DTCC

Data and Analytics

SOLVING THE DIGITAL INFRASTRUCTURE CHALLENGE

One of the largest impediments to digital asset adoption is access to clean, useful digital asset data. Accurate data is essential in making investment decisions, analyzing risk, and producing financial and regulatory reporting. However, data related to tokenized real-world assets is asymmetric, fragmented, incomplete, and difficult to integrate with existing traditional finance analytics, risk management and reporting tools.

WHY A COMPREHENSIVE DATA SOLUTION IS ESSENTIAL

To scale the deployment and support of digital assets, organizations looking to adopt digital asset technology will need comprehensive data management across digital and traditional sources, including:

The ability to consolidate on-chain and off-chain data from traditional and digital assets, providing a comprehensive view for informed investment decision-making, risk management, collateral optimization, and financial and regulatory reporting.

A standardized way to securely aggregate, normalize and store data about digital assets on-chain, ensuring it's flexible, extensible, and searchable to enable discoverability and broader analytics for tokenized real-world assets.

Pricing administration that allows users to efficiently manage and retrieve prices across diverse asset classes, including currencies, tokenized assets, equities, and funds. This includes tools for real-time and historical price tracking that leverage data from third-party institutional pricing feeds.

Enriched on-chain data for valuations, ownership, yield, fees, and underlying assets, providing valuable insights that support investment decisions, portfolio management, and research.

Monitoring ownership and control attributes, detecting erroneous or malicious transfers of digital assets, ensuring entities maintain exclusive oversight of tokenized assets and qualify as a good control location.

Real-time analytics and reporting on assets, accounts, and subledgers to monitor tokenized assets via APIs that support a 24/7, dynamic global marketplace.
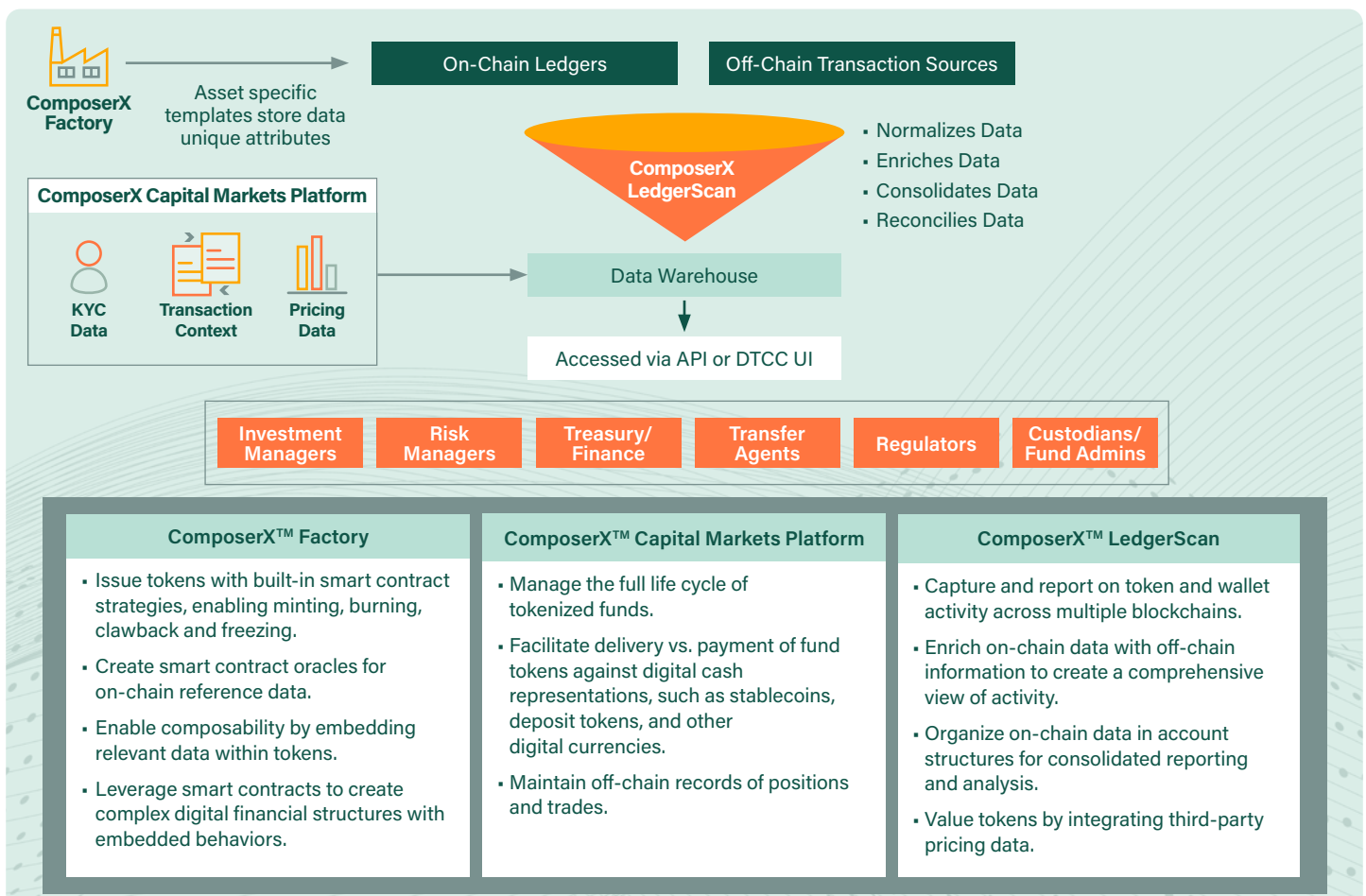
THE SOLUTION: DTCC ComposerX™

For meaningful digital asset adoption, financial firms need end-to-end technology solutions that streamline digital asset life cycle management and enable real-time risk management and reporting by consolidating data across traditional assets and tokenized real-world assets.

DTCC's ComposerX suite of platforms integrate on-chain and off-chain data, store it in a cloud data warehouse, normalize and enrich the data, and make it available in real-time through Application Programming Interfaces (APIs) or through our user interface (UI).

KEY FEATURES AND BENEFITS

❯ **Flexible Legacy System Integration:** Integrate on-chain data with legacy systems to augment risk management, facilitating unified financial reporting and investment analysis.

❯ **Data Standardization and Access Controls:** Establish standard templates to capture data about tokenized assets on-chain. Define user roles and entitlements and ensure only authorized users have the ability to add, change or delete data stored in on-chain templates.

❯ **Data Normalization:** Normalize non-standard on-chain data – including tokenized real-world assets data – into a common financial format. Digital asset data can be organized in subledger data sets and integrated into traditional accounting systems for reconciliation purposes.

❯ **Data Aggregation:** Consolidate data from Ethereum Virtual Machine (EVM) compatible ledgers, facilitating efficient data handling with drill down capabilities.

❯ **Reconciliation:** Reconcile off-chain records with on-chain data for an accurate, synchronized view that detects erroneous activities across both legacy and digital systems in near real-time.

❯ **Compliance:** Generate regulatory compliance reports to document ownership and facilitate good control.

❯ **Comprehensive Reporting:** Create customized reports, or use preformatted reports, for personalized insights and efficient analysis.

ComposerX Factory — Asset specific templates store data unique attributes

On-Chain Ledgers | **Off-Chain Transaction Sources**

ComposerX LedgerScan
- Normalizes Data
- Enriches Data
- Consolidates Data
- Reconciles Data

ComposerX Capital Markets Platform
- KYC Data
- Transaction Context
- Pricing Data

Data Warehouse

Accessed via API or DTCC UI

Investment Managers | Risk Managers | Treasury/Finance | Transfer Agents | Regulators | Custodians/Fund Admins

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 funds.
- 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.

DATA AND ANALYTICS CHALLENGES

ComposerX supports the entire digital asset life cycle and is uniquely positioned to ensure financial data about tokenized real-world assets is accurate, actionable, and available 24/7 to enhance decision-making and reporting.

INTEGRATION OF DIGITAL ASSET DATA WITH LEGACY SYSTEMS

CHALLENGE: Market participants don't have full visibility into a combined view of traditional and digital asset activity. This view is important for investment decision-making, risk management, collateral optimization, and P&L reporting.

SOLUTION: LedgerScan allows clients to integrate digital asset data as a subledger within legacy systems in real-time by enabling direct access to enriched and aggregated data via APIs.

ASSET DATA STORAGE AND EMERGING TOKEN LANDSCAPE

CHALLENGE: Many market participants don't have the (right) tools to store tokenized asset data in a consistent, easy-to-understand, and searchable way. This impacts liquidity and requires investors to become experts in many different token standards – and often even requires them to manually source information about tokenized real-world assets off-chain.

SOLUTION: Our **Factory** platform enables market participants to use standard data templates to securely store, relate and manage data about assets on-chain (e.g., asset class, CUSIP, interest rate, maturity, segment, geographic region, etc.) making it easy for investors to find and evaluate digital assets for investment across a wide range of opportunities. Using **Factory**, market participants can control access to their data by defining roles, ensuring only authorized users have the ability to make changes to the data.

LedgerScan automatically reads data templates to simplify discovery, visualization and reporting via a Graphic User Interface (GUI). **LedgerScan** also offers a rich set of APIs for integration with existing middle and back-office systems.

MULTILEDGER DATA AGGREGATION AND NORMALIZATION

CHALLENGE: Market participants cannot easily consolidate and track activity of real-world assets tokenized on multiple chains. This makes it difficult for clients to manage complex portfolios, optimize tokenized collateral or provide regulatory and tax reporting.

SOLUTION: LedgerScan imports data from any connected EVM blockchain, and consolidates and normalizes the data into a secure off-chain data warehouse. **LedgerScan** aggregates detailed trade activity such as minting, burning, and transfers – including quantity, price, and distributions, making it possible to automate reconciliation tasks. The data is accessible via a GUI or can be integrated with existing or new applications via APIs.

DATA AND ANALYTICS CHALLENGES CONTD...

DATA ENRICHMENT

CHALLENGE: Data stored on-chain is not sufficient for clients to generate meaningful insights to drive decision-making about digital assets. Blockchains store a record of the quantity of a position, but not the real-world value of the digital asset. Blockchains also don't maintain the relationship between the digital wallet and the real-world owner of that wallet – which is required to demonstrate good control of the digital assets.

SOLUTION: LedgerScan enables clients to enrich blockchain data with real-time pricing and to configure the relationship between a blockchain wallet and the beneficial owner. This allows clients to:

> Establish flexible hierarchical structures for managed accounts, access analytics for all account and wallet layers, and track the value and ownership of digital assets in real-time that can be used to enable good control.

> Access business intelligence reports for control location workflows.

> Integrate account and wallet data into mobile or web-based applications.

> Generate comprehensive reports on account and wallet performance and transaction volumes across all managed investment accounts.

ASSET REPORTING AND COMPLIANCE

CHALLENGE: Digital asset issuers and their agents are required to generate reports to comply with regulations and support taxation. Asset servicers are also required to identify and correct malicious or erroneous activity if/when it occurs.

SOLUTION: LedgerScan provides issuers and their agents transparent and aggregated visibility of the distribution of their digital assets across the blockchains where they have been issued. **LedgerScan's** reporting capabilities enable clients to identify errors or malicious activity and for regulators to oversee on-chain activities.

Leveraging the **Capital Markets Platform** and the **Compliance Aware Token® Framework**, firms can easily rectify errors, clawback value and restore any inappropriately lost assets to their clients.

REAL TIME – 24/7 VISIBILITY

CHALLENGE: Digital markets operate 24/7 globally, and transactions settle dynamically. Clients need the ability to view asset value and ownership in real-time to keep up with the pace of the digital marketplace.

SOLUTION: LedgerScan allows clients to view their enriched positions as they change in real-time by dynamically importing transaction data across all connected EVM blockchains, enriching the data with pricing and updating ownership in real-time.

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 suite of platforms will provide the foundation for an industry-wide ecosystem bridging DeFi with TradFi.