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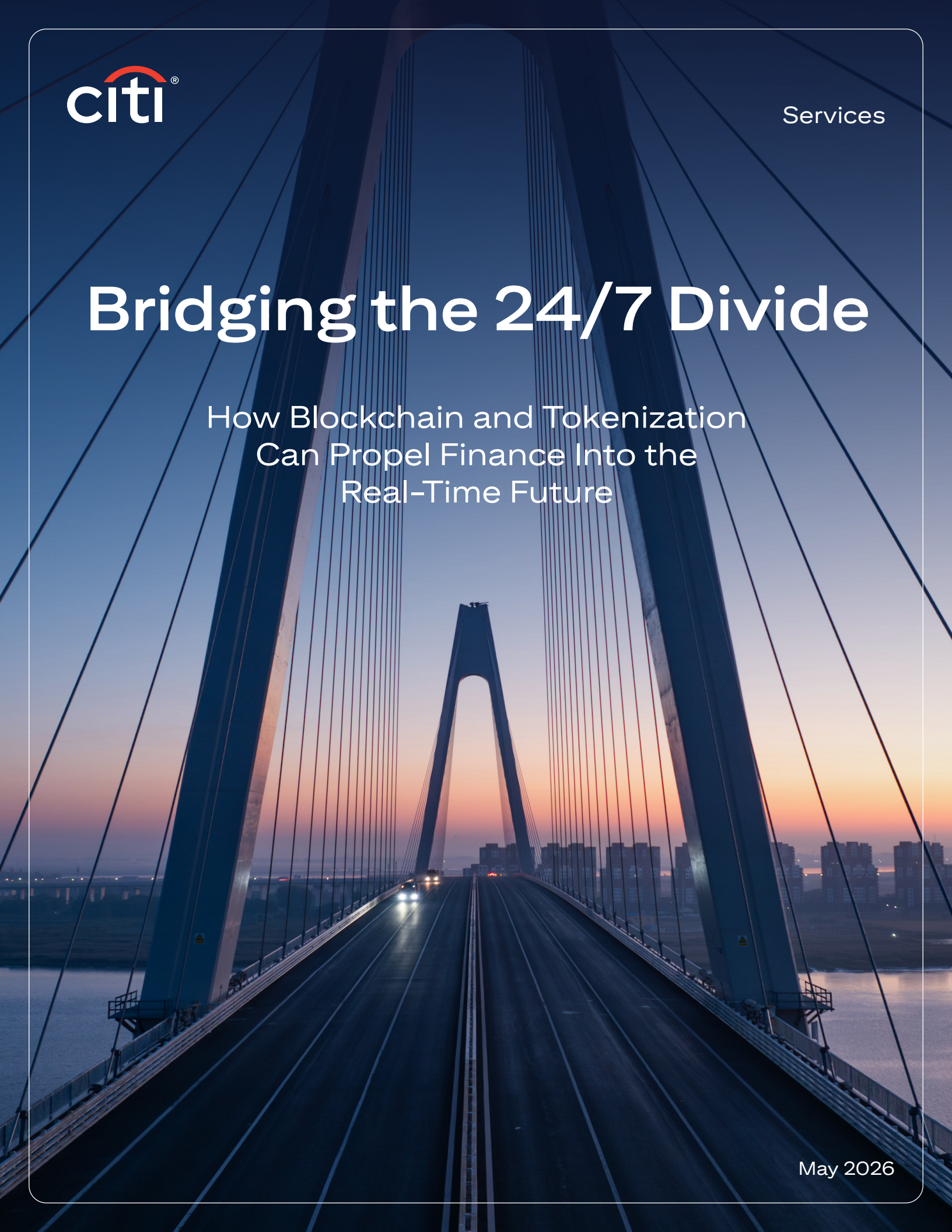
Services

Bridging the 24/7 Divide

How Blockchain and Tokenization Can Propel Finance Into the Real-Time Future



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Modern life operates at the speed of thought. In a 24/7 and always-on digital economy, individuals command global services with a single tap, ordering goods at midnight, streaming a movie, paying a friend, and communicating across time zones without friction. Technology has redefined our lives, business and society. Many of the architectures, practices and processes that underpin commerce, trade, securities and other critical financial interactions, however, are still playing catch up and are constrained by legacy infrastructure.

This is the always-on divide: a structural gap between an increasingly real-time global economy and a financial system that still operates in parts through batches or intervals. Significant progress has been made, and financial infrastructure is certainly more interconnected than it was in decades past. From the emergence of correspondent banking to the ubiquity of SWIFT messaging and centralized clearing, each iteration has incrementally improved how money and value circulates. However, these advancements have largely retained a model where data and information are transmitted separately from the final settlement of value. While this separation is a practical and efficient design for certain payment types, it represents a fundamental limitation in the context of a fully real-time global economy.

Current end-to-end services rely on a fragmented model of coordinating independent entities. While this establishes a baseline of trust, it means the financial system is prone to be constrained by structural inefficiencies:

- **Distinct processes:** Transaction initiation and settlement remain distinct, multi-step processes.
- **Fragmented Liquidity:** Capital is trapped across disparate jurisdictions, constrained by macroeconomics, regulations and market hours.
- **Operational Friction:** Rigid cut-off times, often dictated by underlying market hours, and manual reconciliations restrict the efficient use of capital.
- **Complexity:** The reliance on multiple, disconnected ledgers creates a perpetual cycle of administrative overhead.

Despite structural improvements and market progress, a chasm is beginning to emerge between modern client expectations and experiences, and what can be delivered by legacy infrastructure. The good news, however, is the industry has recognized this, and is future-proofing its business model so that it can support the next generation of clients.

Figure 1: Digital On-Chain Money Formats

	STABLECOINS	DEPOSIT TOKENS/ TOKENIZED DEPOSITS
Issuer	Non-bank entities or banks (in some cases)	Regulated commercial banks
Backing Assets	Reserves (cash, T-bills, commercial paper, crypto, etc.)	Deposits in commercial bank accounts
Regulation	Varies: some are regulated (e.g., USDC), others less regulated	Subject to banking regulation and supervision
Risk Profile	Depends on issuers transparency and reserve quality	Similar to holding a traditional bank deposit
Use Cases	Retail payments, crypto trading, Decentralized Finance (DeFi), remittances	Institutional payments, programmable finance, settlement

Note: Tokenized deposits are token representations of commercial deposits where each token is backed by retail or institutional deposits. Whereas a deposit token is the native token on a blockchain which directly represents retail or institutional deposits in the form of tokens. Most bank projects to date are classified as "tokenized deposits." Deposit tokens are mostly in pilot or early stages, such as Project Guardian, the Regulated Liability Network (RLN), or Project Helvetia.

Source: Citi Institute

Digital Assets Reach an Inflection Point

A blockchain-based solution to increasing 24/7 requirements is now emerging as deployable infrastructure rather than theoretical innovation. While grounded in decades of cryptographic innovation, modern blockchain technology emerged in 2008 with the publication of the Bitcoin white paper.[1] Since then, blockchain has matured through experimentation, client demand, and evolving regulatory frameworks. While Bitcoin introduced blockchain to the world, its enduring significance lies in the underlying technology rather than the asset itself. Today, the focus has shifted from the asset to the infrastructure, specifically how blockchain can be applied to improve the movement of value across financial systems. Whereas financial systems are inherently siloed, blockchain is natively multi-asset.

Financial services are a natural fit for this technology. Most core processes require multiple institutions to coordinate transactions, manage conditional agreements, and reconcile disparate records. Blockchain-based systems eliminate the inherent duplication of these tasks by leveraging shared infrastructure. On these networks, activities are recorded, synchronized, and visible to all authorized parties in real time.

What was once viewed as experimental is increasingly being evaluated through the lens of real-world applications, as institutions, clients, and regulators engage with the technology across areas of strategic planning, pilots and production grade services. These developments are reinforcing blockchain's role as one of the many foundational layers. The past year has marked a turning point for blockchain and the digital assets it underpins. In the United States, the 2025 passage of the landmark GENIUS Act underscores growing momentum toward regulatory clarity, reinforcing institutional confidence in digital assets.

Within this evolving landscape, two forms of digital money are gaining prominence: stablecoins[2] and tokenized deposits.[3] Together, they represent complementary approaches to modernizing the movement of value.

[1] https://bitcoin.org/bitcoin.pdf

[2] Digital assets pegged to the value of a fiat currency and typically backed by short-term government debt. Often issued by non-bank entities on public networks, they provide 24/7 availability and near-instant cross-border settlement.

[3] Digital claims on traditional bank deposit accounts. These operate within existing banking and regulatory frameworks, offering seamless integration with current treasury and risk management processes.

Financial institutions are actively deploying blockchain technology and emerging forms of digital money *to help their clients redefine treasury.*

Tokenized deposits are expected to become foundational tools within the existing banking and financial system, enabling real-time liquidity management, programmable payments, and seamless integration with existing regulatory, credit and compliance systems. The combined market capitalization of stablecoins is already over $300 billion[i] and transaction volumes related to settlement of on-chain crypto assets exceeded $34 trillion in 2025.[ii] Yet despite these headline figures, stablecoin adoption remains concentrated among a narrow set of use cases, predominantly crypto asset trading and settlement, with limited penetration into mainstream commerce, corporate treasury, or everyday consumer payments. The vast majority of stablecoin activity is driven by a small number of issuers and chains, underscoring that while the infrastructure is maturing, broad-based institutional and retail adoption is still nascent. Further growth of on-chain money could be exponential with several estimates published by banks and the official sector citing that stablecoin issuance could reach $2-4 trillion by 2030[iii] and bank-based tokenized deposit transaction volumes having the potential to grow at an even faster pace and scale than stablecoins.[iv]

Rather than tokenized deposits and stablecoins competing head on, these ecosystems are instead converging to support a network of networks – an interoperable financial ecosystem that connects internal bank platforms, market participants, and digital asset infrastructures. Collectively, they are poised to shape the future of global financial architecture.

Why Blockchain and Tokenization Matter

The next generation of financial infrastructure built on blockchain technology and tokenization has a fundamentally different model from its predecessors. Rather than merely streamlining the communication of value, this architecture represents assets and transactions themselves on a shared infrastructure.

Crucially, in this environment, financial value is programmable. When assets reside directly on shared platforms, the rules governing their movement are embedded into the transaction itself. This shift transforms financial processes from instruction-based coordination into integrated, event-driven execution.

By unifying value and logic, this model provides several strategic advantages:

- **Unified Asset Representation:** Financial instruments and deposits exist as tokenized objects on a shared ledger, providing a single source of truth.
- **Embedded Logic and Conditional Execution:** Using smart contracts,[4] rules and conditions are encoded directly into transactions, triggering automatic execution once requirements are met.
- **Continuous Settlement:** Transactions move toward real-time finality, operating 24/7 without the constraints of batch cycles, market hours, or manual cut-off times.

[4] A self-executing digital agreement where the terms of the contract are encoded directly into the blockchain, triggering automated actions when specific conditions are met.

This integration collapses workflows that previously required multiple intermediaries and constant reconciliation into a single, frictionless environment. Ultimately, the significance of blockchain and tokenization extends beyond digital money. As these technologies mature, they will underpin a more interoperable, efficient, and resilient global financial system.

Treasury Reimagined: From Operational Constraint to Strategic Advantage

Corporate clients' treasury operations are an area where the gap to 24/7 is acute and where its resolution can deliver immediate value.

Financial institutions are actively deploying blockchain technology and emerging forms of digital money to help their clients redefine treasury. By enabling real-time asset movement and programmable workflows, these technologies move the industry toward an always-on treasury model, defined by continuous operations, automation and dynamic resource control. Applications include:[5]

- **Dynamic Intraday Liquidity Management:** Tokenized deposits and blockchain-based rails enable the movement of liquidity in real time, 24/7, across entities and geographies. By eliminating traditional cut-off times, intermediary dependencies, and batch-based settlement, treasurers can respond dynamically to funding requirements throughout the day, support global liquidity pooling, and reduce reliance on costly precautionary buffers.
- **Efficient Cross-Border Payments and Supplier Funding:** Digital asset infrastructure unlocks powerful automation for financial cutoffs and rules through its inherent programmability. Realizing this technology's full potential is contingent upon its successful integration with core financial infrastructure, and a regulatory approach that either reduces friction or establishes a framework for its automated management.
- **Automated Allocation of Incoming Flows:** Programmable workflows can automatically convert incoming digital assets into tokenized deposits or fiat equivalents. This ensures funds are allocated according to predefined rules and policy compliance, making them immediately usable without manual intervention.
- **Efficient Foreign Exchange Execution:** Tokenized FX markets utilize automated market makers and algorithmic matching to provide continuous, real-time pricing. This approach has the potential to compress spreads and lower costs, particularly for smaller flows or less liquid currency pairs – costs and spreads are a function of many things including depth and liquidity in the market and in the currency.
- **Effective Yield Optimization:** Digital infrastructure enables the automated sweeping of surplus funds into tokenized investment instruments, such as money market funds, on an intraday basis. Treasurers can enhance yield without sacrificing immediate access to capital.
- **Accelerated Asset Transfers and Funding Cycles:** Tokenization transforms the issuance of short-term instruments, such as commercial paper. Near-instant issuance and settlement increase funding agility, reduce operational workloads and shorten the overall liquidity management cycle.
- **Synchronized Real-Time Settlement:** On-chain delivery-versus-payment mechanisms enable atomic, real-time settlement. Assets and cash are exchanged simultaneously and irrevocably, eliminating the settlement lags and counterparty risks inherent in asynchronous traditional systems.

Collectively, these applications redefine the treasury function by integrating cash positions, funding, and execution into a single, unified environment. This shift goes beyond incremental efficiency; it enables treasurers to mobilize liquidity dynamically, compress investment cycles, and execute processes with unprecedented precision. Ultimately, digital asset infrastructure transitions treasury from a department defined by operational constraints to an adaptive, continuous operation focused on the strategic optimization of liquidity, risk, and return.

[5] These use cases are drawn from Treasury 2030, How Tokenized Payments are Enabling Real-Time Liquidity and other Citi material.

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The current T+1 settlement prevailing standard alone cannot close the 24/7 divide.

Modernizing Securities Markets: The Path to Instant Settlement

The securities industry is rapidly transitioning toward shorter settlement cycles. The current T+1 settlement prevailing standard alone cannot close the 24/7 divide. Digital assets and blockchain infrastructure offer the potential for true atomic settlement, eliminating delays and counterparty risks. Shortening settlement cycles is an objective supported by investors, asset managers, and broker-dealers alike, which seek to reduce operational complexity and increase capital mobilization. Applications include:[6]

- **Instant, Near-Continuous Settlement:** Blockchain technology shifts securities markets from batch-based, end-of-day cycles to digitally native, continuous processes. By potentially utilizing regulated on-chain money like tokenized deposits, both the payment and asset legs of a wholesale or institutional transaction can complete simultaneously, providing instant finality and eliminating settlement risk.
- **Enhanced Collateral Mobility:** Tokenizing securities and integrating them with 24/7 cash systems, like tokenized money market funds, allows for the around-the-clock mobilization of collateral. This real-time, programmable settlement improves liquidity, unlocks capital efficiencies, and enables same-day borrowing that is otherwise hindered by legacy delays.
- **Next-Generation Custody and Governance:** The role of the custodian is evolving from passive safekeeping to active cryptographic governance. By merging traditional bank security with specialized digital expertise, custodians mitigate unique on-chain risks, offering clients a unified experience where digital assets are managed seamlessly alongside traditional collateral.
- **Settlement via Tokenized Cash:** To fully realize the benefits of tokenized securities, the settlement leg must also be tokenized. Market participants increasingly expect digital on-chain payment mechanisms to become the primary form of cash used for settling exchange-traded activities and capital market transactions.
- **Smart Contracts for Corporate Actions:** Automating asset servicing through smart contracts reduces the operational friction caused by divergent national laws and market practices. Predefined logic can execute distributions and voting, ensuring consistency across jurisdictions.
- **Harmonized Token Formats:** Implementing standardized token formats acts as a unifying layer, seamlessly integrating disparate central securities depositories – which could be especially valuable in Europe – custodians, and trading venues into a single, cohesive network.

[6] These use cases are drawn from The Future of Post-Trade: Custody and Settlement in an Always-On World and Reimagining European Capital Markets: From Fragmentation to Harmonization.

These advancements signify a fundamental shift in securities and capital markets, moving from a fragmented landscape of delayed reconciliations to a unified, real-time ecosystem. By synchronizing the movement of securities and cash on shared infrastructure, the industry can eliminate idle capital and operational friction. Ultimately, this transformation enables a more resilient and efficient marketplace where liquidity is accessible instantly and global participation is governed by transparent, automated standards.

Industry Realignment: A Network of Networks

Blockchain and tokenization represent a revolutionary departure from legacy models because they enable the movement of value across assets, markets, and ecosystems on a unified, programmable infrastructure. However, their integration will likely follow a familiar historic pattern of evolution.

Just as payment networks and securities settlement infrastructures once emerged in isolation before becoming the interconnected backbone of global finance, digital asset platforms are now evolving from independent experimentation toward systemic integration, driven not by any single institution, but by the coordinated efforts of banks, regulators, and technology providers working toward shared infrastructure.

The critical question is not whether this shift will happen, it is already underway. The question is whether the industry will build enduring structures. To avoid replicating the current fragmented legacy system, the future architecture must take the form of a network of networks: distinct, specialized platforms for payments, asset issuance, and liquidity management, communicating through shared standards and unified logic. This requires meaningful collaboration across banks, custodians, central banks, and technology providers to establish the interoperability that makes the whole greater than the sum of its parts.

The 24/7 digital economy is no longer a future projection. It is the reality of global commerce and the emerging standard for the modern enterprise. The utility of programmable value is increasingly evident. Moreover, adoption is no longer a matter of competitive advantage; it is a requirement for operational relevance. Financial institutions, corporates, and regulators must adapt the plumbing of global commerce to match the speed of modern commerce.

What will this take in practice? Success in this new landscape demands a strategic commitment to three core pillars:

- **Client-Centric Innovation:** Financial institutions must design solutions that address real-world client needs, delivering secure, interoperable, and scalable digital asset capabilities that enhance efficiency, liquidity, and global connectivity.

Citi is not waiting for the future of finance to arrive.

We are pioneering it.

- **Operational Agility:** Organizations must re-engineer processes to thrive in an always-on environment, moving beyond the constraints of business hours and batch processing.
- **Proactive Interoperability:** Stakeholders must prioritize shared standards and open architectures to ensure that the network of networks remains a bridge to growth, not a collection of digital islands or dead ends.

Citi: Architecting the Future of Programmable Finance

The financial industry is undergoing a paradigm shift as digital assets and tokenization redefine how value is issued, transferred, and settled. Increasing regulatory clarity is fostering institutional confidence, while risk, governance, and compliance are being embedded as foundational design considerations rather than barriers to innovation. While some applications remain long-term opportunities, many practical solutions are already live today. Tokenization is bridging the gap between traditional and digital finance, blurring the line between traditional finance and decentralized finance, and reinforcing the importance of interoperability across a network of networks.

In this evolving landscape, banks like Citi play a critical role in delivering safety, soundness, and scalability. By connecting legacy systems with emerging digital infrastructure, financial institutions are enabling secure, interoperable, globally accessible markets. Tokenization is no longer a theoretical concept. As programmable financial infrastructure matures, it is poised to support the next 50 years of economic growth and prosperity.

Citi is not waiting for the future of finance to arrive. We are pioneering it. For over a decade, we have invested in research, collaboration, and platform development necessary to transition financial infrastructure into an integrated, programmable ecosystem. By leveraging our global scale and established regulatory footing across jurisdictions, we ensure our clients capture the benefits of frictionless, instant value transfer within a secure and trusted framework.

A cornerstone of our strategy is the advancement of tokenized deposits. By representing bank money as digital tokens, we preserve the essential pillars of the banking system including regulatory oversight, liquidity management, and credit intermediation while unlocking 24/7 settlement and more efficient workflows. This approach anchors innovation within the commercial banking system, combining the speed of digital infrastructure with the proven safeguards of institutional finance.

Citi Token Services® is the operational engine of this strategy. Active across major financial hubs, including the United States, the United Kingdom, Singapore, Hong Kong, and Ireland, Citi Token Services for Cash has created the capability of near-instant cross-border value transfer and settlement across our global network. By facilitating the seamless movement of liquidity across entities and time zones, Citi Token Services supports a new standard of always-on financial operations.

As settlement cycles accelerate, our Investor Services business is modernizing the way securities are issued, serviced, and held. We are investing in digital asset custody and post-trade infrastructure to ensure clients can mobilize tokenized assets with the same institutional-grade confidence they expect from traditional markets.

The guiding principles of our digital asset strategy is seamless integration with existing client solutions and ensuring the highest standards of risk and controls. Citi manages the underlying blockchain infrastructure and tokenization processes, enabling clients to continue operating through familiar fiat accounts and connectivity. This bridge approach ensures institutions can access the benefits of digital assets while avoiding introducing new operational or technical complexities.

Citi's leadership extends beyond our own platforms to the broader digital landscape. We are helping to shape the standards that the industry will rely on through key initiatives, including:

- **The Regulated Liability Network (RLN):** Exploring the coexistence of central bank money and commercial bank value on shared ledgers.
- **BIS Project Agorá:** Building on RLN, enhancing wholesale cross-border payments through global tokenization standards.
- **Connectivity Partnerships:** Collaborating with technology across both traditional tech and blockchain providers to streamline fiat pay-in/pay-out processes and improve payment orchestration between traditional and digital ecosystems.

The future of finance will be defined by interoperable networks where value moves with the same fluidity as information. With a presence spanning more than 180 countries and jurisdictions, Citi is uniquely positioned to lead this transformation. In the next era of global finance, we have a responsibility to deliver the trust, scale, and interoperability that underpin global commerce.

[i] https://defillama.com/stablecoins

[ii] https://visaonchainanalytics.com/transactions

[iii] https://www.citigroup.com/rcs/citigpa/storage/public/GPS_Report_Stablecoins_2030.pdf

[iv] https://www.citigroup.com/rcs/citigpa/storage/public/GPS_Report_Stablecoins_2030.pdf

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