Real World Asset Tokenization Framework:

A building block framework for Hybrid Tokenized Assets Using Stellar Asset Contracts for Regulated United States Real World Assets

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This paper introduces the fundamental concepts required for US regulated real world asset securitization. Using a hybrid tokenized assets methodology, this paper introduces the building block framework for real world asset tokenization. Discussions on required fundamental Stellar Asset Contracts and their essential functions as building blocks for real-world asset tokenization are presented. We also cover the advantages of the Stellar Consensus Protocol compared to other permissionless blockchains. We address why regulated United States providers need Hybrid Tokenized Asset solutions and systems to enable real-world tokenization. There are use cases on how the Framework can be used for different assets. The required user experience, decentralized and centralized processes, and Stellar Asset Contracts for a seamless experience are included. Addressing future opportunities for standardized regulated asset tokenization for a global framework is discussed.

1. INTRODUCTION

There is still a need for a worldwide financial network open to everyone. At the same time, we must acknowledge that we live in a world with various regulatory regimes and rules in various jurisdictions associated with the world's political and geographic boundaries. We must understand that for the sake of progress and furthering a worldwide financial network, these regulatory regimes will continue to regulate Real World Assets (RWA) under their jurisdictional control for the foreseeable future.

To solve the regulatory problem, we need RWA infrastructure built on decentralized protocols to create a more extensive open network while still enabling centralized functions on behalf of the financial service providers (FSPs) that must follow the regulatory regimes of the jurisdictions in which they operate. By allowing FSP to more easily tokenize RWA within their jurisdictions, these same service providers can bring more RWA onto the decentralized network in the form of Hybrid Tokenized Assets (HTA). By providing FSPs with the tools to onboard HTA to decentralized systems will enable the adoption, acceleration, and growth of a more open financial network.

This paper presents a Building Block Framework (BBF) for creating HTA in the United States by making the necessary suite of tools and applications that enable RWA Tokenization. This paper focuses on the United States because we believe the tokenization of RWA can be accelerated globally if tools exist to onboard the RWA in the largest market in the world.

In addition to relevant topics related to the discussion on RWA and HTA, The paper further presents how the BBF focuses on user interfaces, tools, and resources to enable US and Global service provider adoption.

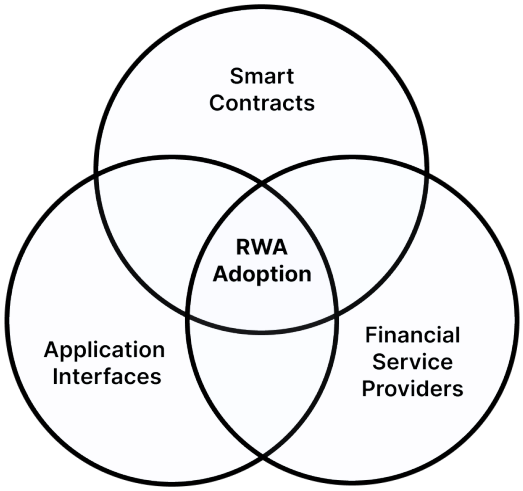

Figure 1. Building Block Framework

2. WHY THE UNITED STATES

The reason to pursue the development of HTA in the United States is because of the United States global market leading role. The reasons The United States leads the world in financial markets are multifactorial; the United States is the largest Economy, the United States Dollar is the global reserve currency, the United States is constantly one the largest beneficiaries of Foreign Direct Investment, and has robust regulatory bodies for consumer protection such as the US Department of Treasury, Federal Reserve Board, Office of Comptroller of the Currency, Securities and Exchange Commission, and Commodity Futures Trading Commission. Additionally, English is the leading global language of international commerce today.

We do acknowledge that many jurisdictions are more friendly to decentralized financial systems than the United States of America. Jurisdictions leading the way include the European Union with the passage of The Markets in Crypto-Assets Act as well as other favorable developments in other jurisdictions, such as, but not limited to Singapore, and the United Arab Emirates. Regardless of these positive developments, developing HTA for the current regulatory framework in the United States will be critical to accelerate the overall adoption of new real-world assets transaction systems across the globe. Another reason for the US first approach is that many global jurisdictions look for guidance in adopting financial regulation from the United States so that the rules they adopt enable access to the US market. Consequently, any solutions or frameworks that limit participation or prevent participation by the US market could lead to a fractured system.

3. WHAT ARE HYBRID TOKENIZED ASSETS

The concept of the Hybrid Tokenized Asset is to create the centralized utility required to meet the rules and regulations of the jurisdiction while still enabling an asset to move across a permissionless blockchain and allow the asset to reside on a worldwide open network based on an individual or set of smart contracts.

The logic behind the HTA is that a regulated financial service provider needs specific centralized tools and mechanisms so they can fulfill their legal

jurisdictional requirements while at the same time enabling the use of a decentralized open financial network to distribute and create a more secure product for both local and global offerings.

4. WHY STELLAR CONSENSUS PROTOCOL

The Federated Byzantine Agreement (FBA) model of the Stellar Consensus Protocol (SCP) addresses some critical regulatory and market issues faced by financial service providers (FSP) in the United States. These advantages include:

Flexible Trust - The ability of a regulated institution to trust any combination of parties and have an understanding of who the participants in the network enable FSPs to have confidence in the network that is validating the financial transaction.

Low Cost - The SCP has one of the lowest transaction costs. Unlike the reward mechanisms in other PoS protocols, the SCP use of FBA decreases the financial transaction costs for FSP, expanding the number of HTA products that can be created.

Environmental Impact - As referenced in the network evaluation study done in partnership with the Big 4 audit firm PWC, the SCP network has one of the most negligible environmental impacts compared to other Proof of Work (PoW) and Proof of Stake (PoS) protocols. This smaller environmental impact enables FSP to meet stated environmental impact goals they may have set.

Regulatory Risk - As the SCP grows organically through participation, no staking rewards are associated with SCP compared to other PoS protocols. A significant concern for many FSPs is triggering other regulatory compliance requirements by using a PoS network that provides staking rewards, as using these networks may reclassify the FSP under another regulatory regime. With the FBA used by SCP rather than a rewards-based model, FSPs can avoid entity reclassification risk when offering HTA for RWA.

Community - The Sellar Foundation community is measured not by the number of participants but by the quality of anchor participants, including Franklin Templeton, Coinbase, Circle, MoneyGram, and Wisdomtree. FSPs are more likely to use tools that other institutions use with confidence.

5. BUILDING BLOCK FRAMEWORK

The concept of the building block frameworks is that HTA has regulatorily required functions that FSP must perform. If an FSP can use a combination of smart contracts to create an HTA without the need to create a customized smart contract, it would enable the accelerated onboarding of RWA, because of the benefits that the Stellar Asset Contracts have since they run on the SCP.

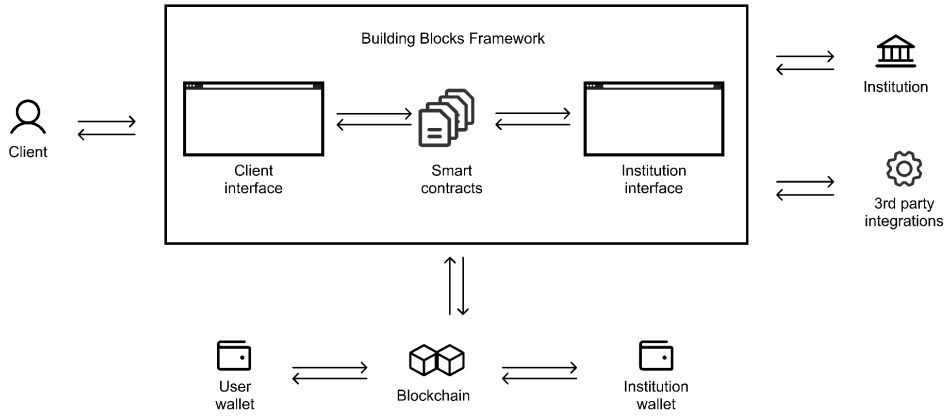

Figure 2. Visualization of the Build Block Framework Concept

US Dollar Stable Coin - A US dollar-denominated auditable stablecoin offering is needed to transact investments in USD for FSP to execute contracts. The BBF proposes using Circle's USDC stablecoin at this time. Its benefits include some of the lowest transmission costs, and creating competitive products to USDC would decrease market efficiency. The primary function would be to use the stablecoin for any form of contractual settlement required by the smart contract.

RWA Token Contract - The token representation of real world asset ownership.

KYC Smart Contract - Currently, the FSP is responsible for Know-Your-Customer (KYC) Anti-Money Laundering (AML). As such, a smart contract is required to link a validated identity to a specific wallet or set of wallets.

Conversion Token - The purpose of this smart contract is to allow for the free movement of RWA. In the event that an RWA has changed hands, an obligation token can be transferred in the event that the receiving wallet does not hold a KYC token. A smart contract that provides for an obligation to be in stablecoin issued to the holder of the wallet upon completion of KYC from the FSP.

Asset Issuance Wallet - This is a unique asset wallet that BBF tokens interact with that is Managed by the FSP to maintain assets or make distributions of stablecoins or RWA tokens to satisfy commitments in a particular smart contract.

Obligation Token - In certain instances, there is a need for an obligation token in relation to the RWA token, such as a dividend. In the event that a KYC token doesn't exist, obligation tokens would be used to service future settlements upon completion of the KYC process.

Data Reference Contract - Certain documents may be required as part of any RWA ownership. The data reference contract is a form of NFT that can be issued to a digital representation of the real world asset as a reference. Examples include title ownership, audited financial statements, etc.

Graphical User Experience - To enable the usage of these smart contracts, graphical user interfaces that enable the low code management of these smart contracts will be required to further enhance adoption by FSP.

Financial Infrastructure Integration - Many service providers need features developed by existing service providers to fulfill regulatory requirements with the lowest levels of friction. Creating a robust amount of 3rd-party

integrations, and integrating existing Stellar infrastructure projects, will accelerate adoption with FSPs.

6. BBF Smart Contracts Templates

The goal of the BBF is to easily create a HTA for a RWA. From a regulatory standpoint, the goal is to enable an FSP to use a template to expedite regulatory approval. Standardizing SAC for use will enable the streamlined adoption of HTA on the SCP. Some examples of templates that can be created are the following:

REG D offerings - Private closed offerings
REG A offerings - Public “Mini-IPO” offerings
REG CF offerings - Crowdfunding offerings
Private Debt Offering - Private credit offerings
Real Estate Offering - Real estate offerings
VC Fund - Venture Capital Fund offerings
PE Fund - Private Equity Fund offerings
Real Estate Fund - Real Estate Fund offerings
Fine Art Offerings - Enable investment in art
Collectibles Offerings - Enable the offering of collectibles
Fix Income Offerings - Fix term payment offerings

By creating these templates, the BBF can drive the adoption of HTA by FSP in the United States and globally.

7. BBF Updated, Variant, and New Contracts

As more work is done on BBF, there will likely be a need for the newer SAC that allows for a more functional BBF as the number and needs of FSP increase. As more and more FSP use the BBF there will be a need to create a community that continues to support the BBF to maintain its ease of use. The community will also provide feedback on additional features and variants about specific SAC contracts that may allow for even greater functionality.

8. LIMITATIONS & CHALLENGES

Many jurisdictions have complex and evolving regulations regarding the ownership, transfer of assets, and how RWA should be regulated. Adhering to these regulations can be challenging when implementing BBF for real-world assets. HTA that are legally compliant in the United States may not be legally recognized in other specific jurisdictions. There is also the potential to create issues with enforcing contracts and property rights for RWA domiciled in a foreign jurisdiction with an investor residing in another.

Public RWA offers transparency, which can be a disadvantage when dealing with certain real-world assets. New ownership and legal structures for assets may be required to enable the broader adoption of HTA and RWA on the SCP. Substantial effort on the legal front will need to be expended to create these new structures. Early adopters will likely have to bear the burden of these costs, as late adopters can use the BBF once it is more established.

Smart contracts, which automate the execution of predefined rules, are susceptible to coding errors and other vulnerabilities. Processes will need to be determined on how to reissue and settle wallet ownership in the event of a malicious attack.

The BBF focus on usability must still integrate with FSP existing legacy infrastructure. There will be a dampening on adoption until these service providers integrate and allow for interoperability with the BBF.

9. GLOBAL-MINDED IMPLEMENTATION

The BBF should always prioritize adaptability and compliance with diverse regulatory frameworks; we are paving the way for users worldwide to experience the seamless integration of RWA with global frictionless ownership. Even though the BBF is a financial technology solution tailored for the dynamic landscape of the United States, it should be designed from a global lens perspective. All efforts should be made to engineer a superset of features that address the intricate financial needs of the United States regulatory landscape and is flexible enough to enable usage in most other jurisdictions. By supporting the intricacies of the US financial system, the BBF can evolve into a versatile and scalable tool poised to revolutionize RWA on a global scale. The long-term goal is for the BBF to have the flexibility to evolve into a framework reflecting a borderless financial future.

10. ROADMAP

The goal of the BBF project is to maintain a roadmap of contracts and tools that need to be developed for the BBF. The first item on the roadmap will likely be the KYC token, as KYC and AML are requirements for most HTA assets. An early focus will also be placed on the additional user interfaces to interact with the BBF ecosystem of smart contracts and tools. These tools are necessary for the usage of the BBF to be unlimited with respect to a limited number of developers. It will likely exclude the use of most FSPs as the cost to build RWA development teams may be prohibitive with the limited number of skill resources available globally.

11. SUMMARY

The Building Block Framework aims to address three significant obstacles for real-world asset (RWA) tokenization using Stellar Asset Contracts on the Stellar Consensus Protocol:

Regulatory compliance across jurisdictions - The hybrid tokenized asset (HTA) model enables providers to meet localized regulations while connecting to global decentralized finance.

Standardization for expedited regulatory approvals - Modular and configurable templates streamline the review processes imposed by regulators; these processes are normally very lengthy.

Accessibility for mainstream adoption - User interfaces and experiences allow non-technical financial service providers to leverage the framework for compliant offerings.

At the core, the Building Block Framework creates interoperable components for regulatory-compatible RWA tokenization. It bridges localized asset transactions into open, borderless blockchain networks.

For decentralized finance to reach its full potential, participation from mainstream regulated providers is essential. This framework allows financial service providers to embrace tokenization and blockchain efficiency while

maintaining regulatory compliance obligations. Widespread adoption of real-world assets offered on global blockchains will unlock capital, increase transparency, and expand financial access tremendously. The Building Block Framework paves the way for this hybrid tokenized future by solving foundational regulatory and usability challenges faced by Financial Service Providers.

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