

Finance | Banking

Tokenized future: reimagining financial market infrastructure

Why DLT deserves strategic attention
from financial institutions now

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Tokenization is moving from experiment to infrastructure

Somewhere inside almost every large bank today, a team is running a tokenization pilot. A digital bond. A stablecoin proof of concept. A wholesale settlement trial with a central bank. For years, these projects sat quietly alongside core systems – interesting, but optional.

That's changing fast.

Tokenization is now reshaping financial market infrastructure itself. By representing assets and money on shared, programmable platforms, the industry is rebuilding how transactions are executed, settled and recorded. Processes that once moved through chains of intermediaries can now run as code on a single ledger. Roles that defined the market for decades — custodians, registrars, paying agents, clearing houses — are being redrawn around new platforms and new operators.

This shift carries real promise: lower friction, atomic settlement, faster issuance, programmable cash flows and entirely new product designs. It also raises a question financial institutions can no longer defer: what role will you play in the infrastructure that is taking shape, and how quickly can you move to claim it?

Regulatory clarity is arriving in parallel. Germany's Electronic Securities Act (eWpG), the EU's DLT pilot regime and the Eurosystem's wholesale settlement program have moved the conversation from "if" to "how." Tokenized products are live. Real money is settling. The window for shaping standards, capturing scale and building credibility is open — but it won't stay open indefinitely.

NTT DATA works with banks, central banks and market infrastructure providers across Europe on these programs. This perspective explains what tokenization actually is, where the industry stands today in payments and capital markets, what still stands in the way of broad adoption, and the strategic decisions financial institutions need to make now.

After more than a decade of pilots, the financial industry is now building the production rails that will run tokenized money and assets. This is the moment to decide whether you operate them, use them, or follow standards set by others.

June 2026



What tokenization actually means

Stripped of the hype, tokenization is a simple idea with significant consequences. A token is an on-chain representation of an asset – money, a bond, a fund unit, a receivable. It is implemented as a combination of data (such as balances) and code (such as transfer or minting methods) inside a smart contract. The operations on the token are executed by the platform itself, not by a chain of institutions. When a transfer is signed with the right key, the ledger moves it. The platform enforces the rules.

This has two important effects.

First, control is separated from custody. In traditional design, a trusted third party such as a registrar or a central securities depository controls who holds what. On a tokenized platform, the smart contract and the platform's operators enforce control directly. The asset holder can act on the asset without going through every intermediary that historically stood in between.

Second, services become composable. Because tokens are programmable and live on shared platforms, services can be built on top of them and combined across parties. A bond can deliver coupon payments to a stablecoin account. A fund unit can be posted as collateral in a lending protocol. A payment can settle atomically against an asset transfer, with no settlement risk in between.

These properties are what make tokenization more than a technology upgrade. They redesign the role of intermediaries – and therefore the economics of the market.

But this redesign also relocates trust. Users place their confidence in a novel platform rather than in the institutions they have known for decades. The operators of these platforms, the governance models behind them and the legal frameworks around them become central to whether the technology earns broad adoption. That is the question the industry is now working through, in public.



How we got here: a decade of pilots, now a turning point

Early blockchain exploration in financial services began roughly 10 years ago. Project Stella, a joint research program between the European Central Bank and the Bank of Japan, examined the use of DLT for wholesale central bank money and concluded its first phase in 2017¹. Consortia formed, dissolved and reformed. Enterprise platforms emerged. Public networks scaled. The conversation matured.

Yet broad adoption is taking longer than many expected, for reasons that go beyond regulation.

A blockchain network, by its nature, requires a degree of decentralization and the introduction of new validator roles. Private networks face governance friction between competing institutions. Public networks raise different concerns: the absence of a single accountable party, variable transaction costs and stricter privacy requirements for institutional use.

Cost-benefit cases were also hard to build in isolation. Looking at a single process step rarely revealed clear savings. Only when financial institutions modeled entire flows – issuance, settlement, custody, reporting – did the structural efficiency of tokenization become visible. And even then, new infrastructure costs, new operator fees and new compliance requirements made the net economics harder to predict than the slide decks suggested.

That picture is changing. Roles are clarifying. Settlement rails are being built. Real assets are being issued at meaningful scale. The two areas where this maturation is most visible are payments and capital markets.

Payments: from cryptocurrency to institutional money on-chain

Bitcoin put blockchain payments on the map in 2009. Since then, the industry has experimented with tokenizing every layer of money – from crypto-native assets to commercial bank deposits to central bank money itself.

Stablecoins go institutional

Stablecoins were designed to solve a problem cryptocurrencies created. By backing tokens with reserves, issuers offer a stable means of payment on public blockchains without the volatility of crypto assets. According to DeFiLlama, the total stablecoin market cap first surpassed \$300 billion in October 2025, with more than 99% denominated in US dollars². Citi Institute projects the market could reach between \$0.9 trillion and \$4 trillion by 2030³.

Decentralized finance (DeFi) drove much of the early demand⁴. But the next wave of growth looks different. Cross-border payments, particularly on corridors where traditional rails are slow or expensive, are emerging as a strong fit. Intra-group payments, treasury operations and B2B settlement are following. Direct ERP integration, such as the SAP Digital Currency Hub⁵, is turning stablecoins from a crypto instrument into an additional payment option for corporate finance teams.

For banks, this raises a strategic question. Stablecoins are increasingly competing with – or complementing – the deposit products and payment services that have anchored client relationships for decades.

Commercial bank money on-chain

Tokenizing commercial bank money is harder than it looks. A stablecoin is always the liability of its issuer; that liability follows the token wherever it goes. Commercial bank money is the liability of the customer's bank, which differs from one party to the next. A payer and a payee typically bank with different institutions, so a simple token transfer breaks the model.

To preserve the frictionless behavior of traditional deposits, commercial banks must work together. They need a system that functions as a virtually single token across the network, while the underlying banks settle in the background.

This is the work the German CBMT (Commercial Bank Money Token) consortium is doing — designing a shared token used across the customers of all participating banks⁶. Other efforts target B2B and cross-border payments. Project Agorá brings together central banks and private financial institutions to improve correspondent banking-based wholesale cross-border flows using tokenized deposits and central bank money⁷.

The industry has started to distinguish between tokenized deposits (a single bank tokenizing its own deposits, usable only within that bank) and deposit tokens (interoperable across multiple banks). The economic implications differ significantly, and so do the technology and governance requirements.

Central bank money and the Eurosystem's dual track

Central bank digital currencies (CBDCs) have been explored on blockchain rails for both retail and wholesale use. Retail CBDC, at least in the EU, is not currently planned to launch on a blockchain ledger. Wholesale, however, is moving fast.

In 2024, the Eurosystem ran exploratory work on new technologies for wholesale central bank money settlement, involving 64 participants and three interoperability solutions⁸:

- **TIPS Hash-Link**, developed by Banca d'Italia, settled DLT-based transactions through an API gateway – without being blockchain-based itself.
- **The Trigger Solution**, developed by Deutsche Bundesbank, bridged DLT asset chains with final settlement in T2.
- **The Full-DLT interoperability solution**, developed by Banque de France, settled in tokenized central bank money on DLT.

In 2025, the Eurosystem announced a dual-track strategy. Pontes⁹, the near-term operational track, will combine features of the three solutions and link market DLT platforms with TARGET Services to enable settlement in central bank money. Appia¹⁰, the long-term strategic track, will develop a blueprint for a future integrated tokenized financial ecosystem, including common standards, governance and the role of central bank money and collateral services.

For financial institutions, this matters. Wholesale central bank money supporting DLT removes a major obstacle to atomic settlement and to building credible institutional tokenization at scale. It also signals that European public infrastructure is committed to this direction.



Digital assets: from pilots to production scale

Alongside payments, traditional financial instruments are being issued directly on DLT. Bonds, money market funds and structured products are now being tokenized under regulatory frameworks that didn't exist five years ago.

Atomic settlement: the core promise

Atomic settlement – where both legs of a transaction succeed or neither does – has been one of the strongest arguments for DLT in capital markets. Because the guarantee is enforced by a technical protocol rather than a trusted intermediary, settlement risk drops and direct intermediaries can be reduced.

When both legs sit on the same DLT platform, atomicity is achieved in a single step, with no need to lock assets in advance. When they sit on different platforms – as in the Eurosystem's exploratory work and in the short-term Pontes design – an interoperability mechanism is required. This adds complexity but preserves freedom of choice in selecting the asset chain.

Bonds lead the way

Bonds have become the default instrument for testing the emerging infrastructure. In Germany, the Electronic Securities Act allows digital assets to be issued via a crypto register on either a public or a private blockchain.

Both paths are being used in practice:

- **Cashlink** provides software for issuing digital assets on public blockchains and holds the new role of crypto registrar. Cashlink has supported digital bond issuances by the state development bank NRW.BANK, DZ BANK and the government-owned KfW¹¹.

- **SWIAT GmbH** provides software and operates a private blockchain network with selected partners. SWIAT initiated the Regulated Layer One (RL1) with European financial institutions to build shared institutional infrastructure. Siemens issued a corporate bond on SWIAT that contributed €300 million to the €1.59 billion total transaction value processed during the ECB's exploratory work¹².

Institutions are also building infrastructure themselves. DZ BANK is developing protocols for atomic settlement and smart derivative contracts¹³, exploring the frontier of what the financial infrastructure of tomorrow could look like.

Tokenized money market funds and on-chain yield

Tokenized money market funds are gaining momentum globally, with leading products from Franklin Templeton and BlackRock. By combining the liquidity profile of money market funds with token-based transferability, they can function as yield-bearing on-chain cash equivalents and collateral instruments. This makes them particularly relevant for institutional DeFi, treasury management and collateral mobility, where investors seek both capital preservation and direct yield generation.

This blurs the line between payment instruments, money market products and DeFi collateral, opening new product categories and competitive dynamics.

Custody, redesigned

The emerging infrastructure also redesigns custody. Custody of tokenized assets is, at its core, custody of the private keys used to sign transactions. Financial institutions have adopted custody solutions primarily for crypto-currencies so far, but the same capability will be central for tokenized traditional assets at scale.

What's still in the way

For all this progress, three challenges hold back broader adoption of digital assets:

- **The cash leg.**

Atomic, on-chain settlement in central bank money is not yet generally available. Pontes and Appia are designed to address this, but production-scale settlement is still ahead.

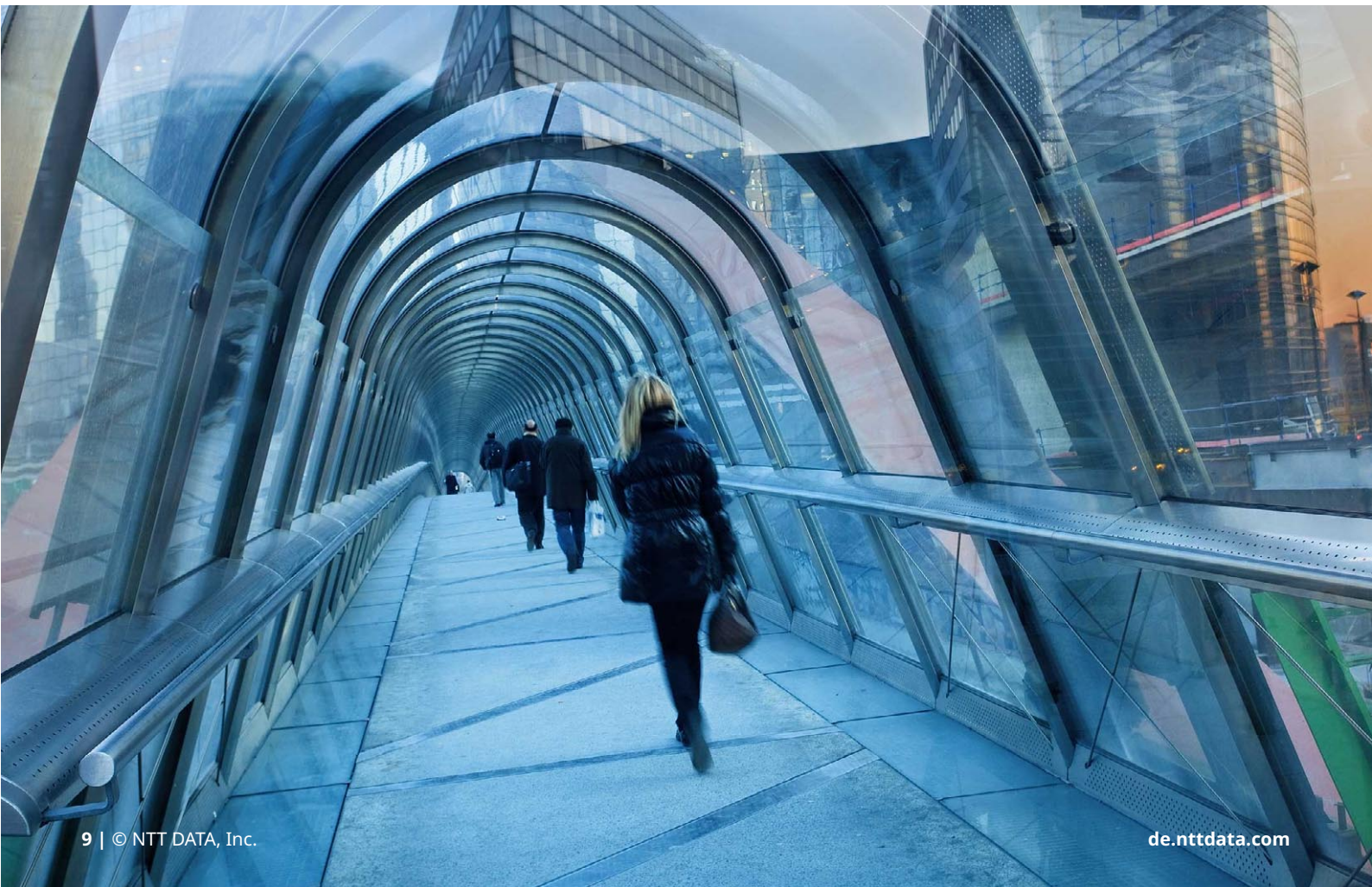
- **Liquid secondary markets.**

Issuing tokenized bonds is only half the picture. Without deep, liquid trading and well-functioning market-making, tokenized instruments stay closer to private placements than to public markets.

- **Eligibility in collateral systems.**

For tokenized assets to be fully integrated into bank balance sheets and central bank operations, they need to be eligible as collateral. Work on this is underway, but not yet complete.

None of these challenges is purely technical. Each involves coordination across institutions, regulators and market infrastructure providers. That's a slower kind of work – and exactly why the next two to three years matter.



Where this is heading: five strategic roles

In the tokenized market that is now taking shape, financial institutions will need to choose where to play. The roles aren't mutually exclusive, but they require different capabilities, investments and operating models.

Role	What it means	What it requires
Users of new settlement rails	Settle existing business on DLT-based platforms such as Pontes or Appia	Integration with new settlement platforms, treasury and payments adaptation
Builders of new rails	Operate or co-own market infrastructure such as private DLT networks or interoperability layers	Platform engineering, governance leadership, regulatory alignment
Issuers of tokenized assets and digital money	Bring bonds, funds, deposit tokens or stablecoins to market	Smart contract design, registrar capabilities, connectivity with new players
Custodians of private keys and tokenized products	Safeguard institutional clients' tokenized holdings	Key management infrastructure, custody licenses, cybersecurity at scale
Orchestrators of ecosystem-based services	Combine tokenized assets, payments and data services into new client propositions	Smart contract composability, partner ecosystems, oracles, product innovation

The institutions that move first on the right combination of these roles will help define market standards, capture early scale and shape client expectations. Those that wait risk arriving in a market whose architecture, economics and rules have already been set by others.

The way forward

Tokenization is no longer a question of belief. The platforms are being built. Regulation is catching up. Real assets and real money are settling on-chain.

For financial institutions, the decisions ahead are strategic, not theoretical:

- 1. Decide which roles you want to play** in the emerging tokenized infrastructure – and which you want to defer.
- 2. Build the technological capabilities** that those roles require, particularly in smart contract design, custody and interoperability.
- 3. Engage with the public-sector initiatives** shaping the settlement layer, including Pontes and Appia, so you can influence and prepare rather than react.
- 4. Run targeted, production-grade pilots** in payments and capital markets, with a clear line to scaling and operational integration.
- 5. Align your operating model** – risk, compliance, legal, technology and business – so the work doesn't stall at the boundary between teams.

The pace and boldness of these decisions will determine whether you adapt to the new infrastructure or help shape it. Both are valid strategies. Doing neither isn't.

How NTT DATA supports financial institutions

NTT DATA helps banks, central banks and market infrastructure providers translate this journey into executable roadmaps and production-grade solutions. We combine deep financial services expertise with hands-on DLT engineering, enterprise architecture, core banking and payments integration, cybersecurity and cloud infrastructure.

This lets us support clients end to end:

- **Strategy and operating model design** – defining your role in the tokenized market and what it takes to deliver
- **Use case prioritization and business case development** – focusing investment on the highest-value, lowest-friction opportunities
- **Smart contract design and engineering** – for tokens, settlement protocols and composable services
- **Platform integration and interoperability** – connecting DLT platforms with core banking, payments and capital markets systems

We do this work in projects across Germany and the wider DACH region, alongside European market infrastructure initiatives and global financial institutions.

Take the next step

The mainframe era of financial market infrastructure is ending. The platforms that will define the next 20 years are being built now — in central bank programs, private consortia and bilateral integrations between banks and market infrastructure providers.

If you are exploring your role in this shift, we'd welcome the conversation.

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