EU/UK/US sandboxes offer preview of new DLT-powered securities market infrastructure

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Executive Summary

US, UK and EU authorities are spearheading regulatory sandbox initiatives to revolutionize securities market infrastructure with distributed ledger technology (DLT). If deployed in securities markets going forward, DLT could catalyze major changes in not only market infrastructure but also market participants' roles.

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Sandbox frameworks up and running in multiple jurisdictions

In the US, UK and EU, both FinTech innovators and incumbent financial institutions are leveraging regulatory sandboxes, test environments in which certain regulations are temporarily waived, and exploring the integration of distributed ledger technology (DLT) into securities market infrastructure. The US has adopted a two-tier approach where DLT is used as a tokenization layer[1] alongside existing centralized ledgers that continue to be used as usual. The Securities and Exchange Commission (SEC) issues no-action letters to approved applicants, granting time-bound, partial exemptions from specific regulations.

The EU and UK have each enacted new legislation authorizing regulators to grant exemptions from current regulations. Pilot projects undertaken in European sandboxes include creation of new platforms that would completely replace existing infrastructure or vertically integrate securities market infrastructure functions. The EU is aiming to expedite market integration through adoption of DLT, given the multitude of bourses and central securities depositories (CSDs) spread across every EU-member country. The UK aims to boost its financial sector's post-Brexit competitiveness.

US: updating infrastructure while maintaining existing ledgers

In the US, the SEC has issued two major no-action letters pertaining to DLT. The first was issued in December 2025 to The Depository Trust Company (DTC), a central securities depository owned by the Depository Trust and Clearing Corporation (DTCC), a major US securities clearinghouse. The second one was issued in May 2026 to HQLA^{X}, a FinTech provider of a DLT-powered collateral

NOTE

1) In its January 2026 Statement on Tokenized Securities, the SEC classified these assets into two categories: "issuer-sponsored" and "third-party-sponsored." The former are securities tokenized by the issuer itself and commonly referred to as the native variety of tokenized securities. The latter, by contrast, are securities tokenized by a third party unaffiliated with the issuer. Third-party-sponsored tokenized securities can be further divided into subtypes such as custodial and synthetic, depending on how the tokenization is structured. HQLA^{X} and DTC's pilot programs both utilize third-party-sponsored custodial tokenized securities.

management platform for financial institutions, and Clearstream, an international central securities depository within the Deutsche Börse Group. Both cases are seeking to deploy DLT in combination with legacy securities market infrastructure to enhance asset and collateral mobility and process transactions more efficiently while preserving existing legal frameworks and maintaining liquidity.

Under DTC's tokenization initiative, DLT is used to record and manage security entitlements (ownership interests in DTC-held securities) without changing the registered owner's name in DTC's book-entry records[2]. This setup enables qualified DTC participants to directly transfer tokenized security entitlements between registered wallets 24/7/365 without submitting transfer instructions to DTC. It aims to allow conventional securities and tokenized securities to be matched with each other on the same order books and priority queues at incumbent exchanges such as the Nasdaq. DTC soft-launched its tokenization program in July 2026. It is planning a hard launch of the service by year-end.

2) When a participant instructs DTC to tokenize securities, DTC debits the designated securities from the participant's existing account and credits them to a digital omnibus account, a commingled holding account on a central ledger. DTC then issues a tokenized security entitlement on a distributed ledger. The security entitlement substantiates the participant's ownership rights. DTC treats the distributed-ledger (LedgerScan) records as its official records. The underlying securities remain registered in the name of the DTC's depository nominee, enabling the participant to maintain its status as the legal rights holder. By virtue of such, investors can enjoy the benefits of DLT while maintaining the legal protections and security offered by an established central securities depository.

HQLA^X and Clearstream operate a platform in Europe that instantly exchange collateral across borders by transferring only the ownership digital collateral records on a DLT network. Meanwhile, the underlying high-quality liquid assets remain fixed on the existing book-entry ledgers of CSDs or custodians. The SEC no-action letter issued to HQLA^X and Clearstream temporarily relieves the operators from requirement to register as a US clearing agency, thereby enabling qualified financial institutions to participate directly on the platform.

EU/UK: pursuing integration of trading and post-trade clearing/settlement/custody functions

The EU and UK are running DLT sandbox programs respectively called the DLT Pilot Regime (launched March 2023) and the Digital Securities Sandbox (launched September 2024).

The EU and UK have developed innovative institutional frameworks under which a single entity performs both trade execution and post-trade (clearing/settlement/custody) functions. These roles have been fulfilled by separate entities under the incumbent market-infrastructure regime[3]. By simplifying multilayer intermediation structures, this new market model can reduce costs, increase efficiency, give investors direct access to platforms and eliminate time lags between trade execution and settlement. Additionally, certain initiatives are pursuing onchain

3) Vertically integrated pilot projects have been approved in the EU and UK. They are called DLT trading and settlement systems in the EU and hybrid entities in the UK. They account for four out of six approved pilot projects in the EU and six out of sixteen approved pilot projects in the UK.

nativity, where financial assets themselves are issued and managed directly on DLT networks and the onchain record is the sole record of rights.

Specific use cases include 21X AG (licensed in Germany December 2024) in the EU and Monee Financial Technologies (phase-one application approved October 2025) in the UK, both of which are FinTech providers of DLT-powered trading and settlement infrastructure. 21X has launched a primary- and secondary-market trading platform that seamlessly integrates trade execution and settlement onchain. It aims to reduce multilayer-intermediation costs and eliminate settlement and counterparty risks through full pre-funding of orders and instant atomic settlement. Monee's signature initiative entails building and testing next-generation market infrastructure that vertically integrates securities infrastructure with onchain payment mechanisms, combining securities delivery with a cash leg in its proprietary GBP stablecoin.

Future of DLT-powered securities market systems

Looking ahead over the intermediate term, the US's two-tier model will likely gain more traction than its European counterparts by virtue of its ability to capitalize on existing liquidity and legal frameworks. It could achieve widespread adoption in coexistence with legacy infrastructure. Longer term, securities market infrastructure may evolve in the direction of vertical integration or the onchain-native platforms now being tested in Europe. However, such a transition would require a long-term vision accompanied by a 10+ year roadmap. It would also require legal clarifications (e.g., legal recognition of perfection requirements and settlement finality), onchain delivery-versus-payment (DvP) settlement and cross-chain interoperability.

A transition toward onchain nativity and vertical integration would trigger fundamental structural shifts across securities markets. For instance, as investors gain directly platform access via non-custodial wallets[4], the traditional intermediation function of securities brokerages would be rendered largely obsolete. Nevertheless, value-added activities such as investor advisory and market-making will remain indispensable.

4) A non-custodial wallet (also known as a self-custody wallet or an unhosted wallet) is a type of digital wallet, a tool used to store private keys and sign transactions, that is fully controlled by the user (e.g., an investor). Conversely, a wallet managed by a service provider on the user's behalf is called a custodial or a hosted wallet.

Furthermore, incumbent CSD would pivot from centrally managing a single book-entry ledger to verifying transaction data for compliance and monitoring distributed-ledger networks. Custodians would likewise undergo a dramatic transformation, shifting from traditional account-based safekeeping to securing digital assets' access rights (private keys) and administering programmed transaction rules.

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