions completed during the trials, a large number related to securities processing, including issuance, settlement, servicing and mobilization. These transactions have generated significant momentum in the digital innovation domain and provided valuable, fresh insights around the viability of DLT and digital cash across the European investment cycle.

This document summarises the business insights gained through the ECB DLT trials and experiments – with the intent of **documenting the current state and outlook for DLT across the European Union**.

It draws together feedback from 32 participating firms in the trials – all of whom have been interviewed by the ValueExchange (in November / December 2024). All views reflected in this document are solely those of the ValueExchange.

Entities participating in the ECB DLT trials and engaged by VX for this debrief



We would love to talk through these findings with you and so please feel free to reach out to us at info@thevalueexchange.co if you would like to dig into these results together.



Introducing the ValueExchange



Empowering change-makers in the capital markets with expert-backed, statistical insights on the case for transformation

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Hands-on experience

Over 25 years of practitioner experience in securities and capital markets

Expert community

An active and engaged community of industry leaders and changemakers across the globe

Unique industry data

Over five years of in-depth data on how and where the world is transforming its investment operations



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Concierge

Our personalized service to help you get the answers you need



Measure Impact

Specialist benchmarking insights to track the economic impact of your transformation in dollars and cents



Industry advocacy

Collaborative, industry-wide campaigns to make the case for transformation



Thought leadership

Tailored whitepapers, factsheets and webinars to help you make your case for transformation

01

The ECB DLT trials in numbers



ECB DLT trials in numbers

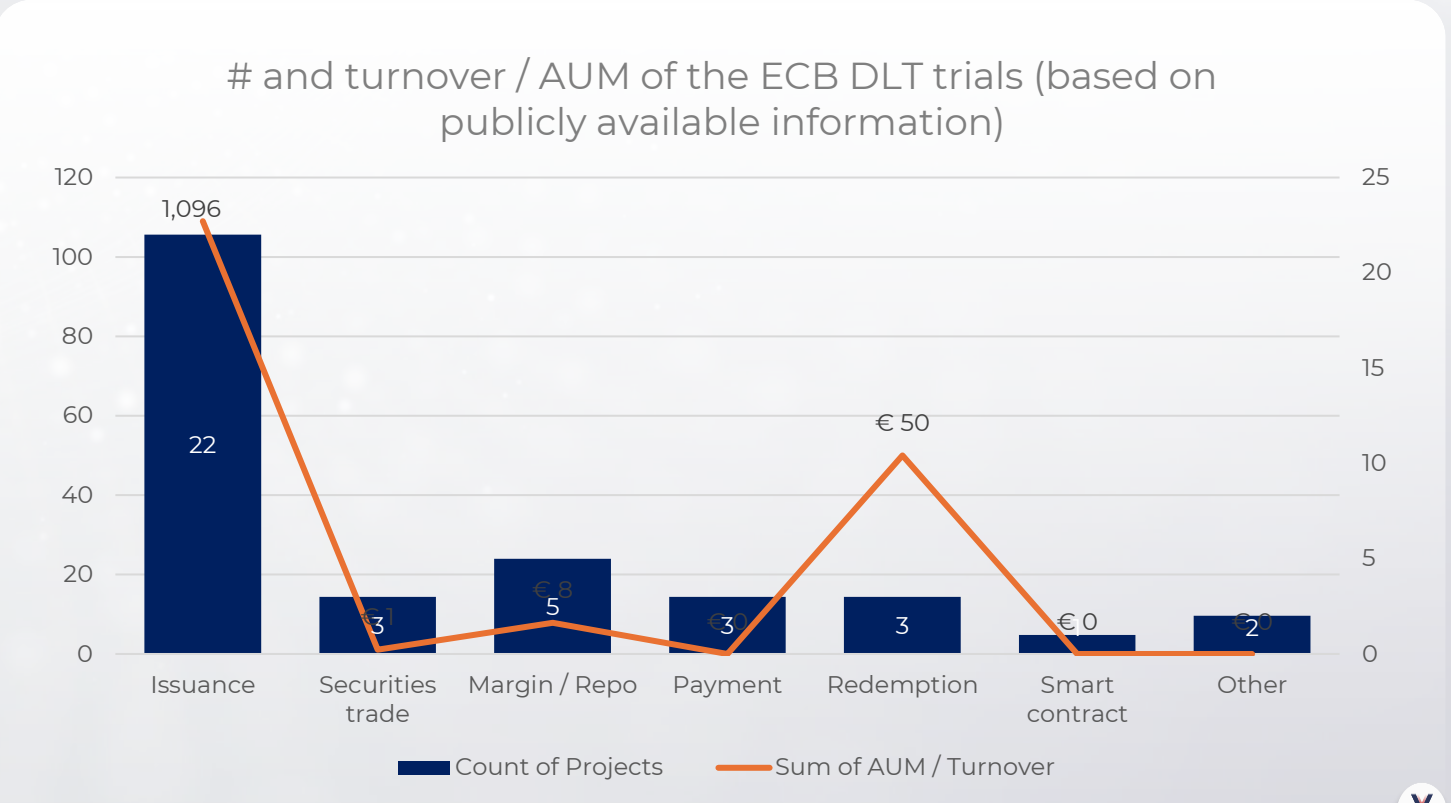
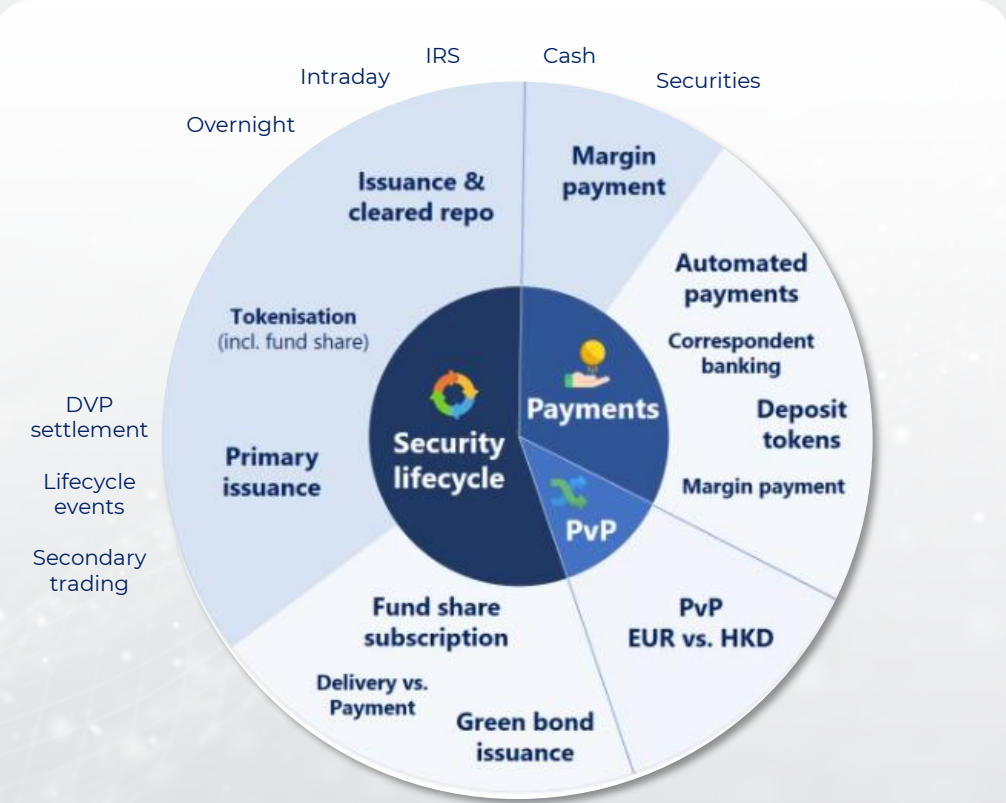


64
participant firms

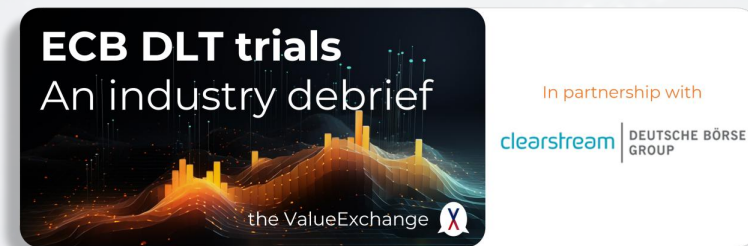
40
trials and experiments identified

200+
transactions

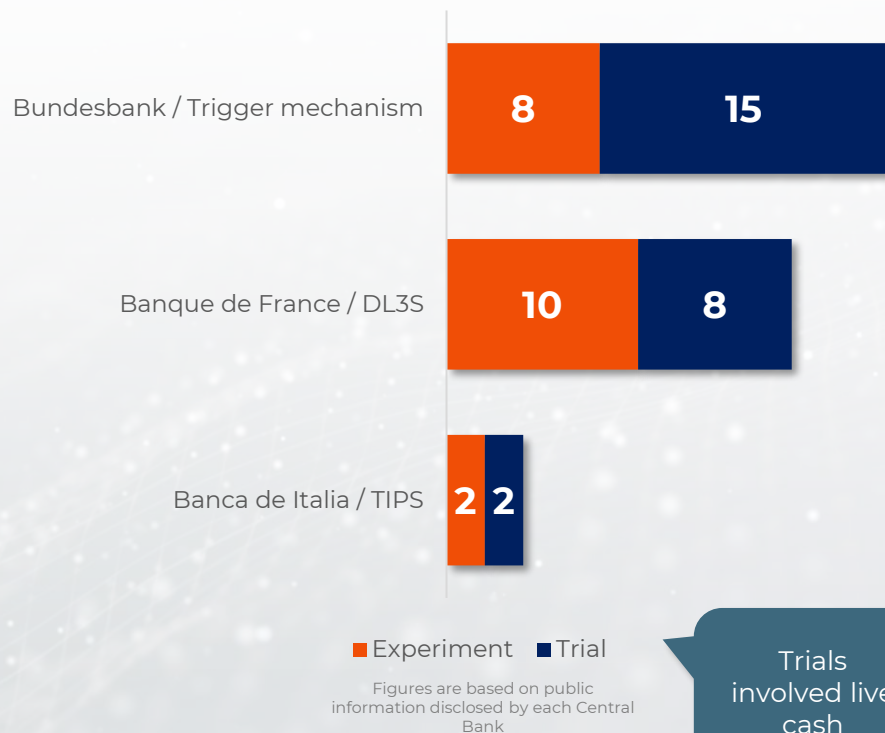
EUR1.6 billion
in AUM/turnover



Who made up the trials?



Central Banks



Trials involved live cash

Industry participants (Top 10 by # of projects)

Entity	# of Projects (inc. all roles)*
DekaBank	13
Deutsche Boerse Group (inc. Eurex, Clearstream)	11
BNP Paribas SA	10
Landesbank Baden-Württemberg (LBBW)	9
DZ BANK AG	8
ABN AMRO Bank N.V.	7
Helaba	5
NatWest Markets N.V.	5
ABN AMRO Clearing Bank N.V.	4
B. Metzler seel. Sohn Co. AG	4

All figures are based on VX research

*Some organisations participated in the trials in multiple capacities (i.e. as technology platforms, market infrastructures, issuers, investors, etc.)

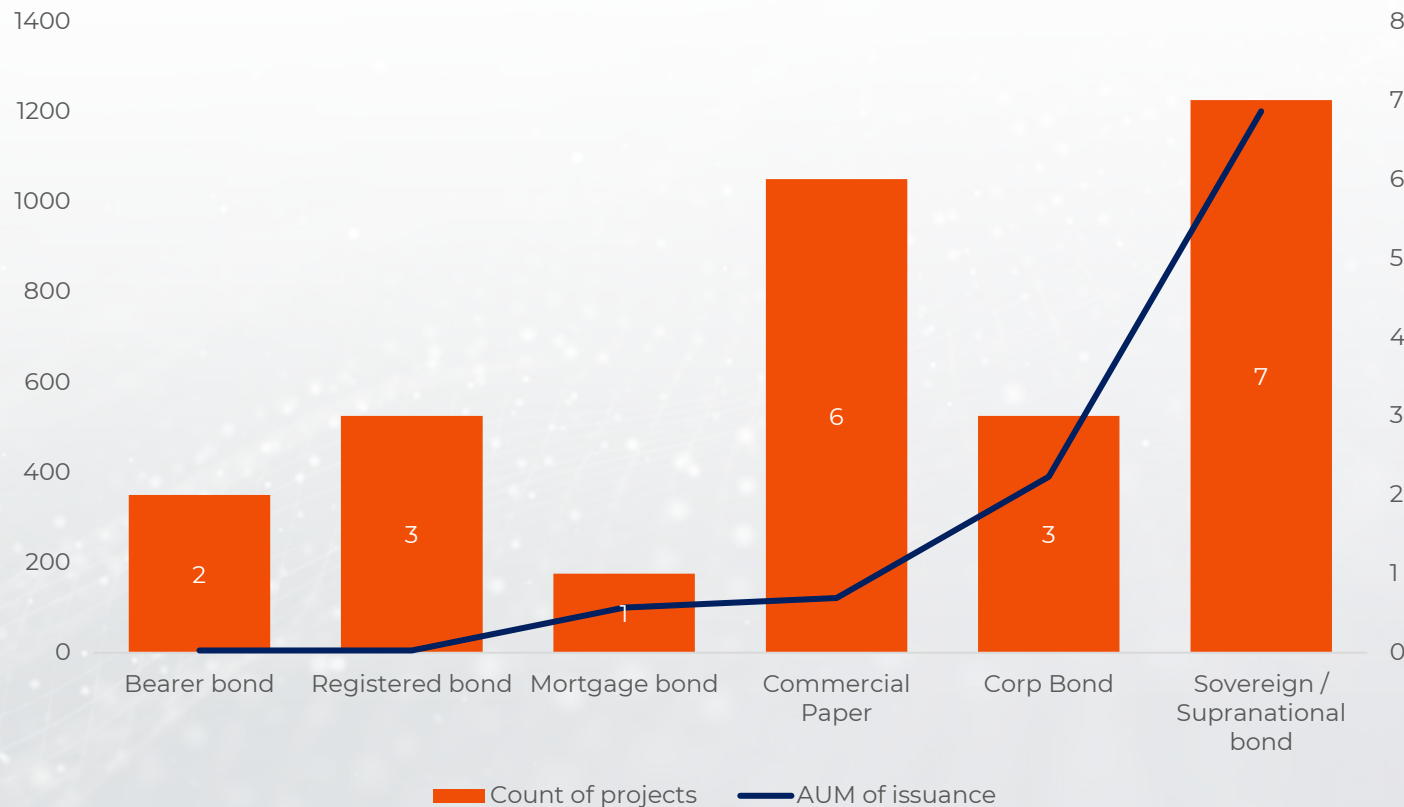


Which assets were issued?



Top 5 Leading issuances (by size)

Asset types issued during ECB DLT trials



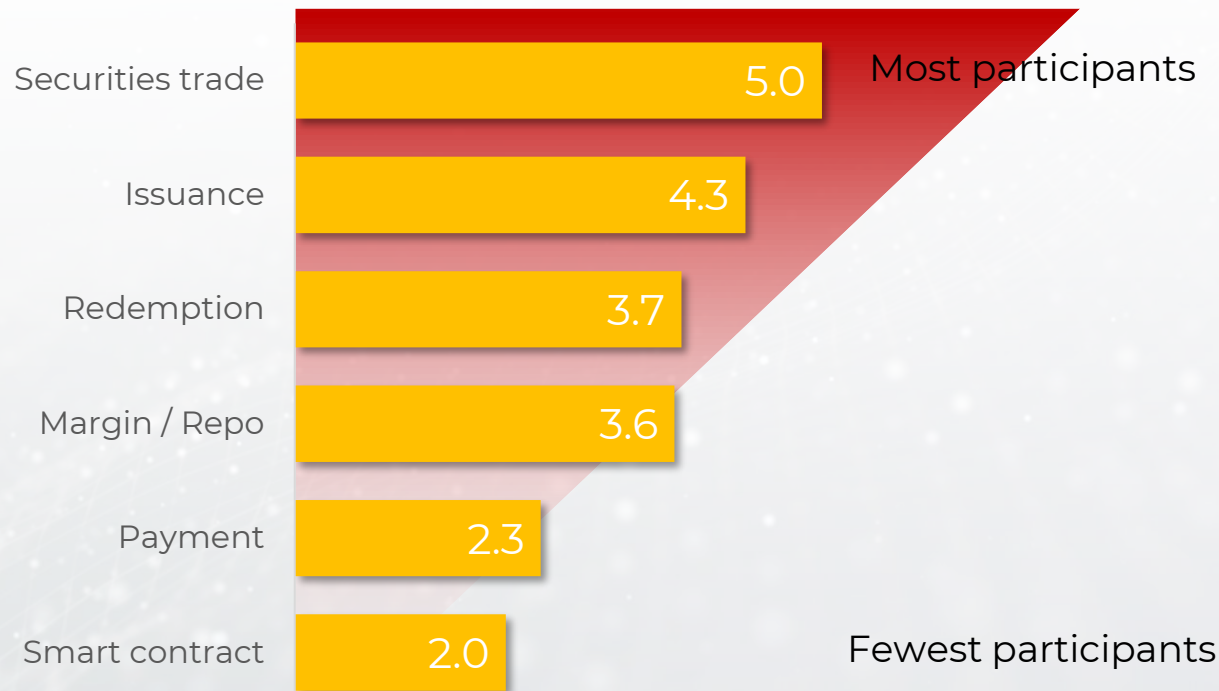
Project	Size (EUR)
Siemens (Corporate bond issuance)	330
Caisse des depots (Sovereign / Supranational bond issuance - first by France)	100
European Investment Bank (Sovereign / Supranational bond issuance, 1 st in Nov)	100
European Investment Bank (Sovereign / Supranational bond issuance, 2 nd in Nov)	100
LBBW / Berlin Hyp (Mortgage bond issuance)	100



How wide were the use cases?



Average number of participants per type of project



Leading cases (by # of participants)

Project	Participant #
Siemens corporate bond issuance (EUR330m, Sep)	9
Italian Banking Association Innovation Lab (ABI Lab), 8 of its banking partners & the Banque de France: automated wholesale payments	8
European Investment Bank bond issuance (EUR100m, 15th Nov)	7
Caisse des depots bond issuance (EUR100m - first by France)	7
European Investment Bank bond issuance (EUR100m, 22nd Nov)	6
KFW bond issuance (EUR50m, Aug)	6



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Industry feedback



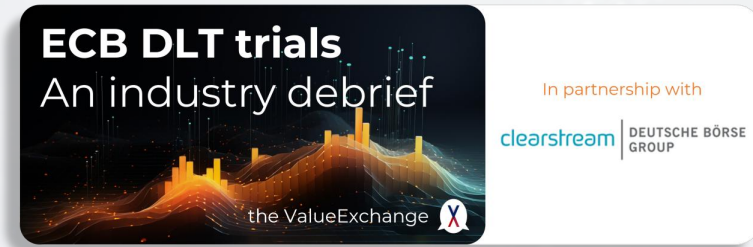
What did we learn from the trials?



	Impact of trials (Did the trials move the needle?)	Leading use cases	Key developments from trials
Issuance	Medium impact	EIB bonds, Caisse des Depots bond, Cassa Depositi e Prestiti (CDP), KFW	Global custody framework validated New issuance model
Securities Settlement	As expected	Rabo/ABN	[Key dependencies on existing industry practices; multi-chain custody]
Fund share dealing	As expected	BNP Paribas, IZNES	Use of central bank cash for settlement
Cash payments	As expected	CACEIS / Credit Agricole	Use of central bank cash for settlement
Margining / Repos	High impact	Eurex, CBOE Clear, DZ Bank, HQLAx	Immediate viability within existing legal / operating frameworks
Redemptions	As expected	[TBC]	None



What did the trials achieve?



Key themes

The trials moved most of us **from “beginner” to “intermediate”** in terms of experience and expertise on DLT

The trials were a key, **compelling event** that made us all do work (in several months) that may have taken years otherwise

The trials have generated **real momentum and infrastructure** across over 70 firms now in Europe: as a first foundation of a digital CMU



What did the trials achieve?



Net New

1. Clearing / Margin

- Confirmation of near-term viability for IRS, CCP margining and Repos

“Total game-changer”

2. Contractual agreements

- Over 70 firms have now executed DLT agreements – creating an industry basis of counterparty agreements on which to build

“This would have taken us years otherwise”

3. Viable cash

- Validation of interoperability / trigger mechanisms as being able to support near-term industry priorities

“The trigger mechanism works within our existing plumbing”

Foundational

4. Understanding of next steps

- Clear understanding of the issues that now need to be addressed for on-chain cash and further development of DLT operating models (esp. legal, cash finality, etc.)

“The trials evidenced what more needs to be done”

5. Operating infrastructure

- Leading firms have direct experience in building out digital operating models now
- These models are now in place at major market operators and leading participants (e.g. network connections, accounts, etc.) – which have been reused multiple times in the trials.

“The trials have shown us what the real target operating model will look like”

Education

6. Education

- Less experienced firms were able to gain live exposure to DLT for the first time (10-20 firms)
- Internally, the education (and inclusion of) risk and legal functions has been a major benefit

“We’ve gained new working knowledge of DLT across more than 7 departments”

7. Press releases

- Across the market and within firms, over 100 press releases have been issued – generating market visibility and FOMO
- Unfortunately, the press releases were also the main target outcome for many firms in the trials

“Most of our clients were really just in the trials for the press release”



What did we learn?

Key challenges and requirements



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Technology

- **DLT technology isn't the issue**
- Getting started and operational was easier than expected (technically)
- Only performance issues experienced were linked to limitations of the trial (i.e. not the technology)

Legacy

- **Connectivity to / dependency on legacy systems** is still a fundamental blockage to fully programmable cash (i.e. how to book a digital EUR in a legacy treasury system)
- **We're only as automated as our legacy processes:** Legacy processes are an obstacle to full and real time automation (i.e. underlying batch systems or manual tax processes)

Liquidity

- All fixed income digital asset lifecycle activities (from issuance to repos) require the **assets to be HQLA and ECB eligible as collateral**
- This is a critical obstacle for future adoption: if investors can't hold it then there is no value in issuing it

Legal frameworks

- All DLT / digital asset agreements are bilateral today: and subject to each firm's understanding / risk appetite.
- 80% of investors dropped out when they saw the legals
- This is a massive obstacle to scale
- **We need a digital GMSLA**

Networks

- Cash and security integration into a single chain is hard: **multiple infrastructures are inevitable**
- How to **avoid creating new fragmentation** of liquidity and new risks?
- **"Who is the network aggregator?"** This is a key role to manage 'networks of networks'
- **'Certified networks'** are needed (to help prioritise / focus)
- ECB trials infrastructure can be seen as **basis for European infrastructure**

Custody

- Lack of digital custodians is a key dependency – partly because of direct holdings model and because of limited supply
- "Otherwise we have to be our own custodian" which means a "whole new configuration of our processes"
- All of **this adds to the costs of adoption and slows progress**
- Also platforms need to be open to different custody solutions ("we have our own keys and we want to use them")



What did we learn?

Key challenges and requirements



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Cost efficiency

- Firms have had to invest heavily in parallel infrastructures (for digital transactions): including technology, processes and legal approvals
- This is a lot of investment for just one trade (i.e. in the trials): **we must scale now**

Standards

- **Industry standards and guidelines are needed** on asset definitions, messaging, cash tokens and network types
- ECB / Eurosystem is ideally placed to play a leading role in developing a European Digital Framework

Conventions

- Today's end to end trade cycles are very old and based on established market conventions (e.g. trade entry in Bloomberg)
- These market conventions would need to change to enable true digital benefits
- **But who controls these conventions?** Most are outside of any one firm's control

Ecosystems

- Most participants in the trials were already experienced with DLT: which means we are not growing the pie (Institutional) investor participation was extremely limited
- Without more participants, ecosystems will remain small – and so will the benefits
- **How to widen the engagement?**

Investors

- Investors didn't want ECB tokens and they didn't want nodes / direct connections – they connected via APIs or Swift
- **Working with DLT has to be seamless for investors (i.e. zero change) but also better**
- How to drive an optimal proposition that delivers unique benefits and efficiency gains without complexity?

Leadership

- **Central Bank support and leadership in the trials was a critical enabler**
- Key benefits in driving participation, addressing issues, forcing difficult conversations and adding trust
- Strong reliance on ECB leadership for future development (across public and private partnership)



What did we learn about cash?



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Today

- + Immediately viable in (legacy) systems and processes
- + Easy for investors to understand
- + No pre-funding



- Lacks full programmability (hence limited benefits)
- 24/7 availability?

“The trigger mechanism isn’t the final solution. But we don’t need the perfect model to make progress. It’s the ideal tactical option”

Tomorrow

- + A foundation layer to digital CMU / Grand ledger
- + Links well into global initiatives (e.g. Project Agora)
- + Fully programmable



- Split Eurosystem liquidity pool
- Not compatible with (legacy) systems
- Legal frameworks (settlement finality) still unclear

“A real CBDC wasn’t going to be quick but now we know what the path ahead looks like”



What didn't we learn?



Scale usage

Most use cases were too small (in volumes and number of counterparties) for firms to be able to experience and test at scale

Digital operating models

(Partly) owing to the short time window of the trials, firms had to use existing technology and processes – meaning that they were not able to optimize their platforms to evidence the full benefits of DLT

Live trades

Very few trades were run within live, control environments – many were using APIs and GUIs. As a result, few firms were able to get insights on the organizational impacts of live digital trades

Scope

Trials focused strongly on bonds and short-term instruments (largely due to trial deadlines), limiting the complexity of processes and assets.
Asset servicing scope of trials was very limited, meaning less visibility on the operational impact of digital securities on firms' securities lifecycle management

Buy-side

With very limited buy-side participation, true end-to-end tests of secondary trades were difficult to achieve



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Looking ahead

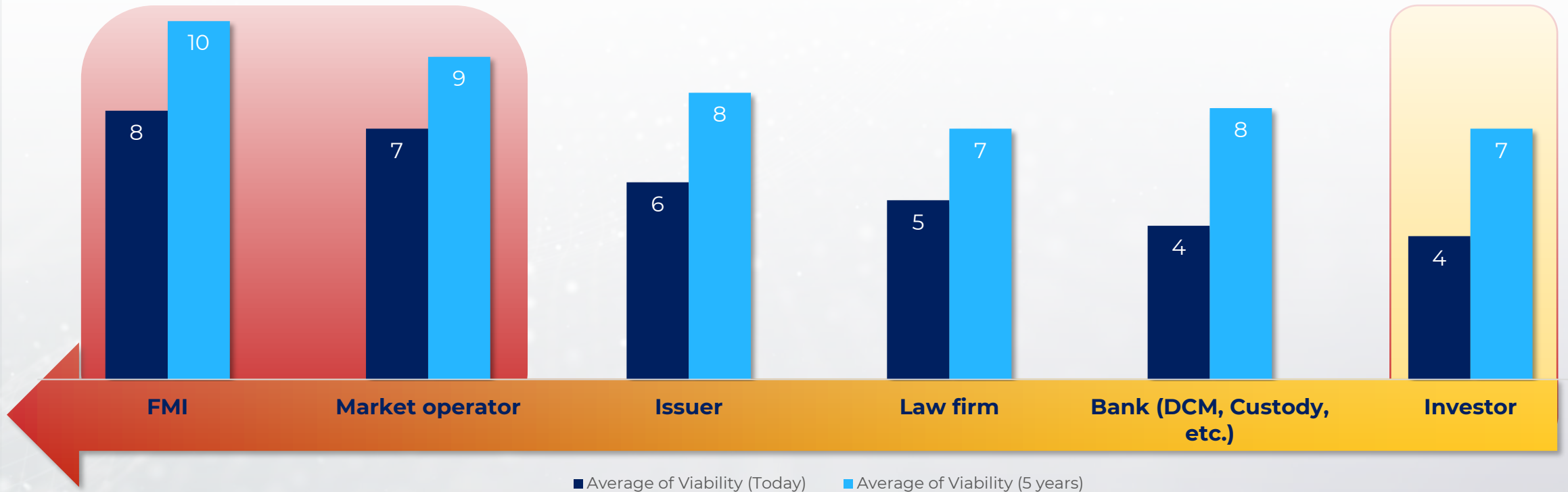


How viable is DLT today?



Market infrastructures and operators are highly bullish on viability – but what about investors?

ECB DLT trials impact and perceived viability of use cases (today and in 5 years, score out of 10)

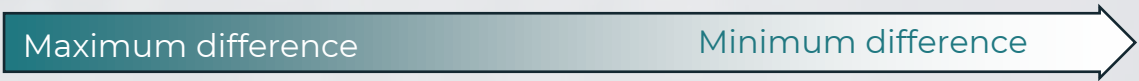


Where is the value?

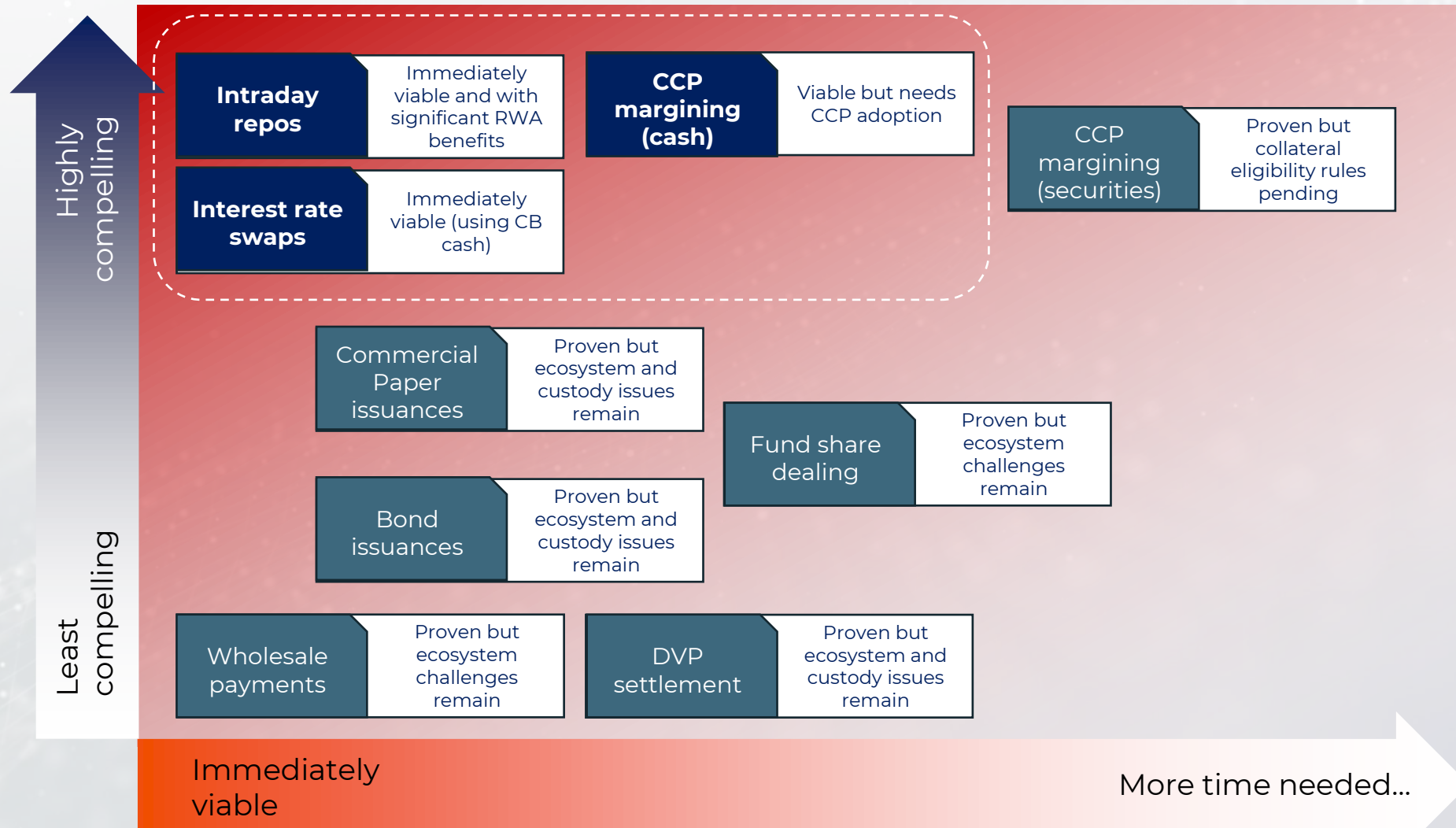


Value of DLT / digital assets vs existing industry operating models and technology

	Speed	Cost	Risk	Revenue generation
Issuance	15 mins (vs T+2)			
Securities Settlement	Instant (vs 1-2 hours)			
Fund share dealing	1 hour (vs T+3)			
Cash payments	Instant			
Margining / Repos	Instant (cash) 1 hour (securities)			
Redemptions	1 hour (vs T+2)			



What is ready to scale?



Cases not tested:

- Programmable (secondary market) trades or settlements
- Fund tokenization (at securities level) and lifecycle

(All examples assume use of trigger mechanism)



What next?



“We absolutely want to keep up the momentum that these trials have driven”

“Now we’re ready to see these trials through to (commercial) conclusion”

“We want to continue to experiment and learn about digital cash”

Key next steps

Potential Leaders

Level of demand (% of firms interviewed)

Timeframe	Key next steps	Potential Leaders	Level of demand (% of firms interviewed)
2025	Continued availability of Trigger mechanism, DL3S and TIPS Hashlink for further development	Eurosystem / ECB	88%
	Removal of limitations on availability of current cash mechanisms	Eurosystem / ECB	19%
2026/2027	Adoption of digital asset / cash frameworks within today’s processes (e.g. margining)	CCPs	16%
	Definition of standardised digital asset agreements (based on standard asset definitions)	[ICMA / ISDA?]	47%
	Definition of (consolidated) roadmap for European central bank cash mechanisms	ECB	78%
	Recognition of digitally issued, high quality assets as eligible collateral by ECB	ECB	72%
Medium term	Standardisation of rules for asset definitions, messaging, roles & responsibilities, networks	ECB / Industry associations	41%
	Definition of a common industry ledger (strategy)	ECB	38%
Ongoing	Increased provision of digital asset custody	FMI and custodians	19%
	Increased education of market participants (esp. investors)	All	38%





Thank you!

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