



DIGITAL ASSET CUSTODY

Report Synopsis

**Pre-Reading for Breakout Session 1
ISSA Symposium 2023**

1. Context

ISSA DLT Working Group proposed creating a paper covering Digital Asset Custody (DAC) topic in Q1 2022 and the implosion of FTX increased the urgency as FTX provided “Combined Trading and Custody” for its users. That custody was not to the standard that ISSA members would recognise as custody – i.e. the assets were certainly not bankruptcy remote. FTX’ clients realised this when they had to contest for their assets alongside the unsecured creditors in the bankruptcy.

ISSA’s DLT Working Group recognised this risk in existing crypto asset value chain and decided to create a paper that both the traditional custodians and FMI’s would support but also that had credibility within the fintech/crypto native community. ISSA has partnered with a fintech led organisation Global Business Blockchain Council’s (GBBC) - Global Digital Finance arm and Deloitte.

2. Introduction

Digital asset custody offers the opportunity for traditional custodians and financial market infrastructures to offer new digital asset custody services for investors and market participants. There is huge potential for the provision of digital asset custody above and beyond native crypto assets (such as bitcoin and Ether) to encompass new and emerging classes of digital assets.

Throughout this synopsis the phrase “custodian” is used to denote all forms of custody wherever that service is provided by i.e. a Global, local, regional custodian or a broker dealer or a CSD. All are referred to as custodians to reduce the word count rather than to imply an advantage of any segment of the market over another.

Top-tier global financial institutions are predicting huge growth in the tokenization of real-world assets, such as private market securities. This promises to herald a digital renaissance for financial services, with great potential benefits for both economies and market participants, transforming the traditional cost base of custody.

Several successful digital-use cases for distributed ledger technologies (DLTs) have recently emerged including Project Guardian and the recent European Investment Bank digital bond issue, demonstrating that DLT technology is ready to scale for securities services, supported by more than a decade’s development in this new digital financial market infrastructure.

3. Custody and Digital Assets

Although custody is a universally understood term in traditional financial services, as it relates to regulated services provided by custodians, principally: control, segregation of assets, and legal liability; digital assets present many new challenges to the provision of custody services, particularly the liabilities that custodians have over the safekeeping of (digital) assets.

The legal rights of digital assets' owners represent the greatest challenge for custodians of digital assets. Differences in national approaches vary widely, particularly between civil law and common law regimes. However, a common denominator is that a custodian is, at a minimum, expected to exercise reasonable skill and care in the safe custody of an investor's rights in their financial asset. Traditional asset classes that are tokenized into digital assets, such as securities (debt and equity), commodities, real estate, etc., will be subject to the state or national laws of the jurisdiction supporting the specific asset class but will still face many of the opportunities and challenges presented to custodians as those assets are issued or tokenized as digital assets on DLTs.

The market architecture of DLTs could be constructed differently to the established combination of infrastructure and intermediated custody chain powered by automated and / or dematerialized computer applications and electronic data, offering a combination of material benefits and challenges to custodians:

- **DLT network nodes** for consensus move the control point of transferring assets to a counterparty from the custodian to public or private networks with mutual network consensus with actors that are not custodians of the asset,
- **Cryptographic keys** are used for assets owners to access (network) digital assets and smart contracts. Although they provide a high-level of security to asset owners, they also present a series of new risks in how keys are held, safeguarded and the necessary credentials required to transfer the assets in question and,
- **The recording of transactions on the ledger**, DLTs do not have a corresponding account-based structure and are accessible 24/7/365, with no notion of opening and closing balances.

In addition, not all DLTs are created equally, and not all are wholly interoperable. Although the key attributes of DLTs are similar (consensus, cryptography, and ledger), the underlying computer code and functions, (as they relate to consensus mechanisms, node validation, and the digital assets ledger transaction on the DLT) may vary significantly; for example, the difference between bitcoin and the Bitcoin network on the (public) blockchain, versus Ether (and smart contracts) on the Ethereum network.

Digital Assets are not a singular phenomenon and nor are the DLTs.

- Non-permissioned ledgers – such as those as bitcoin – have no restrictions on who can be part of the network or run nodes (although staking requirements maybe construed as a restriction) and therefore are at one extreme of the problems to address
- Permissioned ledgers – such as Project Whitney – have formalised governance, restrictions over who can be part of the network, rules around running and operating the nodes and how consensus is achieved. This could be limited to a singular trusted party and hence resembles a traditional FMI also known as a Digital Market Infrastructure.

It should also be considered that the “on ramps” and “off ramps” of differing DLTs have different attributes and ease to convert a digital asset into a fiat currency or dematerialized (but not tokenized) asset. For clarity if a new investor decides to purchase a digital asset and the investor holds USD at a correspondent bank then they (or the venue) must execute a trade to convert the fiat USD balance to a tokenized digital currency) and then purchase the digital asset in an on-chain DvP transaction. The reverse is also true. Therefore DLT cannot be described as DvP1 in central bank money, although there are experiments to approximate this more closely. The benefit of “Atomic settlement” on DLT therefore could more realistically be defined as the swap on a DLT of two digital assets.

Digital assets offer asset owners a new set of custody options beyond traditional third-party custody such as:

- **Self-custody:** asset owners hold the cryptographic keys to digital assets. With self-custody, asset owners have complete control over their digital assets and are responsible for their own security; and,
- **Exchange custody:** an exchange holds cryptographic keys to digital assets on behalf of the asset owner. This option is commonly used by investors who prefer to delegate the responsibility of securing their assets to the exchange that executes the buy/sell trade for them. Exchange custody may also be required by certain exchanges or trading platforms as a condition for trading digital assets.

4. Custody and Digital Assets - Challenges

Digital assets on public permissionless DLTs introduce several new risks that custodians must overcome in order to manage services to a standard on par with regulated services, and/or transform into new (economic) opportunities for digital asset custody services, such as:

- **Digital identity:** the identity of the bearer of digital assets, and particularly native crypto assets such as bitcoin and Ether, can be anonymous on DLT;
- **Cryptographic key management:** digital assets can be custodied in new self-custody and hybrid models unsuited for the control of keys (or digital assets) required by custodians;
- **Staking:** the network consensus models for “participating” consensus nodes have various financial incentive mechanisms that need to be considered in the context of the economic value of the transactions; and,
- **Transaction Fees:** beneficiaries of fees relating to the DLT consensus mechanisms “proof-of-work” (eg, blockchain) and “proof-of-stake” (eg, Ethereum) mining, can be anonymous. Additionally, a number of idiosyncratic mechanisms for beneficiary fees and fee settlement exist within different DLT.

Digital assets on DLT’s also change the nature of existing risks that custodians must overcome to transition to a level of standard on par with regulated services, such as:

- **KYC /AML / CFT:** the provenance of the identity and beneficial owner of the digital asset has the same KYC /AML / CFT requirements as with traditional financial services, including sanctions screening. Consideration must be given to new requirements such crypto sanctions and the new Financial Action Task Force (FATF) “Travel Rule” requiring Virtual Asset Travel Rule Providers (VASPs) to ensure that investor data is shared between parties for crypto asset transactions;
- **Asset segregation:** the separation of owner assets from intermediaries (co-mingling), the management of digital assets in notional account structures on behalf of intermediaries, and the assurance of services such clearing and settlement when digital assets are redeemed;
- **Liquidity management:** the nature of liquidity risks in periods of market volatility and mass outflow for digital assets is of key consideration, especially related to native crypto assets, market size, and reliance on stablecoins (and their liquidity) for transactions settling to fiat; and,
- **Settlement (finality):** including the clearing and settlement of digital assets and related challenges of a 24/7/365 available digital asset on DLTs, conflated by the absence of an account structure (with opening and closing balances).

The custody industry has a long and rich history in the development of best practices. In the short term, the industry must focus on further education and capacity building, as well as the development of best practice uses across three principal areas:

1. **Know-Your-Asset (KYA):** the identification, recognition, and specification(s) of the underlying digital asset, from native digital assets, such as cryptocurrencies, to non-native digital assets, such as tokenized real-world securities;
2. **Staying on top of dynamic and changing blockchain standards:** DLT software is often updated, providing new functionality proposed by the community engaged in a particular network and being up-to-date with such standards and using them in the way intended would be a service and control differentiator; and,
3. **Robust asset segregation:** this is a multi-faceted task and could include aspects such as the provision of investor choice for assets to be recorded in a wallet address unique to the investor, the elimination of start-of-day or end-of-day balance statements, and the creation of standards around block timestamp differences and reconciliation.

Effectively harnessing the new opportunities and resolving the new challenges presented to custodians with DLTs is crucial. This facilitates digital asset trading and advances tokenization as a means of enhancing investor choice and efficiency, addressing cost concerns for custodians and mitigating the risks associated with digital assets for custodians, their clients, and participating market participants.

5. Call for Action

This report is a further call to action to the global custody industry to come together to develop best practices, and to promote greater adoption through industry advocacy and cross-industry standards for the nine areas requiring solutions:

1. Ensure **bankruptcy remoteness of assets** through regulatory reform, where needed, and clearer information to investors about the implications.
2. Resolve regulatory uncertainty related to **sanction risks** in the context of DLT transaction fees (mining / validator fees).
3. Allow for **de minimis principal crypto asset holdings** in support of digital asset custody activity.
4. **Technology neutral regulation** for key management.
5. Preserve a **clear delineation** between the responsibilities of a digital custodian as compared to investors.
6. Work towards industry-wide **wallet-matching solutions** i.e. the ability to validate wallet addresses to ensure digital assets are delivered to the correct recipient.
7. Recognize **shifts in risk** when implementing digital asset solutions.
8. Develop skill and expertise operating in **peer-to-peer networks**.
9. Rethink **traditional problems** to capture opportunities from DLTs.

By establishing reliable custody services for digital assets, we can create a more secure and efficient environment for the burgeoning digital asset market for our clients, investors, counterparties, and market participants.