Asset Tokenization

STATE OF PLAY

Financial market participants can revolutionize their business models with blockchain-powered asset tokenization. Tokenizing assets allows firms to reduce costs, enhance liquidity, and increase capital efficiency. These solutions automate compliance processes, expand access to new client segments, and help optimize operational workflows across front, middle, and back-office functions. They also enable integration of traditional and digital assets, supporting a unified system that can adapt to evolving market requirements.

ASSET TOKENIZATION

A token is a digital programmable asset that can enforce compliance rules and enhance liquidity. Financial ecosystem providers are increasingly leveraging distributed ledger technology (DLT) to unlock the transformative potential of tokenization, including:

❯ **Future proofing their business through integration of legacy systems with new digital asset infrastructure** to provide a comprehensive client experience, including risk management and financial reporting.

❯ **Increasing operational efficiencies** by modernizing middle and back-office functions with new digital asset infrastructure, reducing costs, and mitigating risks.

❯ **Automating collateral mobility,** allowing smart contracts to be programmed for flexible and efficient use of tokenized assets. This functionality unlocks additional revenue opportunities and increases liquidity for market participants.

❯ **Enhancing transparency, security and compliance**, providing visibility to beneficial owners, facilitating compliance with regulatory requirements, and maintaining an immutable record of fund activity.

❯ **Reaching new markets.** Attract new AUM and investor segments by offering access to non-traditional assets and increasing liquidity for illiquid investments. Non-traditional assets appeal to new client segments such as millennials and Gen Z, who are drawn to mobile and Web3 technologies.

❯ **Democratizing access to alternative investments** by leveraging the lower cost structure of digital assets. This provides retail investors access to traditionally high minimum investments, such as private equity.

THE SOLUTION
DTCC ComposerX™

Meaningful adoption of digital asset technology goes beyond creating tokens on a blockchain. Firms must not only leverage smart contract-based automation and manage the full life cycle of digital assets, but also integrate these capabilities with traditional asset management practices. This integration is imperative to maintain broad visibility, ensure the chain of custody, and respond to fraud and security threats – just like traditional assets.
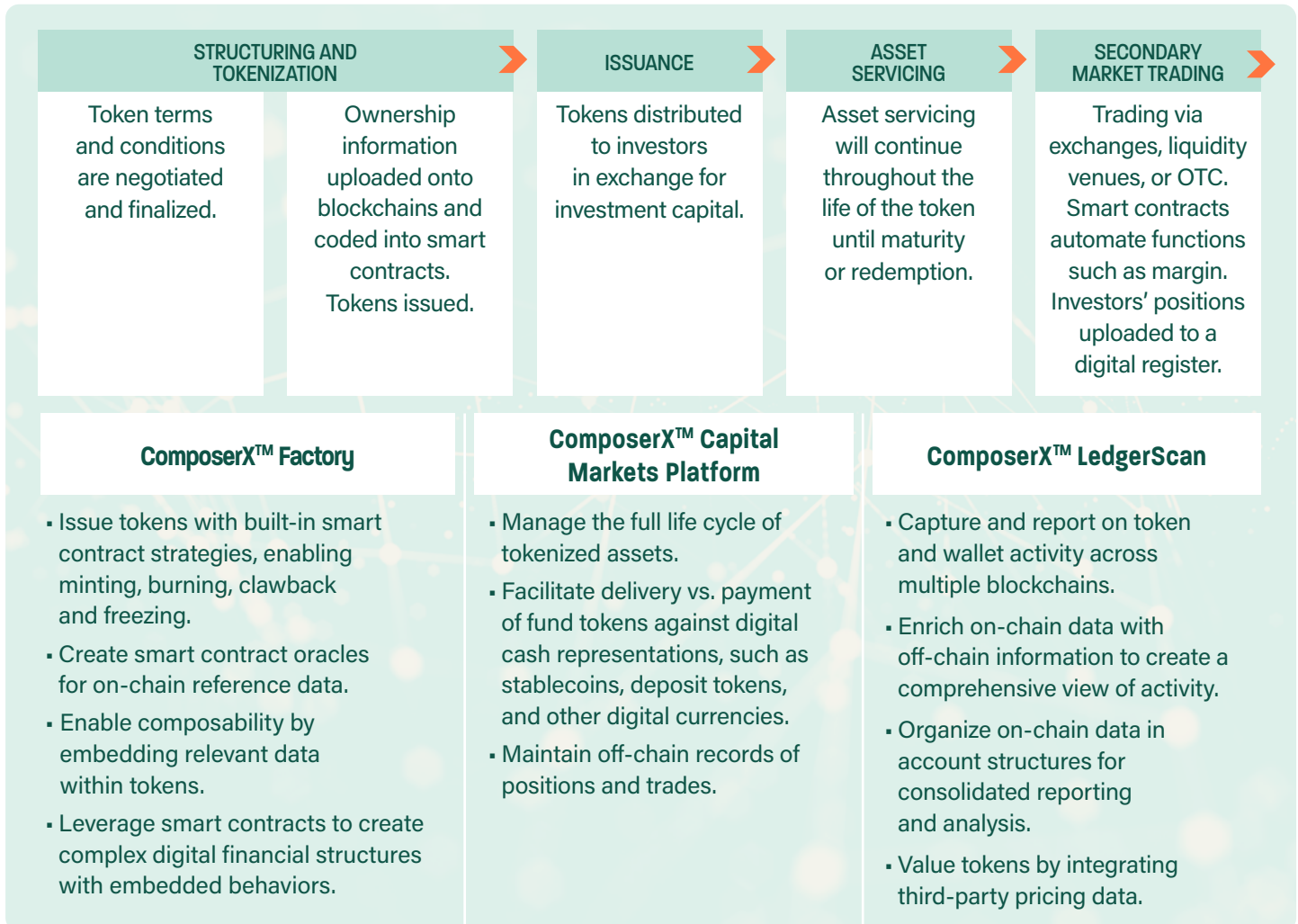
The ComposerX suite provides comprehensive, end-to-end platforms for managing digital assets, from creation to distribution. Tailored for financial institutions, our platform powers tokenization on both public and private blockchains, helping firms unlock the full value of digital technology. ComposerX also integrates regulatory compliance features, and enables secure, direct distribution of tokenized assets to investors through digital channels.

ComposerX | HOW IT WORKS

This table illustrates a typical digital asset life cycle. Our modular, API-driven suite of platforms offers a plug-and-play approach to asset tokenization by incorporating data directly into tokens. With secure and compliant asset handling throughout a token's life cycle, this approach enables integration with existing legacy infrastructure, providing firms with a clear pathway to digital transformation.

STRUCTURING AND TOKENIZATION		ISSUANCE	ASSET SERVICING	SECONDARY MARKET TRADING
Token terms and conditions are negotiated and finalized.	Ownership information uploaded onto blockchains and coded into smart contracts. Tokens issued.	Tokens distributed to investors in exchange for investment capital.	Asset servicing will continue throughout the life of the token until maturity or redemption.	Trading via exchanges, liquidity venues, or OTC. Smart contracts automate functions such as margin. Investors' positions uploaded to a digital register.

ComposerX™ Factory

- Issue tokens with built-in smart contract strategies, enabling minting, burning, clawback and freezing.
- Create smart contract oracles for on-chain reference data.
- Enable composability by embedding relevant data within tokens.
- Leverage smart contracts to create complex digital financial structures with embedded behaviors.

ComposerX™ Capital Markets Platform

- Manage the full life cycle of tokenized assets.
- Facilitate delivery vs. payment of fund tokens against digital cash representations, such as stablecoins, deposit tokens, and other digital currencies.
- Maintain off-chain records of positions and trades.

ComposerX™ LedgerScan

- Capture and report on token and wallet activity across multiple blockchains.
- Enrich on-chain data with off-chain information to create a comprehensive view of activity.
- Organize on-chain data in account structures for consolidated reporting and analysis.
- Value tokens by integrating third-party pricing data.

ComposerX | KEY FEATURES AND BENEFITS

Data Visibility: Storage of standardized asset specific data on-chain for visibility and improved liquidity.

Process Automation: Creation of reusable smart contract-based automation of cumbersome and repetitive processes.

Fully Digitized Life Cycle Management: End-to-end issuance, distribution and management of tokenized real-world assets.

Efficient Legacy System Integration: API-enabled integration of on-chain activities with legacy systems to augment risk management, facilitating unified financial reporting and investment analysis.

Asset and Blockchain Agnostic: Enables tokenization of any asset on EVM and other digital ledgers.

Scalable Distribution: Facilitates client onboarding and investor qualification while enabling establishment of secondary markets to enhance liquidity and expansion of the customer base.

Embedded Compliance: Real-time enforcement of regulatory rules that are validated as transactions are executed. Automation of complex multi-jurisdictional regulatory and transactional policies, enabling efficient regulated asset tokenization.

Robust Reporting and Supports Good Control: Reporting and tracking of digital assets throughout their life cycle and ability to rectify errors or malicious activity.

ASSET TOKENIZATION CHALLENGES

ComposerX addresses the challenges financial institutions face on their digital assets journey.

NEW TECHNOLOGY STACK

CHALLENGE: Blockchain necessitates a completely new skillset and introduces a new technology stack into a financial market participant's environment which requires complex system and data integration.

SOLUTION: DTCC Digital Assets offers a complete, end-to-end platform for harmonizing legacy systems with blockchain networks. Our **Capital Markets Platform** connects traditional financial systems with blockchain technology. It enables secure integration of blockchain networks with conventional web-based applications, allowing clients to create, distribute, trade, and manage digital asset products. This reduces costs, enhances efficiencies, and helps maintain regulatory, security, and performance standards all while integrating with existing infrastructure.

MAINTAINING ASSET DATA

CHALLENGE: Financial institutions are required to maintain asset-specific data for investors, and both regulators and investors have identified data transparency as a key challenge. Digital asset data must be accessible, organized, and searchable for distributors and investors alike to facilitate compliance and meet evolving industry standards.

SOLUTION: **LedgerScan** simplifies asset data tracking by monitoring token and wallet activity across blockchains and consolidates on-chain and off-chain data. This structured approach enhances data accessibility through streamlined reporting.

PROCESS EFFICIENCY

CHALLENGE: Financial ecosystem providers are required to implement repetitive, sometimes complex processes such as multi-ledger reconciliations, dividend calculations, distributions and shareholder voting. These tasks can be time consuming, expensive and error prone – especially when performed manually.

SOLUTION: **Factory** allows market participants to automate complex business workflows, like multi-ledger reconciliations, and financial functions, such as corporate actions and collateral mobility, through smart contracts created with a low-code/no-code user interface (UI). This reduces operational costs, minimizes the risk of manual errors and malicious activities, and provides the ability to execute clawbacks in case of theft.

Capital Markets Platform automates the life cycle of assets on-chain, maintaining an immutable record of digital asset activity. This reduces the need for reconciliation with off-chain records, streamlining operations and improving data integrity. **LedgerScan** allows financial institutions to gain visibility through a UI or APIs that enable integration with existing systems.

COMPLIANCE

CHALLENGE: Financial market participants find it difficult to ensure that digital assets remain compliant with regulatory requirements and that investors adhere to AML/KYC and qualification requirements.

SOLUTION: Our platforms leveraging our proprietary **Compliance Aware Token® Framework**, embed compliance into the tokenization process, enforcing regulatory rules in real-time through smart contracts that validate transactions as they occur.

ASSET TOKENIZATION CHALLENGES CONTD...

DISTRIBUTION AND LIQUIDITY

CHALLENGE: Distributors are seeking a more effictient way to offer digital assets to investors while ensuring their qualification and eligiblity.

SOLUTION: ComposerX allows distributors to confirm eligibility by assigning attribute values to an investor's wallet. These values are defined within a token and automatically enforced via smart contract logic. Our platforms enable distributors to create dynamic marketplaces, connecting investors with available assets and increasing liquidity across the ecosystem.

LIFE CYCLE MANAGEMENT AND GOOD CONTROL

CHALLENGE: Financial ecosystem providers are required to support the life cycle of digital assets and to demonstrate regulatory mandated control. They need a way to structure and issue assets and enable digital transfer agents to track asset activity across multiple blockchains. Transfer agents also must have a way to correct malicious activity or other errors if/when they occur and service the asset.

SOLUTION: Our **ComposerX** suite of platforms supports the full life cycle management of digital assets and facilitates regulatory compliance, through the following capabilities:

> **Real-Time Regulatory Compliance:** Automatically enforce regulatory rules that are validated as transactions occur.

> **Data Management:** Manage both on-chain and off-chain data to adhere to regulatory standards and provide comprehensive insights into asset activities.

> **Token Issuance and Control:** Facilitate issuance and distribution of digital assets across DLT networks, including centralized and DeFi exchanges.

> **Smart Contract Automation:** Enable businesses to automate financial processes for issuing digital asset securities with smart contracts, supporting compliance and increasing efficiency.

> **Data Aggregation and Enrichment:** Aggregate, normalize, and enrich on-chain data with off-chain information, such as real-time pricing, accessible via modern UIs or APIs for integration with existing systems.

> **Digital Transfer Agency Capabilities:** Offers comprehensive services, including asset tracking, regulatory and tax reporting, and the ability to rectify errors or recover value from malicious activities.

ABOUT THE COMPLIANCE AWARE TOKEN® FRAMEWORK

The Compliance Aware Token® Framework powers all of DTCC ComposerX suite of platforms, providing real-time enforcement of regulatory rules that are validated as transactions are executed. The **Compliance Aware Token® Framework** automates complex multi-jurisdictional regulatory and transactional policies, enabling efficient regulated asset tokenization. This comprehensive solution manages both on-chain and off-chain data to meet regulatory requirements. It supports token issuance, distribution control and transaction operations across DLT networks, including centralized and DeFi exchanges.

LEARN MORE

DTCC Digital Assets is at the forefront of driving institutional adoption of digital technology with a steadfast commitment to innovation anchored in security and soundness. As the financial services industry's trusted technology partner, we pride ourselves on empowering a globally interconnected and efficient ecosystem.

To learn more about us, please visit
dtcc.com/digital-assets

ABOUT DTCC

With over 50 years of experience, DTCC is the premier post-trade market infrastructure for the global financial services industry. From 20 locations around the world, DTCC, through its subsidiaries, automates, centralizes, and standardizes the processing of financial transactions, mitigating risk, increasing transparency, enhancing performance and driving efficiency for thousands of broker/dealers, custodian banks and asset managers. Industry owned and governed, the firm innovates purposefully, simplifying the complexities of clearing, settlement, asset servicing, transaction processing, trade reporting and data services across asset classes, bringing enhanced resilience and soundness to existing financial markets while advancing the digital asset ecosystem. **www.dtcc.com**

ABOUT DTCC DIGITAL ASSETS

DTCC Digital Assets offers scalable institutional-grade technology solutions for clients to create and manage the life cycle of tokenized assets. Our capabilities support multiple blockchains, provide advanced on-chain data access and actionable intelligence, facilitate near-real-time payments, and automate back and middle office functions, all while prioritizing regulatory compliance. Designed for interoperability with a client's existing systems and capabilities, DTCC's ComposerX will provide the foundation for an industry-wide ecosystem bridging DeFi with TradFi.