CAPCO JOURNAL

The Capco Institute Journal of Financial Transformation

Value dynamics

Disruptive forces reshaping financial services

Technological transformations

Rebuilding capital markets on-chain: Tokenization, treasuries and the next financial layer

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Welcome to the 61st edition of the Journal of Financial Transformation.

I am delighted to announce our new partnership with King's College London, a world-renowned leader in education and research, marking a new chapter in the Journal's long and distinguished history.

In this edition focusing on Value Dynamics, we explore a critical – and ever more pressing – challenge: how institutions across financial services create, distribute and sustain value.

As Professor Crawford Spence, our editor from King's College highlights in his own introduction, the forces shaping value dynamics across financial services are myriad, encompassing technological transformations, secular shifts, political and social structures.

As a firm that has been at the cutting edge of innovation for over 25 years, these value drivers intersect directly with the work Capco does every day, helping our clients around the globe transform their businesses for sustained growth.

The integration of innovative new technologies including generative and agentic AI models, the digitalization of currencies and payments infrastructures, the reimagining of customer experiences, the relentless evolution of market ecosystems, the vital role of culture as a value driver: these imperatives are where we see – first-hand – clear opportunities for our clients' future growth, competitive differentiation and success.

We are excited to share the perspectives and insights of many distinguished contributors drawn from across academia and the financial services industry, in addition to showcasing the practical experiences from Capco's industry, consulting, and technology SMEs.

It is an immense source of pride that Capco continues to champion a creative and entrepreneurial culture, one that draws on the deep domain and capability expertise of thousands of talented individuals around the world.

We do not take our hard-earned status as a trusted advisor lightly, nor our responsibility to make a genuine difference for our clients and customers every single day – placing excellence and integrity at the forefront of everything we do.

I hope the articles in this edition help guide your own organization's journey as you navigate the many complexities and opportunities ahead.

As ever, my greatest thanks and appreciation to our contributors, readers, clients, and teams.

Annie Rowland, Capco CEO

2025, Edition 61

Editor's note

KING'S College LONDON

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This 61st edition of the Journal of Financial Transformation is the first with a new editorial team in place, and is the product of a formalized collaboration between Capco and King's College London. This collaboration – a leading financial services consultancy and a prestigious academic institution – embodies the Journal's ethos: a balance between academic rigor and practical accessibility.

Traditional academic journals often deal with more prosaic conceptual matters. Even when they focus on more practical concerns, the timelines and mechanics of double-blind peer review processes can mean that the insights that they offer risk being out of date by the time they are published. Conversely, traditional op-ed articles in the financial press are all too often heavy on opinion and pre-conceived ideas and can lack the heft that comes with thoroughly researched pieces of work.

The Journal we've published strikes a vital balance between these two approaches.

This edition has an overarching focus of Value Dynamics. Specifically, the various articles look at how value is created, distributed and sustained across financial services. In turn, the submissions are grouped into three broad themes.

Technological transformations are explored in terms of how these can bolster or hinder value dynamics if not managed effectively. A number of secular shifts are also discussed – these being long-term changes that are impacting value dynamics in the sector. Finally, structural challenges are highlighted that emphasize the importance of sticky, tricky social and behavioral issues that surround the execution of financial services.

Overall, these themes highlight challenges and opportunities in the sector and encourage us to think differently.

It has been a pleasure working on this issue with such a fantastic and diverse array of different contributors.

Professor Crawford Spence
King's College London

Rebuilding capital markets on-chain:
Tokenization, treasuries and the next financial layer

Author | **Sofia Villacreses Cardenas** | Consultant, Capco

Abstract

Tokenization is more than a technical breakthrough – it represents a foundational shift in how capital markets are structured, accessed, and composed. By transforming traditional assets such as U.S. Treasuries, private credit, and money market funds into programmable, interoperable tokens, tokenization is redefining the architecture of global finance. This article explores the rise of tokenized real-world assets (RWAs), with a focus on tokenized U.S. Treasuries – the most advanced and strategically relevant use case to date. Drawing from product data, legal structures, and emerging integrations, the paper examines how these instruments are powering yield-bearing stablecoins, and reshaping liquidity management across decentralized and traditional finance. For financial services firms, this shift challenges established models of custody, fund management, and market access – demanding new infrastructure strategies, compliance frameworks, and rethinking client engagement and operation at scale. Firms that adapt early may unlock faster settlement, greater liquidity, and new institutional flows. This shift won't be defined solely in code or regulation, it will be shaped at the intersection of the two. As tokenization matures, its most transformative effect may not be what it replaces, but what new value creation models it enables.

1. Introduction

Tokenization – the process of representing real-world or off-chain assets as digital tokens on a blockchain – has emerged as one of the most promising innovations in modern finance. At its core, tokenization enables fractional ownership, global accessibility, programmability, and near-instant settlement of traditionally illiquid or inefficient financial instruments. These tokenized assets can integrate directly into decentralized finance (DeFi) platforms, digital wallets, and smart contracts, streamlining how assets are transferred, collateralized, or used in payments.

Tokenized assets span a wide spectrum of categories, many of which fall, sometimes loosely, under the term "real-world assets" (RWAs). While the definition varies depending on the context, RWAs generally refer to assets with value derived from off-chain, real-world economic activity. This includes both institutional-grade financial instruments and more retail- or consumer-facing assets. Examples include:

- **Short-duration U.S. Treasuries and money market funds**, offering compliant, yield-bearing exposure to government debt

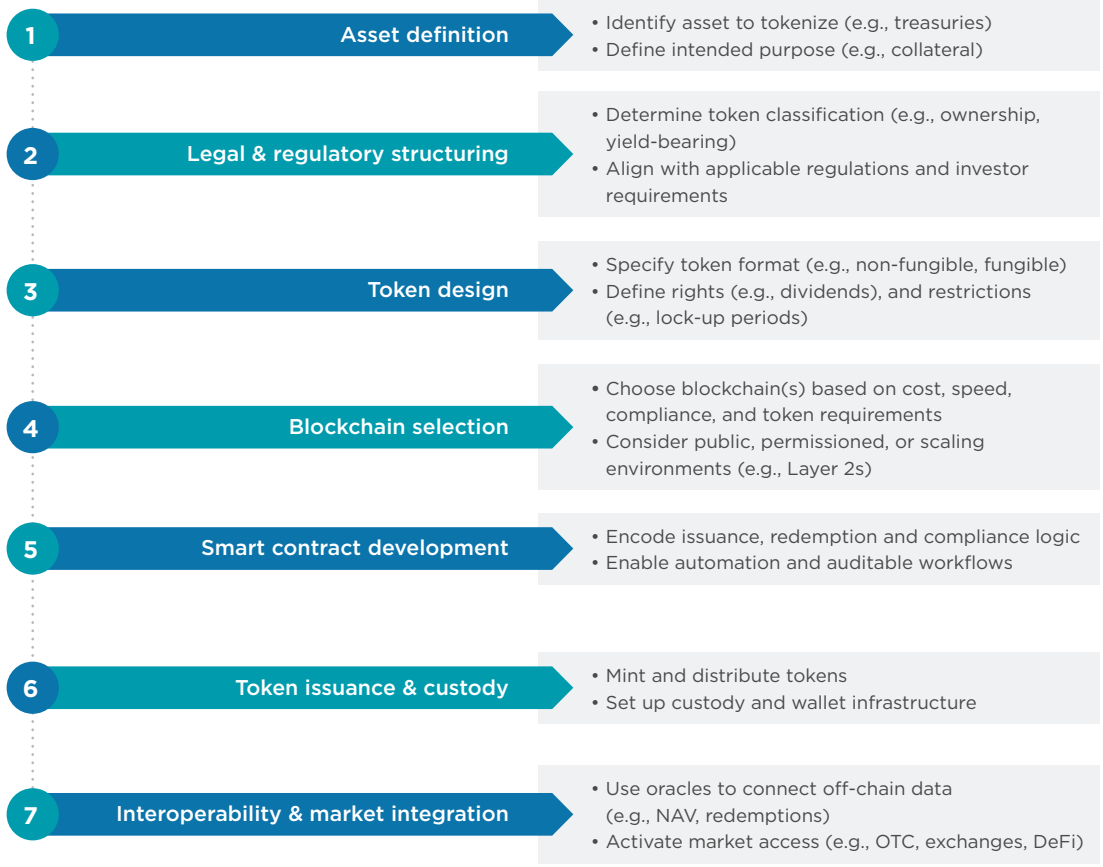
- **Stablecoins**, which are often seen as tokenized fiat, backed 1:1 by dollars held in reserve and critical for on-chain liquidity and cross-border transfers
- **Private credit**, where tokenized structures enhance liquidity and transparency across private lending markets
- **Real estate and commodities**, which benefit from fractional ownership and streamlined settlement
- **Art, collectibles, and intellectual property**, which tap into new models for provenance, monetization, and digital ownership.

In this article, when we refer to RWAs, we focus on institutional-grade financial assets – particularly U.S. Treasuries, private credit, and related yield-bearing instruments, given their current momentum and relevance to institutional adoption. These represent the segment where tokenization has moved furthest from theory to market reality.

1.1 Tokenized RWAs: Adoption and process

As of early 2025, the total value of tokenized RWAs exceeded $18 billion, up from less than $5 billion in 2023, and is expected to exceed $2 trillion (excluding cryptocurrencies and stablecoins) by 2030 [Banerjee et al. (2024)]. This surge reflects not only technical maturity, but also a shift in institutional sentiment: tokenization is increasingly viewed as a strategic solution for increasing capital efficiency, enhancing

Figure 1: Tokenization process



transparency, and building programmable infrastructure that bridges traditional finance (TradFi) with decentralized systems.

As institutional engagement grows, understanding how tokenization works under the hood becomes increasingly important – not just for developers, but for asset managers, legal teams, and infrastructure providers navigating this new financial architecture. While each asset class brings its own regulatory, technological, and market-specific challenges, the tokenization process tends to follow a common framework.

As shown in Figure 1, tokenization involves a multi-step process that spans legal structuring token design, blockchain selection, and market integration. Among these steps, the initial definition of the asset and its intended purpose is foundational. Whether the token is meant to represent ownership, provide access or deliver yield will directly influence how it must be legally structured, what rights it embeds, and how it will be treated by regulators. For example, a tokenized product designed solely to signal ownership may avoid a securities classification, while one intended to be yield-bearing can trigger additional compliance requirements. These early decisions ripple through the entire design and deployment process, shaping the path forward for both technical implementation and investor access.

Blockchain enables the tokenization process through its decentralized, tamper-resistant ledger, which ensures secure, transparent tracking of ownership and transactions. Smart contracts automate issuance, settlement, compliance, and redemptions – eliminating manual processes and reducing reliance on intermediaries. Collectively, these features address persistent pain points in traditional finance, offering practical solutions to challenges like limited liquidity, high barriers of entry, and operational inefficiencies. The table below maps common frictions in legacy systems to the blockchain-enabled capabilities that help drive tokenization adoption.

To ground these adoption drivers in a real-world example, this case study examines the rise of tokenized U.S. Treasuries, arguably the most

Table 1: Comparison of traditional finance challenges and blockchain solutions

Traditional Finance Challenge	Blockchain Solution (Adoption Driver)
Limited liquidity in private/alternative assets	**Fractional ownership** enables smaller denominations and broader market participation
High barriers to entry for retail investors	**Greater accessibility** through tokenized assets reduces minimum investment sizes and expands reach
Manual, paper-based processes and intermediaries	**Smart contract automation** streamlines issuance, settlement, and redemption
Opaque ownership records and poor auditability	**Blockchain transparency and immutability** enhances auditability and reduces fraud
High operational costs and delayed time-to-market	**Cost efficiency** from reduced reliance on intermediaries and faster processing
Lack of interoperability between financial applications	**Interoperability** through shared ledger infrastructure and token standards enhances connectivity across siloed systems and streamlines integration

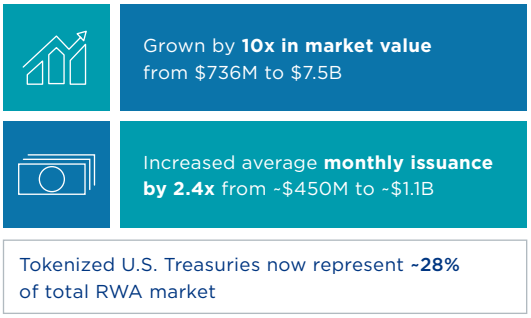
mature and institutionally embraced tokenized asset to date. It illustrates how blockchain is being leveraged to address core TradFi frictions such as inefficient settlement, opaque ownership structures, limited auditability, and constrained composability, while also unlocking new yield-bearing opportunities across both traditional and decentralized ecosystems.

2. Case study: Tokenized treasuries as yield bearing infrastructure

Tokenized U.S. Treasuries are on-chain representations of short-term government debt, designed to mirror the structure and performance of traditional treasury instruments while leveraging blockchain-based infrastructure. Their low credit risk, regulatory familiarity, and deep liquidity make them uniquely well-suited for blockchain adoption. Just as importantly, treasuries align with growing on-chain demand for programmable, yield-bearing instruments that can serve as financial primitives in both TradFi and DeFi ecosystems.

Figure 2: Tokenized treasury metrics snapshot

Since Q1 2024, tokenized U.S. Treasuries have:



Source: app.rwa.xyz
Data as of 09/02/2025

This convergence of technological readiness and macroeconomic tailwinds has triggered a surge in adoption. Since Q1 2024, the value of tokenized U.S. Treasuries has grown from $736 million to $6.89 billion – a nearly 836% increase. Much of this momentum has been driven by the Federal Reserve's quantitative tightening (QT) cycle, which pushed short-term interest rates to multi-decade highs, making U.S. government debt newly attractive to crypto platforms and cash-rich institutions seeking low-risk yield.

At the same time, stablecoin issuers, many of which hold U.S. Treasuries as reserves, began earning substantial returns on those holdings, often without passing that yield on to users. This gap created a new incentive: protocols recognized the opportunity to evolve beyond static, stable-value tokens and introduce yield-bearing stablecoins, digital assets designed to maintain price stability (typically one U.S. dollar) while distributing embedded yield. By embedding Treasury yield directly into user-facing products, they could drive adoption, differentiate their offerings, and gain more control over value flow within digital ecosystems.

The result has been a wave of innovation. To meet this growing demand, blockchain-native issuers, asset managers, and fintechs have introduced tokenized Treasury products that go beyond passive exposure – serving as the yield-bearing backbone for a new generation of programmable stablecoins and financial infrastructure.

2.1 The three structural models of tokenized treasuries

Tokenized U.S. Treasuries vary in structure, these products come in a variety of legal wrappers, reflecting different regulatory strategies and investor access models. While the end asset

Figure 3: Tokenized treasury wrappers

Registered tokenized MMFs	Tokenized T-bill notes	Aggregator structures
Legal structure: U.S. registered investment company (1940 Act) **Regulatory status:** SEC-regulated mutual fund **Product mechanism:** Tokenized shares of a government money market fund **Examples:** BENJI (FOBXX), WTGXX	**Legal structure:** Often Delaware LLCs or offshore SPVs **Regulatory status:** Unregistered; sold under Reg D or to non-U.S. investors **Product mechanism:** Tokenized claims on short-term U.S. debt instruments, typically structured as T-bill portfolios or notes **Examples:** USYC, USDY, USTB, BUIDL	**Legal structure:** Delaware LPs or other pooled investment vehicles **Regulatory status:** Varies; typically structured as exempt offerings under Reg D or offshore **Product mechanism:** Tokenized interest in a fund that allocates capital across multiple tokenized treasury products **Examples:** OUSG
These are fully regulated U.S. mutual funds that tokenize shares in a government money market fund	**These are tokenized debt instruments offering T-bill exposure, typically issued through private or offshore structures**	**These are meta-structures that pool capital and allocate into other tokenized Treasury products for diversification**

exposure is often similar (T-bills or government money market funds), the structure of the product determines who can use it, how it integrates with financial infrastructure, and what roles it can play in broader DeFi and TradFi ecosystems.

This paper groups these products into three primary wrappers based on observed patterns in legal structure, investor access, and product mechanism. While these are not formal designations used by issuers, they offer a useful lens for understanding how tokenized treasuries differ in function and accessibility.

To illustrate how these structural models play out in practice, the table below compares leading tokenized Treasury products across key dimensions: legal wrapper, investor access, use case, custodianship, and fees. By mapping these variables, we can see how design choices align with each product's strategic role in the digital asset ecosystem, whether it's enabling yield-bearing stablecoins, powering collateral markets, or supporting institutional payment infrastructure.

2.2 Strategic alignment: Use case, legal design, and investor access

The data on Table 2 reveals a consistent pattern: issuers leveraging offshore or exempt legal wrappers typically do so to build products designed for foundational digital asset infrastructure, such as on-chain collateral and yield integrations for stablecoins. These products tend to carry more restrictive investor qualifications and higher monetary barriers to entry due to their legal structure. As a result, institutional users dominate this segment. Notable examples include:

- **BlackRock's BUIDL is used by Ethena**, a DeFi-native stablecoin issuer, to back its USDtb stablecoin [Sandor (2024)].
- **Circle is positioning USYC as preferred yield-bearing** collateral across exchanges [Circle (2025)], custodians, and prime brokers. USYC has also integrated into the Intercontinental Exchange (ICE), suggesting further product development and solutions for users across TradFi and DeFi.

Table 2: Comparison of tokenized treasury and money market products by issuer

Issuer & product	Use case	Wrapper	Legal structure[2]	Investor type[2]	Custodian(s[1]	Fees[1]
Blackrock/ Securitize BUIDL	On-chain collateral & yieldcoin infrastructure	Tokenized T-bills	Exempt offering (Reg D); entity incorporated in the British Virgin Islands (BVI)	U.S Qualified Purchaser	Custodian(s): BNY Mellon/ Komainu/ Copper/ Anchorage/ BitGo/ Fireblocks	Management: 0.20%-0.50% Performance: 0%
Franklin Templeton BENJI	Retail and institutional cash management	Registered tokenized MMFs	U.S. registered mutual fund under the Investment Company Act of 1940	U.S. global and retail	Custodian(s): JPMorgan	Management: 0.15% Performance: 0%
Circle/ Hashnote USYC	On-chain collateral & yieldcoin infrastructure	Tokenized T-bills	CIMA-regulated mutual fund (Cayman Islands); Circle intends to bring product under existing DABA license	Non-U.S. investors & U.S. qualified purchaser	Custodian(s): BNY Mellon/ Komainu/ Copper	Management: 0% Performance: 10%
Ondo USDY LLC USDY	On-chain collateral & yieldcoin infrastructure	Tokenized T-bills	Limited liability company (LLC) incorporated in Delaware	Non-U.S. investor	Custodian: BitGo/Morgan Stanley	Management: 0% Performance: 0%
Ondo I LP OUSG	Liquidity & payment rail enablement	Aggregator	Limited partnership incorporated in Delaware	U.S. accredited investor & qualified purchaser	Custodian(s): Clear Street LLC/Bitgo	Management: 0.15% Performance: 0%
Superstate USTB	On-chain collateral & yieldcoin infrastructure	Tokenized T-bills	Series of a Delaware statutory trust	U.S. qualified purchaser and accredited investors	Custodian(s): UMB Bank, N.A. / Anchorage/ BitGo	Management: 0.15% Performance: 0%
Wisdom Tree WTGXX	Retail and institutional cash management	Registered tokenized MMFs	U.S. registered mutual fund under the Investment Company Act of 1940	U.S. global and retail	Custodian(s): BNY Mellon	Management: 0.25% Performance: 0%

Data as of 04/06/2025

[1] Fee numbers were obtained from the product page of each fund in app.rwa.xyz and confirmed with additional sources. Additional sources for each fund are listed in the reference section. Note that fees can change since date of publication.

[2] Investor type and legal structure obtained from the product page of each fund in app.rwa.xyz

- Ondo recently deployed USDY on Noble, a Cosmos-based routing hub, with the goal of making **USDY the preferred yieldcoin** across decentralized exchanges and money market platforms within the Cosmos ecosystem [Ondo Finance (2024)].

In contrast, products that are more heavily regulated, such as SEC-registered mutual funds, are geared toward retail and institutional cash management. Their regulatory status enables them to focus on user experience, including features like peer-to-peer transfers and seamless wallet integration. These characteristics make them attractive to wealth managers and traditional investors seeking a compliant entry into digital assets. For example:

- WisdomTree launched WisdomTree Connect to simplify cash management across traditional and digital systems [WisdomTree (2024a)].
- It also introduced "earn-until-you-spend" functionality, enabling users to fund debit card spending with yield accrued on their WTGXX money market fund holdings [WisdomTree (2024b)].

Finally, OUSG stands out as the only product using an aggregator wrapper. Its use case is uniquely focused on enabling liquidity and payment rails by leveraging a fund-of-funds structure. This structure allows Ondo to build a broader platform ecosystem:

- Ondo Nexus enables instant minting/redemption for tokenized treasuries, using products like OUSG as underlying collateral.
- OUSG already supports redemptions against USDC, with PayPal USD (PYUSD) expected to be added.
- Through a partnership with Mastercard's Multi-Token Network (MTN), OUSG can be used for institutional payment settlement, offering 24/7 subscriptions and redemptions without relying on traditional stablecoin ramps.

2.3 Infrastructure advantage: Strategic partnerships, acquisitions, and custodial expansion

In the race to lead the market for tokenized U.S. Treasuries, firms aren't just focused on launching new products, they're also investing in the infrastructure that supports them. By forming partnerships and making acquisitions, these companies can move faster and position their products for broader use, including as building blocks for future stablecoin and yield-focused applications.

BlackRock's BUIDL offers a clear example. Rather than building blockchain infrastructure internally, BlackRock partnered with Securitize to issue and manage the token, enabling a faster path to market [PR Newswire (2025)]. As a result, BUIDL quickly became the leading tokenized treasury product by assets under management, outpacing early movers like Franklin Templeton. Beyond its scale, BUIDL is now integrated across the digital asset ecosystem, used as on-chain collateral for stablecoins like USDtb, and serving as a foundation for other tokenized treasury products, such as OUSG. Similar trends are emerging elsewhere: Circle acquired Hashnote to incorporate USYC into its stablecoin stack, bringing yield-bearing capabilities to its suite of stablecoin offerings [Circle (2025)].

A second vector of infrastructure advantage lies in custodial expansion. Tokenized treasury products are changing what custodians are expected to support. While traditional custody focused on

fiat and securities, today's ecosystem demands interoperability across both TradFi and DeFi rails. Custodians like BitGo, Fireblocks, Komainu, and Copper are increasingly collaborating with firms like BNY Mellon, JPMorgan, and UMB to enable dual custody models, straddling legacy and crypto-native requirements.

Custodians now play a more active role in adoption. Their infrastructure enables tokenized treasuries to be held and used across platforms that require secure, compliant exposure to short-duration U.S. debt. This includes exchanges, prime brokers, and protocols that rely on custodians to support collateral, settlement, or treasury operations. In this way, custodians are becoming critical to the distribution and utility stack for tokenized U.S. Treasuries.

2.4 Fees and operational efficiency

Tokenized treasury products are not only reshaping how assets are issued and traded, they're also redefining the economics of fund management. One of the most immediate benefits is cost. Tokenized treasury products often charge lower management fees for investors compared to traditional market funds which typically range from 0.20% to 0.50%. These efficiencies can also reduce operational overhead for issuers, due to the operational advantages provided by tokenization via blockchain infrastructure. Among the products analyzed, most tokenized offerings range between 0% and 0.15%, with the notable exception of BlackRock's BUIDL, which mirrors traditional pricing. BUIDL's higher fee structure likely reflects its hybrid model, leveraging Securitize's tokenization infrastructure while maintaining BlackRock's premium brand and institutional servicing standards. In contrast, products like Ondo's USDY and Superstate's USTB offer zero performance fees and flat management rates around 0.15%, creating cost efficiencies that compound across high-volume or high-frequency use cases. These lower fees can be particularly powerful when paired with blockchain infrastructure. For example:

- Ondo's USDY, positioned as a yieldcoin within DeFi applications, benefits from zero-fee economics to making it easier to integrate into trading platforms like Helix. This fee compression enhances the appeal of DeFi platforms and stablecoin issuers seeking embedded yield.
- WisdomTree's WTGXX, which charges 0.25%, is more aligned with traditional pricing but mitigates friction for retail use cases via wallet-based functionality like "earn-until-you-spend," enabling users to deploy yield-bearing funds directly into debit card transactions.

Beyond headline fees, blockchain-based operational efficiencies offer other advantages:

- **Settlement speed and redemption cycles:** Tokenized funds typically settle in near real-time, improving liquidity visibility and reducing "cash drag" compared to T+1 timelines in traditional funds.
- **Custody flexibility:** Many products support dual custody models, allowing investors to self-custody or rely on digital custodians like BitGo and Fireblocks. This flexibility improves integration across prime brokers, protocols, and on/off-ramps.
- **Smart contract automation:** By automating compliance checks, onboarding flows, and fund operations, smart contracts reduce manual errors and regulatory friction.
- **Cross-chain interoperability:** Products like OUSG and USDY are increasingly designed for modular integration across settlement rails and DeFi primitives, positioning them as programmable financial assets, not just passive yield vehicles.

In this context, low fees are not just a cost advantage, they're a design choice aligned with the product's intended use case. Institutions exploring these offerings should assess fee structures in tandem with operational architecture, especially when evaluating liquidity performance, automation readiness, and strategic interoperability across financial systems.

3. Reshaping capital markets: Strategic implications of tokenized treasuries

The rise of tokenized treasury products is not just a product trend – it signals a foundational shift in how capital markets are structured, accessed, and composed. As adoption accelerates, several key implications are emerging.

3.1 Broader market access and participation

Tokenized treasuries dramatically reduce barriers to entry for global investors. With just a wallet, retail users and smaller institutions can now access U.S. government debt – a market traditionally gated by custodial constraints, KYC onboarding, and high minimum investments. For example, Franklin Templeton's Benji Investments app enables qualified users to onboard and begin investing in tokenized money market funds like FOBXX in just a few minutes through a wallet-linked interface.

For emerging markets and underbanked regions, this shift could redefine participation in global capital markets, opening access to secure, yield-bearing assets that were previously out of reach.

3.2 Infrastructure composability and innovation

Tokenized treasuries are not static assets – they're programmable building blocks. On-chain, they enable:

- Collateralized lending backed by U.S. debt
- Algorithmic stablecoins with embedded treasury yield
- Cross-chain treasury management for protocols and institutions.

As explored earlier, products like BUIDL and USDY are already embedded into stablecoin architectures (e.g., USDtb) or positioned for use across DeFi apps and decentralized exchanges. This composability allows capital markets infrastructure to evolve modularly, layering new services atop a shared foundation of secure, yield-generating assets.

3.3 TradFi–DeFi convergence in action

Perhaps the clearest sign of structural change is the emergence of hybrid operating models. A notable example is the 2025 Collateral Mirroring Programme between Franklin Templeton, Standard Chartered, and OKX, which enables users to utilize cryptocurrencies and tokenized money market funds as off-exchange collateral for trading. This model builds on trends already visible in products like the OUSG and Mastercard partnership for institutional payment rails, and WTGXX, which supports wallet-based retail access. Together, these efforts demonstrate how off-chain capital can be activated on-chain, creating new liquidity channels, programmable functionality, and novel user experiences across the capital markets landscape.

Tokenized treasuries are just one example of how tokenization is beginning to reshape global capital markets. While they've gained early traction due to their alignment with yield-bearing infrastructure, the broader tokenization ecosystem, spanning private credit, real estate, stablecoins, and beyond, is evolving rapidly. As more assets become programmable and interoperable, the implications for market structure, regulation, and investor behavior will only grow. Yield-bearing tokenized instruments – like tokenized money market funds, for example, could incentivize capital to flow out traditional bank deposits. Over time, this may reduce deposit balances and weaken the role of banks in credit creation, with second-order effects on how monetary policy is transmitted. These risks aren't unique to tokenization, but they highlight how digitized financial infrastructure could reshape the underlying plumbing of the financial system. Understanding tokenized treasuries today offers a lens into how the next generation of financial infrastructure might emerge tomorrow. But with that promise comes a complex set of challenges – technical, regulatory, and operational – that will shape how far and how fast tokenization can scale.

4. Tokenization's growing pains: Challenges on the road to scale

As tokenization moves from concept to critical infrastructure, it faces meaningful challenges that must be addressed to scale securely and sustainably. While many of these obstacles are technical or legal in nature, progress is underway across jurisdictions and protocol layers. This section outlines five of the most pressing challenges and how industry actors are working to address them.

Tokenized treasuries offer a lens into how the next generation of financial infrastructure might emerge.

4.1 Regulatory uncertainty

Tokenized assets are subject to a fragmented and evolving regulatory landscape. The European Union (E.U.) has led with the Markets in Crypto-Assets (MiCA) framework, which provides a foundation for digital asset issuer registration, reserve disclosure, stablecoin supervision, and a regulatory framework for crypto-asset service providers (CASPs) [ESMA (2023)]. In contrast, the United States has relied on enforcement-driven approaches, leaving many tokenized financial instruments in legal limbo. However, legislative momentum in the U.S. is slowly building. Bills such as the GENIUS Act seek to establish a federal framework for stablecoin issuance and reserve requirements [Tierno (2025)], while the Stablecoin Transparency Act focuses on ensuring that fiat-backed stablecoins are fully collateralized with cash and high-quality liquid assets such as U.S. Treasuries, and subject to monthly public disclosures [U.S. Congress (2022a)]. The Responsible Financial Innovation Act (RFIA) introduces the concepts of "ancillary assets" – digital assets offered under investment contracts that lack traditional security characteristics – and delineates regulatory responsibilities between the SEC and CFTC, granting the CFTC jurisdiction over these ancillary assets [U.S. Congress (2022b)].

Though none of these acts explicitly address tokenization, they have important indirect implications for key use cases, particularly

stablecoins and tokenized treasuries, by clarifying how underlying assets and digital asset infrastructure may be treated. More broadly, their introduction reflects an increasing policy focus on digital assets within the U.S. regulatory landscape.

4.2 Technological barriers

Scalability and interoperability remain major friction points for tokenized assets. Public blockchains often suffer from limited throughput and fragmented ecosystems, making it difficult to achieve composability across protocols or chains. In response, cross-chain communication layers like Chainlink's Cross-Chain Interoperability Protocol (CCIP), LayerZero, and Axelar are enabling asset movement across blockchain networks. Meanwhile, Layer 2 rollups such as Arbitrum and Optimism, and enterprise-grade solutions like Polygon CDK and Avalanche Evergreen Subnets, are helping to address congestion and settlement latency.

4.3 Security risks

While blockchain networks themselves are highly secure, vulnerabilities in smart contract design remain a critical challenge, especially in permissionless environments. High-profile DeFi exploits have eroded trust in tokenized protocols, with losses in the hundreds of millions. To mitigate these risks, projects are adopting formal verification methods, partnering with audit firms like CertiK and Trail of Bits, and implementing real-time monitoring tools such as OpenZeppelin Defender. Tokenization platforms aimed at institutional users, such as Securitize and Centrifuge, are also emphasizing permissioned flows, KYC/AML compliance, and circuit breakers to reduce systemic exposure.

4.4 Legal recognition

In many jurisdictions, tokenized representations of ownership do not yet enjoy the same legal standing as traditional securities or property. This can complicate enforcement rights, investor protections, and cross-border transfers. Some countries, however, are advancing supportive frameworks. For example, Switzerland's DLT Law explicitly recognizes DLT-based securities, allowing tokenized assets such as shares or bonds to be issued and transferred entirely on-chain with the same legal enforceability as traditional instruments [Swiss State Secretariat for International Finance (2023)]. Similarly, Singapore's Guide to Digital Token Offerings [MAS (2018)], while not tokenization-specific, outlines how tokens representing underlying assets may be treated as capital market products under existing securities laws, depending on their structure and rights conferred.

At the international level, the UNIDROIT Principles on Digital Assets and Private Law aim to harmonize private law treatment of digital assets across jurisdictions by defining control-based ownership, legal transfer mechanisms, and custody standards [UNIDROIT (2025)]. While not binding, these principles are expected to guide national legislation and provide foundational legal clarity for tokenized financial instruments.

4.5 Market infrastructure gaps

Institutional adoption of tokenized assets is constrained by underdeveloped market infrastructure. Custody models are still maturing, and token standards vary widely, limiting integration, auditability, and risk controls. To address this, custodians like Fireblocks, Anchorage, Copper, and BitGo are collaborating with traditional financial institutions such as

BNY Mellon and JPMorgan to create hybrid custody frameworks. At the token level, standards like ERC-3643 are gaining traction. These standards embed compliance logic into the token architecture, enabling features like investor whitelisting and transfer restrictions that are essential for regulated financial instruments.

Together, these developments suggest a rapidly professionalizing ecosystem. While significant gaps remain, the convergence of regulatory innovation, technical tooling, and institutional collaboration is pushing tokenization closer to mainstream adoption.

5. Conclusion

Tokenization is not simply digitization – it is infrastructure transformation. It redefines what assets can do, where they move, who can access them, and how financial systems interoperate. Tokenized treasuries offer a glimpse into this future. They turn traditionally inert assets into programmable, interoperable instruments that bridge legacy markets and emerging digital ecosystems.

From stablecoins to payment rails, settlement to collateralization, treasuries are already shaping new forms of liquidity and control. But what makes this shift foundational is not just the assets, it's the architecture being built around them. Regulatory clarity, smart contract automation, and custodial evolution are converging to support financial products that are not only more efficient, but more composable and inclusive.

The next chapter of capital markets will not be written solely in code or regulation, it will be shaped at the intersection of the two. Tokenization sits at that intersection. And as the ecosystem matures, its most transformative effects may not be what it replaces, but what it makes possible.

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