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Tokenised finance and its relevance for money markets

ECB MMCG March 2026

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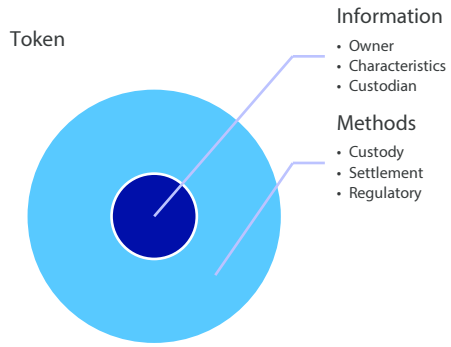
This presentation represents an independent perspective, shaped by observations, insights, and discussions with a diverse range of stakeholders.

Tokenisation matters for money markets

Efficiency, liquidity and automation gains possible despite current limitations.

Tokenisation converts claims into tokens with embedded ownership data and governance rules.



This structure delivers atomic settlement and composability

Current challenges and considerations (IOSCO)

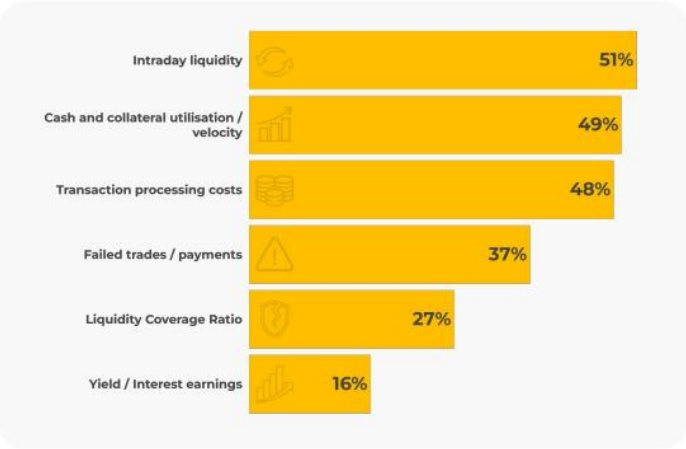
Current Challenges

- Adoption still early & uneven
- Fragmented liquidity across platforms
- Interoperability limitations
- Custody & workflows depend on intermediaries
- Lack of common standards

Risk & Regulatory Considerations

- Legal ambiguity & unclear classifications
- Smart-contract & cyber vulnerabilities
- Technology concentration risks
- Regulators refining frameworks & taxonomy

51% of respondents see intraday liquidity as the practical impact of tokenisation and digital cash (DLT in The Real World 2025)



Sources: BIS Bulletin No 72 (2023); IOSCO report on "Tokenisation of Financial Assets", November 2025
broadridge-dlt-in-the-real-world-2025-report.pdf

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Key criteria comparison across US and EU

Innovation or integration: some level of homogeneity, significant differences remain

CATEGORY	CREDIT RISK		INTEREST RETURN		TRANSFERABILITY	
	US	EU	US	EU	US	EU
Tokenised Deposits	Same as bank deposits.		Bank deposit rates.		Transferable only to counterparties KYC'd by issuing banks (mostly on private blockchains, or via whitelisting in public ones)	No significant tokenized deposit solutions deployed in the EU.
Tokenised MMFs	Same as MMFs & Fintech (e.g. Spiko)		Money-market yields.		Most tokenized MMFs have on-chain transfer restrictions (whitelisting, etc.) to comply with KYC/AML requirements. On top of that, many tokenized MMFs have high minimum investment amounts.	
Stablecoins	Reserves must be held in specified high-quality assets (demand deposits, T- bills, repos, MMFs, etc.)	Reserves must be held in specified high-quality assets. Minimum requirement of 30-60% of reserves in bank deposits.	No interest allowed. Some issuers are currently distributing interest via marketing budgets and 3rd parties, with policy debate on the loophole ongoing.	Intended use as a payment instrument: no interest is allowed.	Openly transferable between blockchain addresses, including with any smart contracts (programmability). Off-ramp access and efficiency are key chokepoints. Additionally, issuers regularly freeze addresses flagged as suspicious.	

Sources: BIS Bulletin No. 73 (2023); BIS Bulletin No. 115 (2025); MiCA Regulation; GENIUS Act; EBA; FDIC considering tokenized deposit insurance guidance, stablecoin issuer rules | ABA Banking Journal

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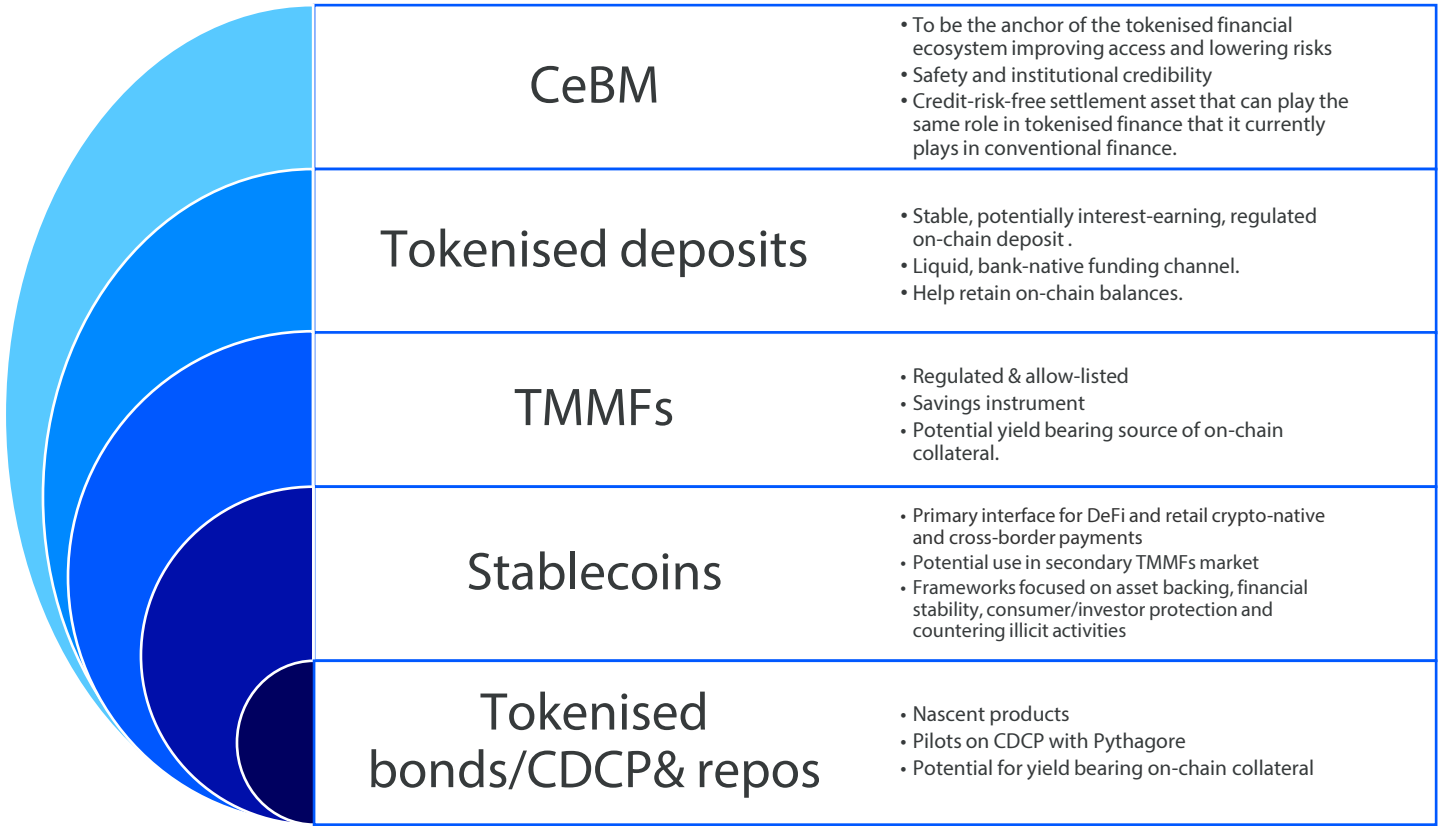
Tokenised instruments ecosystem

Complementary rather than competitive

Key attributes shape use cases

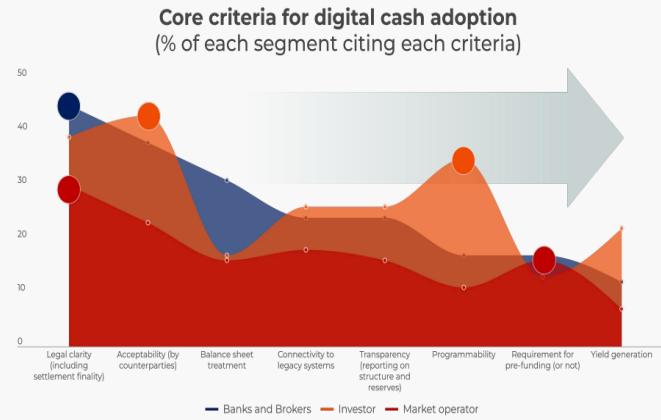


CeBM	• To be the anchor of the tokenised financial ecosystem improving access and lowering risks • Safety and institutional credibility • Credit-risk-free settlement asset that can play the same role in tokenised finance that it currently plays in conventional finance.
Tokenised deposits	• Stable, potentially interest-earning, regulated on-chain deposit . • Liquid, bank-native funding channel. • Help retain on-chain balances.
TMMFs	• Regulated & allow-listed • Savings instrument • Potential yield bearing source of on-chain collateral.
Stablecoins	• Primary interface for DeFi and retail crypto-native and cross-border payments • Potential use in secondary TMMFs market • Frameworks focused on asset backing, financial stability, consumer/investor protection and countering illicit activities
Tokenised bonds/CDCP& repos	• Nascent products • Pilots on CDCP with Pythagore • Potential for yield bearing on-chain collateral

24/7 – Settlement vacuum

- The shift to 24/7 trading creates a critical gap: traditional central bank systems operate on fixed schedules, leaving a "settlement vacuum" outside business hours.

  Without access to Central Bank Money (CeBM), participants must rely on commercial bank money or private tokens, introducing credit and liquidity risks into the settlement layer.



Sources: J.P. Morgan & Oliver Wyman, Deposit Tokens (2024); ABA Banking Journal (Sep 2025); BIS Bulletin No. 115 (2025); BIS Bulletin No. 72 (2023); BIS Bulletin No. 108 (2025); PR_Project_Pythagore_FINAL.pdf

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Hybrid instruments – The dual-world challenge

A bridge between the physical and digital worlds

Temporary challenges towards a new paradigm

Potential benefits

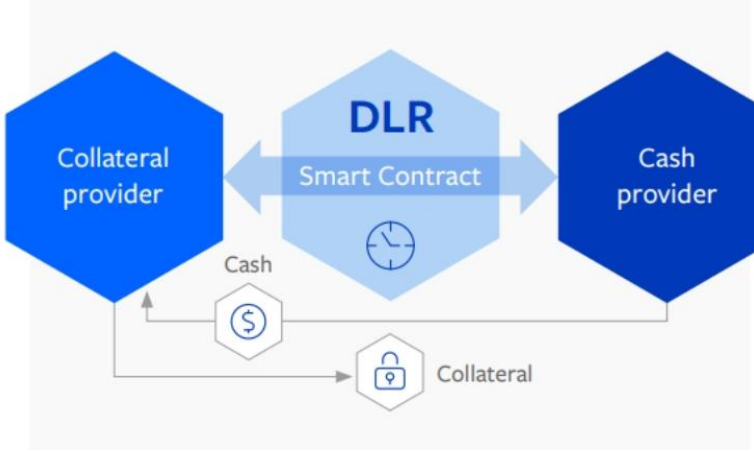
- Increased liquidity & market access outside business hours
- More transparent & auditable on-chain markets
- Innovative products
- Smart-contracts enabled efficiency and reporting

Potential challenges

- Regulatory arbitrage and compliance gaps
- Duplicative licensing
- Liquidity split between real digital worlds
- Integration with existing frameworks

Broadridge DLR – a successful case

- DLT streamlined intercompany repo trades and reduced costs.
- Legal and organizational alignment posed early adoption challenges.
- Broadridge collaboration enabled smooth, issue-free DLR operations.



Broadridge's DLR processed $362B daily and $6.9T monthly, up 457% year-over-year.

The ICMA Digital Assets Annex explicitly recognises tokenised traditional securities as eligible "Securities" under the GMRA, giving them the same legal and collateral status as their physical or dematerialised originals.

Sources: BMA Discussion Paper on Asset Tokenisation (Nov 2025); IOSCO (Nov 2025): Return on Innovation: Intraday Repo has Arrived on Scale | Broadridge; Broadridge's Distributed Ledger Repo Platform Achieves 457% Year Over Year Growth in February | Financial IT; ICMA publishes GMRA Digital Assets Annex » ICMA

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Demand for EUR tokenised instruments (1)

Unlocking and scaling tokenised EUR instruments requires Europe-wide DLT adoption and coordinated stakeholder action, rather than today's fragmented pilots.

TMMFs are growing and poised for further traction

Operational efficiency & distribution scale:

Automation reduces costs, broadens market reach, and enhances collateral utility by enabling tokenised MMFs to serve as a new source of on-chain, yield-bearing collateral when deemed eligible.

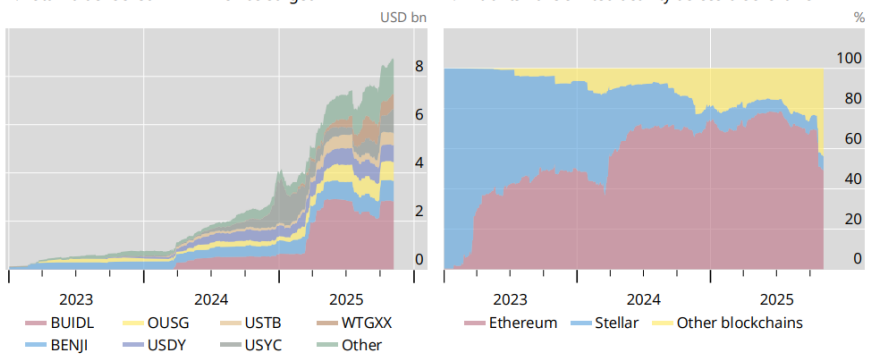
Broader access & lower costs:

Tokenised MMFs reduce entry barriers, expand investor reach, and lower transaction and operating costs through automation and faster settlement.

Instant cash-leg via digital money:

The cash leg can leverage tokenised deposits or regulated stablecoins, enabling instant, programmable settlement and near–cut-off liquidity optimisation.

The growth of tokenised money market funds (TMMFs)



[1] Total value locked (TVL); based on a sample of 36 TMMFs. [2] TVL by blockchain, as a percentage share of total TMMF TVL.

Sources: rwa.xyz; authors' calculations.

Dollar-denominated crypto and global demand sustain USD dominance over EUR stablecoins.

Global distribution, branding and network effects support current stablecoin winners:

Stablecoin issuance is dominated by a few players who have invested in distribution networks for the key use cases of crypto markets, global dollar access and cross-border payments. They also enjoy liquidity and acceptance network effects.

USD dominance:

Crypto asset markets are largely based on dollar liquidity, while global demand for dollars both as a savings and payment instrument is also strong.

Importance of open transfers:

Stablecoins' relatively open transferability on-chain (see slide 3) is a key enabler to the use cases they currently support.

Sources: MMCG - 2024-09-18 - Item 3 - Tokenisation in money markets; BIS Bulletin No. 115 (2025)

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Demand for EUR tokenised instruments (2)

Unlocking and scaling tokenised EUR instruments requires Europe-wide DLT adoption and coordinated stakeholder action, rather than today's fragmented pilots.

Tokenised deposits

On-chain settlement private asset:

J.P. Morgan's Kinexys platform has been live with its JPM Coin (a deposit token) since 2025, processing over $1.5 trillion in transactions and expanding to public blockchains like the Canton Network.

HSBC launched its cross-border Tokenised Deposit Service (TDS) in September 2025 for corporate clients, enabling real-time, multi-currency payments across its global locations.

Citi expanded Token Services with Euro support and Dublin base in November 2025, enabling 24/7 real-time cross-border liquidity and payments via private blockchain.

Other institutions like Deutsche Bank are actively partnering on similar solutions.

A new retail funding channel by minting directly to a broad retail audience and expand non-maturing deposit base?

Deposit-taking requires local licence and CRD VI (Art. 21c) prohibits third-country firms from providing core banking services cross-border without a branch/subsidiary.

Deposit guarantee schemes are jurisdictional. Cross-border retail coverage is not in place

AML/CFT and KYC compliance is tied to identified client. Rules prevent a bearer model and conducting proper KYC on large numbers of wallet holders across multiple jurisdictions is a non-starter

It could work in Eurosystem but not scalable beyond.

Rabobank is taking a pro-active approach to euro-tokenised deposits, assessing benefits, costs, and currently unclear regulatory and accounting treatments. We will first examine intercompany funding use cases before considering corporate, financial, and eventually retail deposit applications

Tokenised bonds/CDCP and repos

Bonds/CDCP:

Depending on tokenisation design, tokenised government bonds may show improved liquidity and comparable issuance costs, offering potential efficiency gains in key financial markets despite being early-stage.

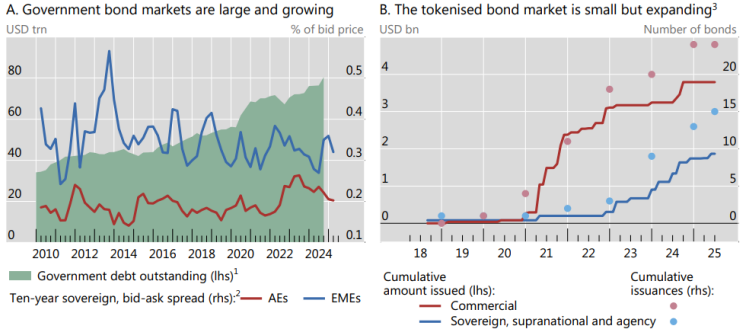
Their broader adoption depends on resolving regulatory and infrastructure challenges, given the critical role government securities play in savings, collateral, and monetary operations.

The Pythagore initiative aims to deliver significant operational and administrative efficiencies, while enhancing transparency and security for market participants.

Repo

J.P. Morgan's Kinexys platform supports EUR tokenised repos, but no volumes are disclosed. Broadridge have a EUR solution.

Government bond markets are a growing focus of tokenisation initiatives



[1] Based on a sample of 58 advanced (AEs) and emerging market economies (EMEs). Government debt at market value, where available, or closest substitute. [2] For AEs, simple average of AU, CA, CH, DE, DK, FR, GB, IT, JP, NO, NZ, SE and US; for EMEs, simple average of BR, CL, CN, HR, ID, IN, MY and PL. Data are winsorised at the 1st and 99th percentiles and correspond to quarterly averages of daily values. [3] Based on the subset of tokenised bonds with an available ISIN.

Sources: Leung et al (2023); LSEG Workspace; BIS; authors' calculations.

Sources: HSBC Launches New Cross-border Tokenised Deposit Service | Treasury Management International; Ant Intl explores stablecoin issuance. Strikes Deutsche Bank tokenized deposit deal - Ledger Insights - blockchain for enterprise; BIS Bulletin No. 73 (2023); Digital Asset and Kinexys by J.P. Morgan announce intention to bring USD JPM Coin (JPMD) natively to the Canton Network; BIS Bulletin No. 73 (2023); Citi Unveils Strategic Expansion of Citi Token Services

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Acknowledgments

I would like to extend my deepest gratitude to Jacek Wieclawsky and Claudia Terpstra (Markets Innovation), Paul Hendriks (Balance Sheet Management), Chirag Patel (Liquidity Management) and Gonzalo Blasco (Trainee)

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Thank you for your attention

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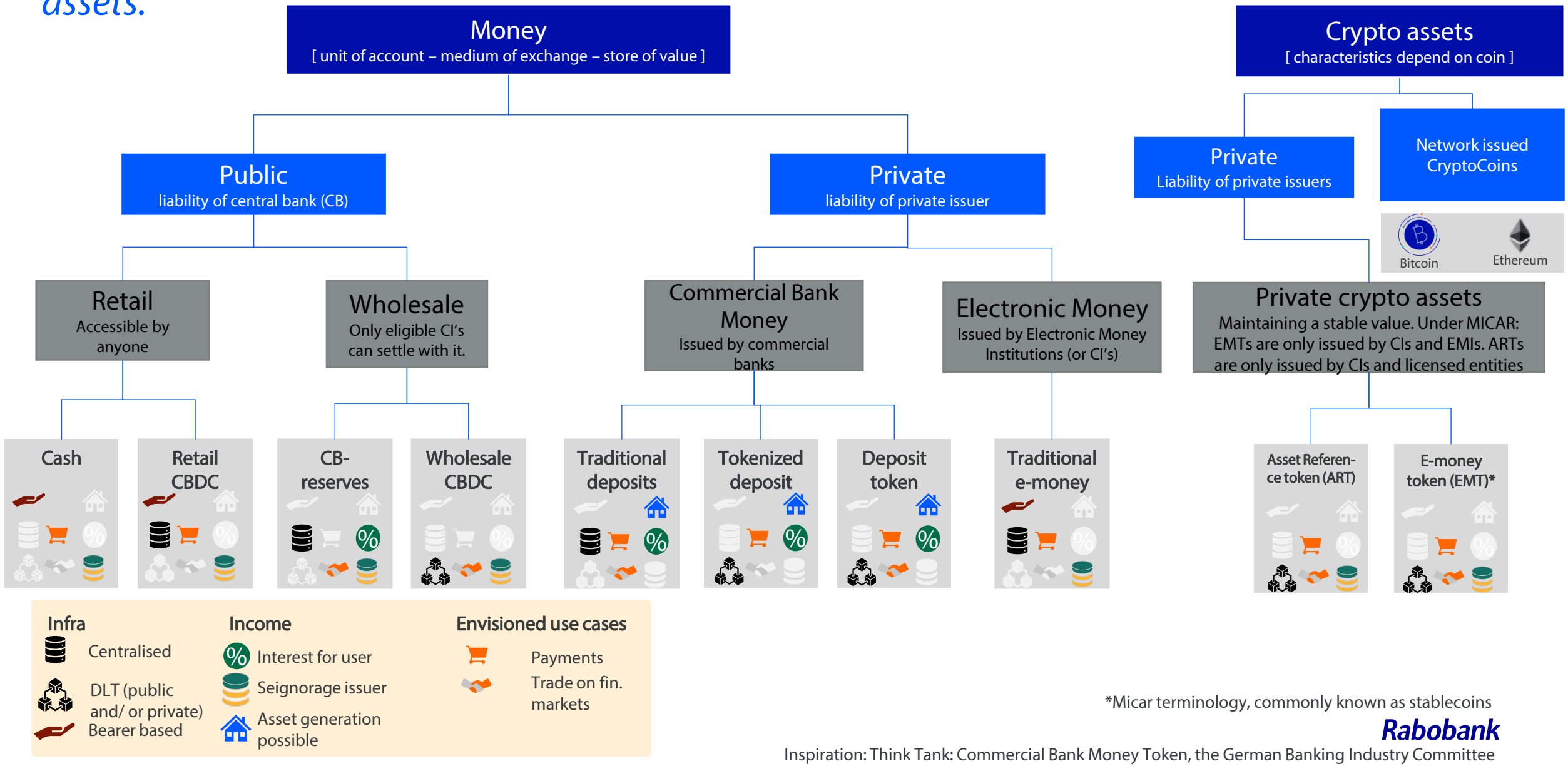
Appendix I: DLT allows for the creation of new forms of money, (near) money (assets) and assets.



*Micar terminology, commonly known as stablecoins

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Inspiration: Think Tank: Commercial Bank Money Token, the German Banking Industry Committee

Appendix II: The potential of DLT for trade, processing & tracking, payments, and recording data. A few are provided below

Distributed ledger technology is a consensus of replicated, shared and synchronized data **(the ledger)** that is **distributed** across many sites.

Programmability of contracts and assets

- ✓ Manual steps can be removed via automation, thus saving time and effort
- ✓ Manual steps in lifecycle management can be automated, saving time and effort

Transparency and traceability

- ✓ Contracts and assets can be published on the blockchain. Therefore, everyone is aware of the existence of the assets, who owns the asset and the conditions to trade.
- ✓ The chain of ownership can be known by design. Therefore, tracking ownership, when needed, is relatively easy.

- ✓ Reduced Clearing & Settlement pricing
- ✓ Less capital needed

Speed of transactions and issuance

- ✓ The DLT allows for issuance of native digital assets. This allows removal of manual (physical) steps. Also, programmability allows for speeding up design and creation of native assets, speeding up time to market.
- ✓ Due to programmable smart contracts transactions can be sped up from T+2 to T0. Also payments at maturity date can be automated.

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Appendix III: DLT in the real world 2025

DLT in the Real World: 6 years of practical insight

	2020	2021	2022	2023	2024	2025
Industry participants live with DLT today	4%	8%	32%	39%	37%	36%
Average importance of DLT to the industry	6	6.5	6.7	6.6	7.2	6.6
Key asset classes in use	Crypto currencies FX	Bonds	Crypto currencies Bonds	Bonds Private markets	Bonds Funds	Bonds Stablecoins
Key drivers of using DLT	Internal efficiencies	New product revenues	New product revenues (32%) Cost savings (18%)	Cost savings (28%) New product revenues (23%)	Cost savings (33%) New product revenues (18%)	New product revenues (42%) Learning & Development (19%)
Average number of participants per initiative	N/a	N/a	3.9	2.1	4.2	4.4

DLT and digital assets in 2025

DLT and Digital Assets in 2025	Where is the action today?	The business case	The Project
From overnight to intraday: 85% of respondents see intraday liquidity as the key outcome of DLT and digital assets	Where is the action today? Issuance and custody are the focus for up to 45% of banks	How much? Digital assets cost $2.2m per firm, but North America is outspending Europe and Asia by over 200%	Network? Permissioned chains are mainstream now for 43% of firms
Project activity: A stable body of live clients – and project activity is growing again		Why? DLT and digital assets have to pay for themselves in revenues	
Corporate action errors are costing up to 10% of our running costs: Most often due to local market errors	Where is the action tomorrow? Financing looks set to lead the industry agenda	Who? DLT and digital asset initiatives are increasingly led by sales and the buy-side	...but network choices still depend on the intended benefit
North America is now the most active region for DLT and digital assets – while European adoption declines		Why? DLT and digital assets have to pay for themselves in revenues	
The buy side is now fully engaging: With a stronger strategic outlook than investment banks	The new Big Three: Bonds, money market funds and stablecoins	Performance? Up to two-thirds of firms find DLT / digital assets to be better than traditional ones	Cash leg? Each segment is looking for something different. Europe leads the world in digital cash adoption
Digital assets are driving adoption, growing by up to 2-4 times for some		Why not? Building that liquidity has risen to be the #1 challenge	
Commercial, digital cash adoption is growing by 17% a year	Are industry initiatives really helping? Only the ECB DLT trials are seen to be making an impact	When? DLT and digital assets have to deliver within two years	Jurisdiction? 25% of all projects are based in EU and Luxembourg

Source: broadridge-dlt-in-the-real-world-2025-report.pdf