# Getting Tokenization Right

Why asset tokenization matters and how financial services firms can identify the right approach

As more securities are dematerialized and more transactions move to distributed ledger technology (DLT) platforms, effective asset tokenization holds the key to transforming issuance, settlement and other processes in financial services. The benefits of such digitization are clear – faster matching of buyers and sellers, quicker settlements, increased liquidity, stronger risk management and expanded investor access to digital assets. While the why of tokenization is broadly understood, many financial services organizations are challenged by the how.

After all, there are many moving parts to manage and barriers to navigate:

- Establishing distinct rights and obligations for all involved parties
- Eliminating repetitive actions across different platforms
- Embedding a range of lifecycle actions
- Modeling shared workflows and automating multi-party processes
- Establishing compatibility across different platforms and maintaining flexibility for future evolution
- Meeting security, privacy standards

These are the capabilities that will enable compatibility across interconnected ecosystems and platforms used by stakeholders in financial services. The bottom line for exchanges, banks, and other firms seeking to build DLT platforms and tokenize traditional assets or create new digital assets, is realizing a much faster time to market and the freedom to focus on developing rich, differentiated solutions and experiences, based on the strengths of core open source assets.

## Getting compliant, comprehensive tokenization right with Daml

Digital Asset's core technology, Daml, is a unique smart contract language platform for building multi-party applications. By extracting and simplifying business processes, Daml makes data accessible and optimizes workflows using smart contracts.

With Daml, any asset class can be accurately tokenized as the bundle of rights and obligations for all involved parties within a specific ecosystem and across the full lifecycle of that asset, with appropriate regulatory and compliance guardrails in place. Specifically, Daml:

- Embeds the building blocks of rights and obligations directly into assets
- Can be used to create role contracts defining what specific parties may do within an ecosystem or a particular asset
- Uses rights and obligations to model shared workflows (e.g., rights and obligations + time / ordering) and fully automate complex, multi-party processes

With Daml, a structural representation of cash flows, events, and rights and obligations of the complete ecosystem of participants around a tokenized asset enables complete modeling of the functionality of the asset on chain.

### What is tokenization?

The creation of a unique, digital representation of an asset so that it can be traded on a DLT and blockchain platforms. Any type of asset can be tokenized – from physical assets like artwork and real estate, to stocks, bonds and other equities, to intellectual property and intangible assets (e.g., frequent flier miles). A token should represent a redeemable claim to a security and derives its value from that claim. Holding the token is equivalent to owning a claim to the asset and ownership of the claim should be freely transferable.

Daml has been used by leading financial services providers for asset tokenization for its common data models, proven authorization, proven APIs and a range of composable actions with atomic execution.

**Data model**

**Authorization**

**API**

**Composable actions**

```
5     template Bond
6       with
7         issuer: Party
8         owner: Party
9         quantity: Int
10        isin: Text
11        parValue: Decimal
12        currency: Currency
13        couponsRemaining: Int
14        couponRate: Decimal
15        regulator: Party
16      where
17        signatory issuer
18        observer regulator
19        ensure quantity > 0 && couponsRemaining > 0
20
21        controller owner can
22          Transfer: ContractId Bond
23            with newOwner: Party
24              do create this with owner = newOwner
25
26        controller owner can
27          Split: (ContractId Bond, ContractId Bond)
28            with splitQty: Int
29              do
30                assert (splitQty > 0 && splitQty < quantity)
31                split <- create this with quantity = splitQty
32                rem <- create this with quantity = quantity - splitQty
33                return (split, rem)
34
35        controller owner can
36          Merge: ContractId Bond
37            with otherCid: ContractId Bond
38              do
39                otherCdata <- fetch otherCid
40                assert (otherCdata.isin == isin && otherCdata.owner == owner
41                        && otherCdata.issuer == issuer)
42                archive otherCid
43                create this with quantity = quantity + otherCdata.quantity
```

### End-to-end modeling across the asset lifecycle

Solutions developed with Daml will seamlessly integrate with digital market infrastructure. Banks, insurers, wealth and asset managers, hedge funds and private equity firms can be sure their offerings and processes are infrastructure-agnostic and totally portable across different blockchain and database technologies. With a tokenized asset infrastructure based on Daml, financial services firms can take advantage of the strengths of both the compliance, privacy and control of permissioned ledger environments and the greater distribution potential of public networks.

For financial services firms, Daml's tokenization capability supports many different use cases and asset classes including: Equities (stocks), Fixed income (bonds), Green bonds, Structured products, Private equity, Commodities, Complex derivatives, Carbon credits, and Central Bank Digital Currency.

With Daml, you can model the complete lifecycle of regulated and complex financial products – from approval workflows and term sheet creation, to allocation, issuance and settlement.

## Digital Asset

Learn more and view additional case studies at digitalasset.com, or

Λ  **Download the Daml Connect Community Edition** and view our reference applications at https://daml.com

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📅  **Set up a call or meeting** by contacting us at sales@digitalasset.com