TOKENIZED ECONOMIES

# MOVING DIGITAL ASSETS

## THE IMPERATIVE OF MODULAR, COMPOSABLE, AND INTERCONNECTED TOKENIZATION SYSTEMS

October 2024

Produced by

FEVERTOKENS

# Foreword

Today, tokenization must transcend traditional silos to truly realize its potential. The promise of tokenization—greater efficiency, transparency, and accessibility—cannot be fulfilled unless the underlying systems and technologies are **modular, open, composable, and interconnected at scale**.

This is particularly critical when it comes to the movement, settlement, and transformation of assets through Distributed Ledger Technologies (DLTs) and traditional financial rails. Ensuring these processes can occur against various forms of payments, cross-border and in a compliant manner, requires robust and flexible infrastructure.

- The imperative for modularity and interoperability urges major players in finance to rethink and innovate their core infrastructure.
- The future of financial assets hinges on systems that seamlessly integrate with both modern DLTs and established traditional systems.
- This integration must support diverse payment forms and comply with international regulatory standards to maintain trust, scalability, and security in financial transactions.
- This report explores FeverTokens' vision for scaling smart contract functionality and outlines the technical implementation tested with Swift to achieve greater modularity, efficient evolution, and integration of settlement modules. This approach leverages the open-source.
- The creation of institutional-grade plug-and-play modules by key market players is pioneering the development of scalable and interoperable tokenization systems.

**FeverTokens aims to contribute to building a more interconnected and resilient digital finance ecosystem, capable of addressing the complex demands of next-generation financial assets.**

# Rethinking Smart Contract Design to Scale Functionality

**Shortcomings of Traditional Approaches**

Traditional smart contract architectures and development approaches often fall short in meeting the functional scalability requirements necessary for modern tokenization systems.

These conventional methods typically involve monolithic designs where smart contracts are developed as large, single-purpose entities. Such designs lack the flexibility and adaptability needed to scale efficiently. This rigidity makes it difficult to update or modify specific parts of the system without affecting the whole, leading to increased complexity and heightened risk of errors.

Moreover, traditional approaches often do not support seamless interoperability between different systems. This lack of interoperability hinders the integration of diverse tokenized assets and financial instruments across various platforms and solutions. Without the ability to interconnect and communicate efficiently, the benefits of tokenization, such as enhanced liquidity, transparency, and efficiency, are significantly diminished.

**Need for Modularity and Composability**

Modularity and composability are keys to address these challenges. Modularity allows for the separation of functionalities into distinct, interchangeable components. This enables developers to update or enhance individual modules without disrupting the entire system, thereby improving maintainability and reducing the risk of systemic failures.

Composability, on the other hand, facilitates the combination and integration of these modular components. It ensures that various modules can work together seamlessly, promoting interoperability between different tokenization systems. By leveraging composability, systems can dynamically adapt to new requirements and incorporate features as they emerge.

Introducing an open framework that is modular and composable is essential, for it is impractical and inefficient for each stakeholder to build the entire stack from scratch. Much like the evolution of the internet, its success was driven by open standards and frameworks that allowed for the modular and composable development of web technologies. Similarly, tokenization systems require open frameworks that enable modularity and composability across different players and at scale.

**Open-source Smart Contract Package Framework**

The Open-source Package Framework developed by FeverTokens is an innovative approach to smart contract functional scalability.

The framework overcomes the limitations of traditional smart contract architectures with native modularity, composability, and interoperability. By breaking down complex EVM smart contracts into manageable, reusable components, the package framework provides the flexibility and scalability needed to support the evolving demands of tokenization systems.

These packages and smart contracts are independently maintainable and upgradable. An additional benefit of modularity is the ease with which code can be organized, which is very appealing to the broader community of developers.

**Central Role of the Diamond Standard**

The open, package-oriented smart contract framework is fundamentally based on smart engineering principles, particularly the Diamond Standard. This innovative architecture divides features across multiple smart contracts, called facets, providing developers with flexibility to add, remove, or upgrade functionalities by wrapping specific functions into a facet invoked by a proxy.

Ethereum Improvement Proposal-2535 (EIP-2535) outlines the Diamond Standard, emphasizing modularity and flexibility. This standard allows for post-deployment upgrades and overcomes EVM compiler size limits.

**Package Hub Outlook**

For the package-oriented framework to fulfill the interconnectedness promise, it must be designed with rules and standards that enforce composability. Additionally, it should provide tools that enable project builders to leverage community expertise and existing functional modules, achieving scalability quickly and cost-effectively.

Such a framework includes a wide range of components, from on-chain elements and off-chain oracles to multi-chain components. Packages can be either private or public. Private packages can be developed by internal teams or external contractors, while public packages, made by either internal or external developers, are available for future builders.

Package hub is the central piece in creating an interconnected, interoperable tokenization ecosystem. Acting as a global marketplace, this hub supports both public and private packages, facilitating a collaborative and dynamic development environment.

# Recent Exploration

**THOMAS DUGAUQUIER**

***Tokenized Assets Product Lead***
*Swift*

As recently announced, Swift is actively working on the ability to use Swift's global platform to conduct pilot transactions for the settlement of digital assets and currencies aiming to demonstrate how financial institutions can transact interchangeably across both existing and emerging asset and currency types using their current Swift connection.

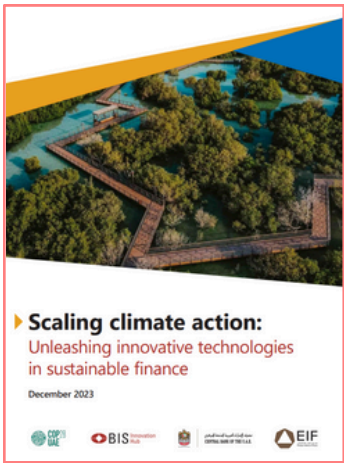
Financial institutions are increasingly interested in participating in the digital asset securities ecosystem, yet to realise the full potential of the technology, a number of questions will need to be addressed. In particular, the maturity and interoperability of the underlying infrastructure to enable scale.

Swift is collaborating with financial institutions and technology companies to design the best solution architecture possible. This includes leveraging Chainlink's oracle networks and Cross-Chain Interoperability Protocol (CCIP) to enhance data reliability and connectivity.

**In collaboration with FeverTokens, Swift has been experimenting a modular smart contract architecture in a live trial project. It is key to us to understand the potential of leveraging composable on-chain building blocks to deliver the interoperability needed by market participants.**

Explore FeverTokens **Open-Source**, **Modular** Extension of **so|bond** for Capital Markets that Follows ICMA's **Green Bond Principles** and EUGBS and featured in the COP28 UAE TechSprint report.

Read The COP28 TechSprint Report



**so|bond v2.0: A Leap Forward**

Swift is engaged in multiple projects aimed at advancing this vision. One notable collaboration is with FeverTokens and Crédit Agricole Corporate and Investment Bank (CACIB). Together, they are implementing and operating an open, standardized, and ecosystemic framework for the tokenization and settlement of financial instruments, known as so|bond v2.0.

This joint project sets the stage for composable and interoperable tokenization systems, that are integrated into the global financial infrastructure, enhancing efficiency and accessibility for all market participants.

so|bond v2.0 builds upon the foundations laid by the initial version of so|bond and the SATURN project, which saw the successful issuance of €100 million worth of tokenized bonds with the European Investment Bank (EIB).

The first SATURN project demonstrated the potential of tokenization in streamlining and enhancing the issuance process of financial instruments. so|bond, an open, peer-to-peer and legally valid model provides a concrete implementation of smart contracts under the Ethereum Virtual Machine (EVM) standard, with its source code openly released.

Swift's ongoing projects, such as the collaboration with FeverTokens and CACIB, are pivotal in realizing the vision of a fully interconnected and resilient digital finance ecosystem.

By leveraging modular architectures and standards, these initiatives are poised to improve the tokenization and settlement processes, making them more efficient, secure, and accessible.

**GUÉNOLÉ DE CADOUDAL**

***Head of Digital Assets Group***
*Crédit Agricole CIB*

« Crédit Agricole CIB believes in the unavoidable transition toward a tokenized economy and finance while understanding that it requires a network effect of the market. Such network can be faster achieved when actors collaborate around standards that are no one intellectual property. This is the reason for the sol|bond contribution to the ecosystem, our support to FeverTokens Diamond framework and the collaboration with Swift. »

# Authors


**ZAKARYAE BOUDI**

***CEO***
*FeverTokens*
*Tokenized Economies Institute*

**MOHAMED TOUB**

***CTO***
*FeverTokens*
*Tokenized Economies Institute*

**JIULIN TENG**

***Head of Growth***
*FeverTokens*
*Tokenized Economies Institute*



Produced by

FEVERTOKENS