



EXPLORING THE EMERGING TOKEN ECONOMY

Unlocking the potential of tokenized real-world assets

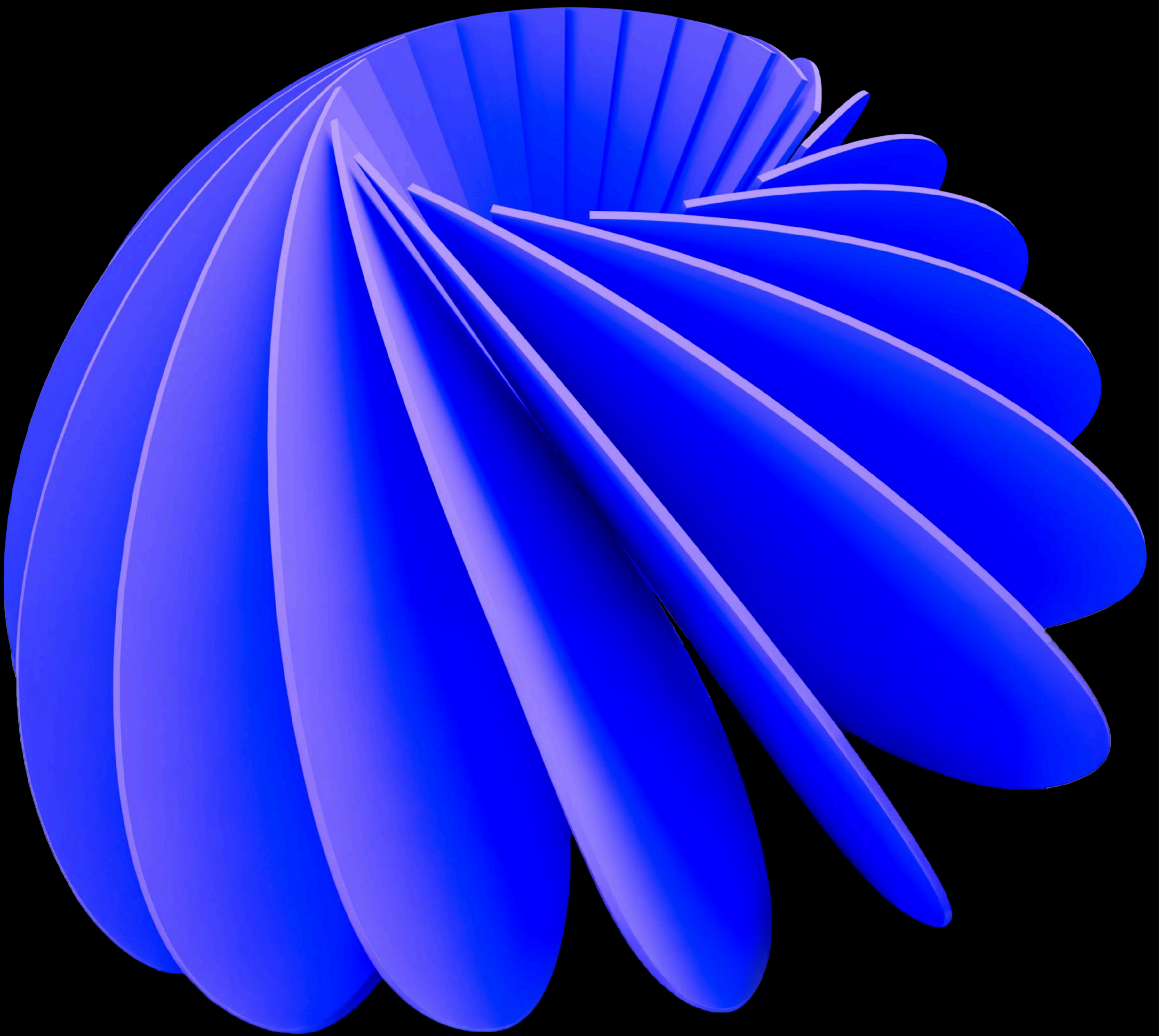


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High level statement

The creation and rapid adoption of distributed ledger technologies—sparked by the emergence of Bitcoin—did more than introduce the world to cryptocurrencies. As the digital economy continues to evolve, the underlying infrastructure is revealing its broader potential to transform how institutions, enterprises, and individuals interact. These technologies enable new capabilities that can disrupt traditional markets and reshape industries at a global scale.

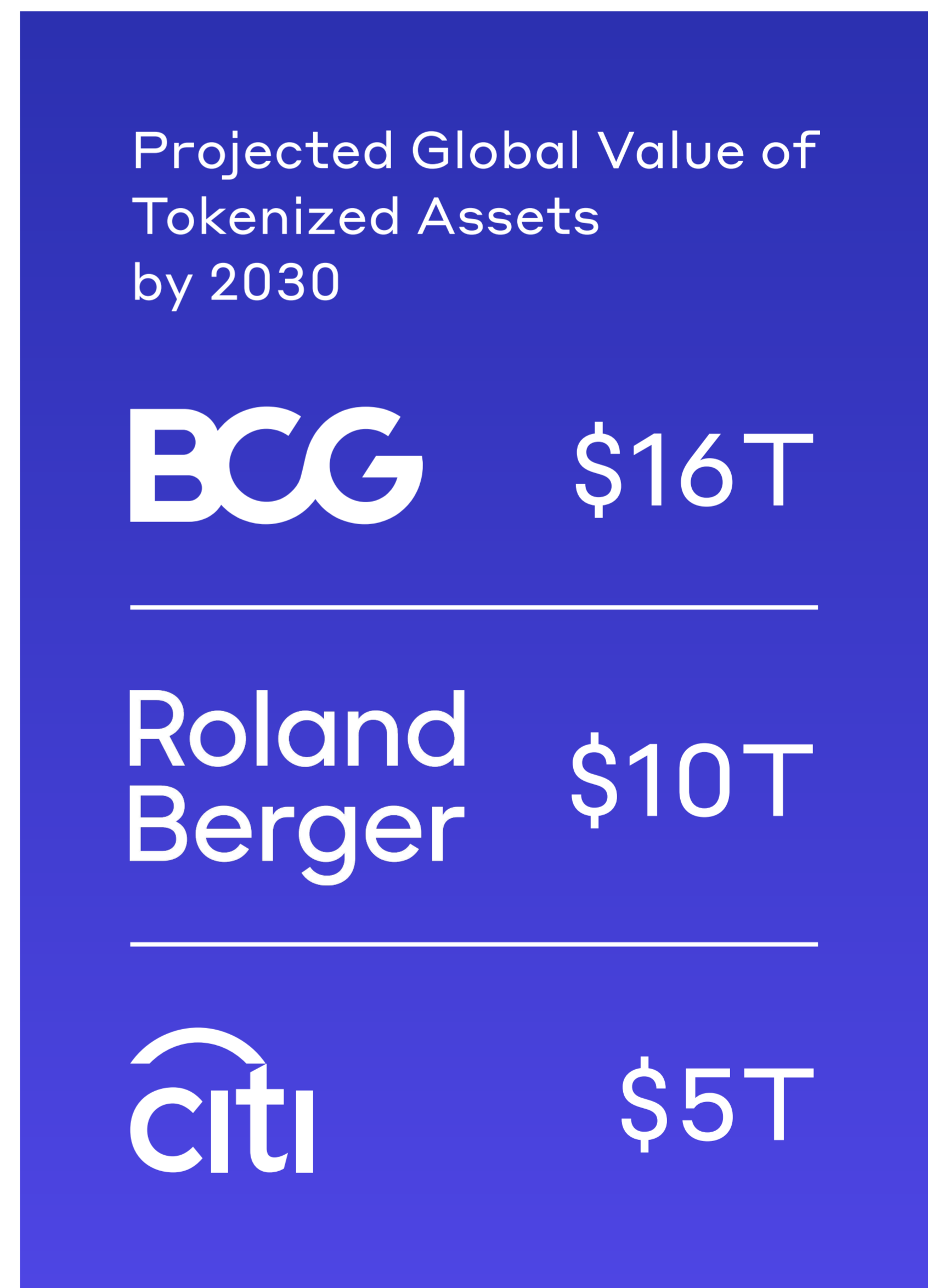
A critical topic seeing rapidly growing interest and real-world adoption is real-world asset tokenization— the digitization of physical or traditional assets represented on decentralized infrastructure such as blockchain or other forms of distributed ledger technology (DLT).

The benefits of tokenization are broad and well understood, which is why leading organizations across finance, real estate, payments, and other industries are actively experimenting with and deploying these solutions. As web3 continues to mature into a foundational layer of the global economy, asset tokenization presents unprecedented opportunities to unlock the value of real-world assets through the use of DLT infrastructure.

Current state of asset tokenization

Tokenization is currently revolutionizing global investment. This critical functionality - enabled by DLTs such as blockchain or hashgraph - has the potential to significantly streamline investment processes in both obvious and yet undiscovered ways. Whether it's a piece of real estate, a bond, a currency, or even a luxury good, tokenization provides enormous potential to unlock unprecedented value through improved accessibility, increased liquidity, and operational efficiency.

The total current market size for tokenized real-world assets is difficult to assess with complete accuracy due to information asymmetry and the absence of standardized classification frameworks, yet it is almost universally expected to grow exponentially over the coming years. Conservative estimates project the value of tokenized real-world assets to reach **more than \$4 trillion by the year 2030¹** while more “optimistic” estimates predict a value of **over \$16 trillion by the same year²**.



1 [Money, Tokens, and Games](#). Citigroup, March 23, 2023.

2 [Relevance of On-Chain Asset Tokenization](#). BCG, September 12, 2022.

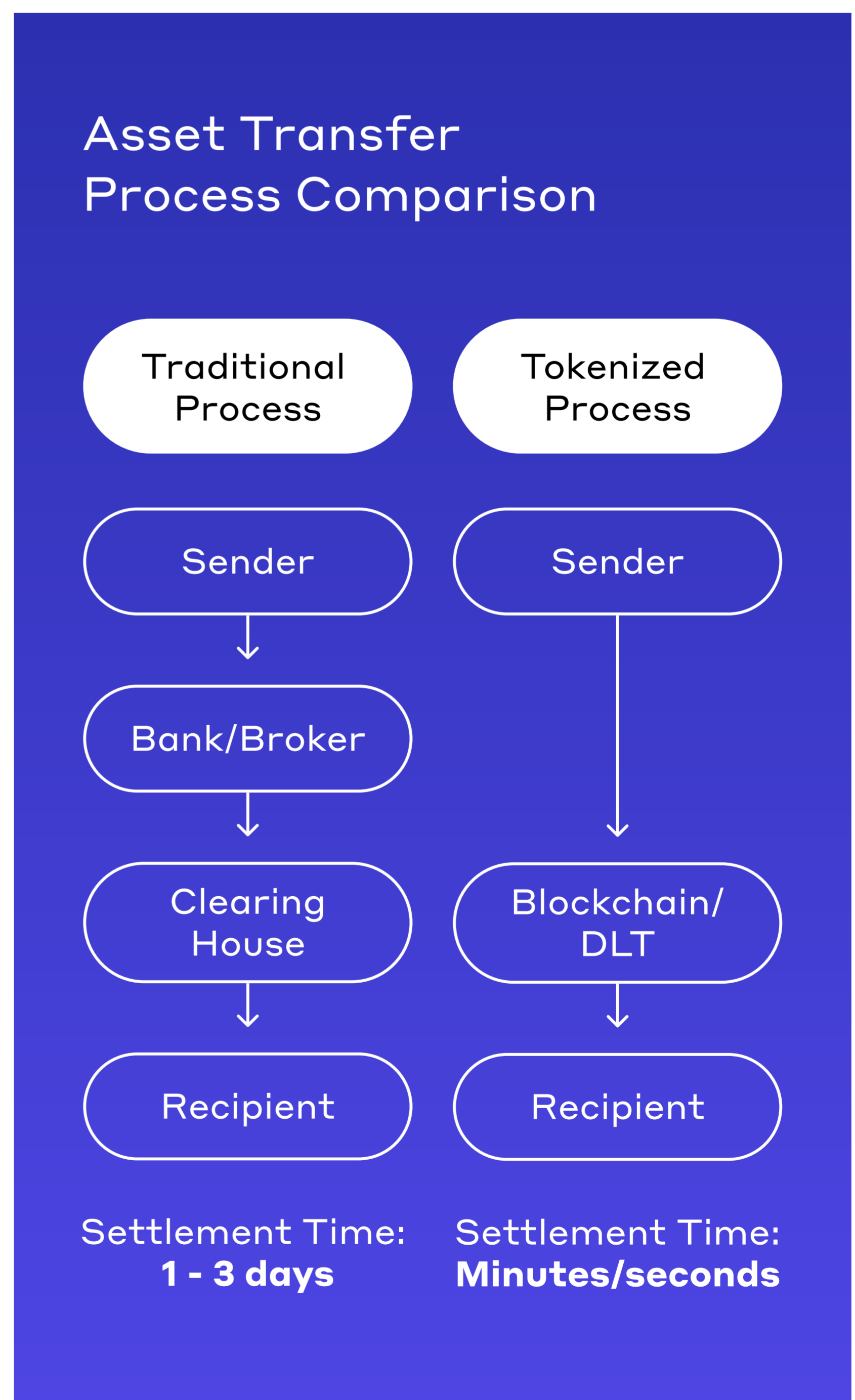
This growth is fueled by the increasing institutional adoption of DLT, the growing demand for fractional ownership, and the need for more efficient and transparent asset trading. As DLT-enabled tokenization initiatives continue to be led by major institutions, the private banking, asset management, real estate, and environmental finance sectors are emerging as key distribution channels for tokenized assets.

Tokenization transcends mere convenience and accessibility, serving as a catalyst for the seamless exchange of assets and enhancing liquidity in markets such as real estate that typically lack it. By fractionalizing assets into smaller, more manageable units, a broader spectrum of investors can partake in ownership, improving market liquidity. The integration of decentralized infrastructure streamlines transactions, lowers costs, and diminishes the need for intermediaries, paving the way for a more economical financial framework. Looking to the future, the intersection of tokenization, investment opportunities, and payments will continue to be increasingly explored by institutions and enterprises, holding monumental potential to fundamentally redefine investment and financial interactions.

Traditional finance

The traditional finance (TradFi) market as it stands today suffers from a broad range of systemic operational inefficiencies. These include but are not limited to slow settlement times, limited access to investment opportunities, and a lack of market transparency, leading to unnecessary costs, asymmetric information, and untapped market potential. For institutions and enterprises, there is a growing trend of exploring how blockchain and other DLTs can address these aforementioned inefficiencies and transform the market as we know it today, with asset tokenization being at the heart of this revolutionary shift.

Tokenization enables cost-effective, real-time transaction settlement of digital assets, which can take days with traditional assets due to the inherent inefficiencies associated with multi-party interdependencies. What normally takes **1-3 days³** can now be accomplished in minutes, if not seconds (depending on the type of decentralized infrastructure used) unlocking massive, untapped levels of liquidity that would otherwise be locked up in legacy processes while intermediaries slowly reach consensus on the transfer of value.



³ ["What Do T+1, T+2, and T+3 Mean?."](#) Investopedia.

As an example of the benefit this brings to investors and funds, we can look at money market fund dividends intended to be immediately reinvested for optimal compounding. It is common for positions in money market funds to compound daily - maximizing returns whenever dividends are calculated and distributed.

Since dividends regularly take multiple days to settle with the investor, any days spent processing the transaction is - for the investor - money lost on the interest that would have accrued had the dividend been paid out immediately and - for the fund - liquidity that could have been used to improve the fund's position.

Furthermore, tokenization enables the democratization of access to traditionally gated investment opportunities such as high-value bonds with high minimum investment requirements through "fractionalization": the practice of breaking-up an asset into smaller pieces that represent a portion of the collective asset. By breaking down these assets into more affordable units, fractionalization allows investors to purchase just a fraction of a bond and receive proportional returns from it. This not only lowers the barrier to entry allowing a wider range of investors to participate, but also greatly enhances liquidity through secondary markets and lower transaction costs compared to traditional trading methods.

Traditional finance



As the financial industry strives to evolve to deliver more diverse and accessible investment opportunities, many investment vehicles remain tied to the inefficiencies of legacy systems. Like many types of mutual funds, money market funds are not immune from this and traditionally experience slow payout and settlement times, leaving liquidity untapped and returns constrained.

At the forefront of modernizing this are [Aberdeen](#) Investments, one of the UK's top fund managers, and [Archax](#), a leading regulated digital asset exchange and custodian. Together, they have demonstrated the transformative potential of tokenization by offering **tokenized investment in Aberdeen's multi-billion-pound money market fund⁴**, with shares and yields represented as digital tokens on the Hedera network via the Hedera Token Service.

Through this innovation, Aberdeen provides investors with near-instant settlement, automatic reinvestment of interest, and reduced liquidity fragmentation. All ushering in a new era of operational efficiency and flexibility.

Building on this foundation, **Aberdeen, Archax, and Lloyds Banking Group recently achieved a UK-first milestone⁵**, using tokenized money market fund shares as collateral for foreign exchange (FX) trades between Aberdeen and Lloyds.

4 ["Archax Tokenises Investment in abrdn Multi-Billion Money Market Fund."](#) Archax, June 8, 2023.

5 ["Aberdeen Investments, Lloyds Banking Group and Archax complete UK-first use of digital assets."](#) Lloyds Banking Group, July 14, 2025.

These digital tokens are issued, transferred, and securely held by Archax. This real-world application underscores how tokenized assets can be integrated seamlessly into existing financial infrastructure, demonstrating clear pathways toward enhanced liquidity management and capital efficiency.

By leveraging the Hedera network's speed, security, and low-carbon architecture, Aberdeen and Archax are redefining what's possible in fund management. As institutions embrace these proven benefits, tokenization is rapidly moving from innovation to infrastructure and cementing its role as a core pillar of the next generation of finance.



Tokenization has long been seen as a key enabler in the new world of digital innovation. That's why we're delighted to collaborate with Lloyds and Archax, to demonstrate real-world application of on-chain collateral movements using tokenised assets.

Emily Smart

Chief Product Officer, Aberdeen



Carbon market

The carbon market, an essential component to reducing greenhouse gas emissions, is currently experiencing significant growth. The World Bank reported in 2023 that revenues from carbon taxes and Emissions Trading Systems (ETS) reached about **\$95 billion for the year⁶**, covering almost a quarter of global emissions. However, the market faces challenges such as information asymmetry, inefficiencies, and lack of transparency, which can hinder its effectiveness and scalability.

Tokenization of Environmental, Social, and Governance (ESG) assets, including carbon credits, offers a solution to many of the market's current inefficiencies. By converting these assets into digital tokens, tokenization provides increased liquidity, auditable transparency, and improved accessibility to the still emerging industry.

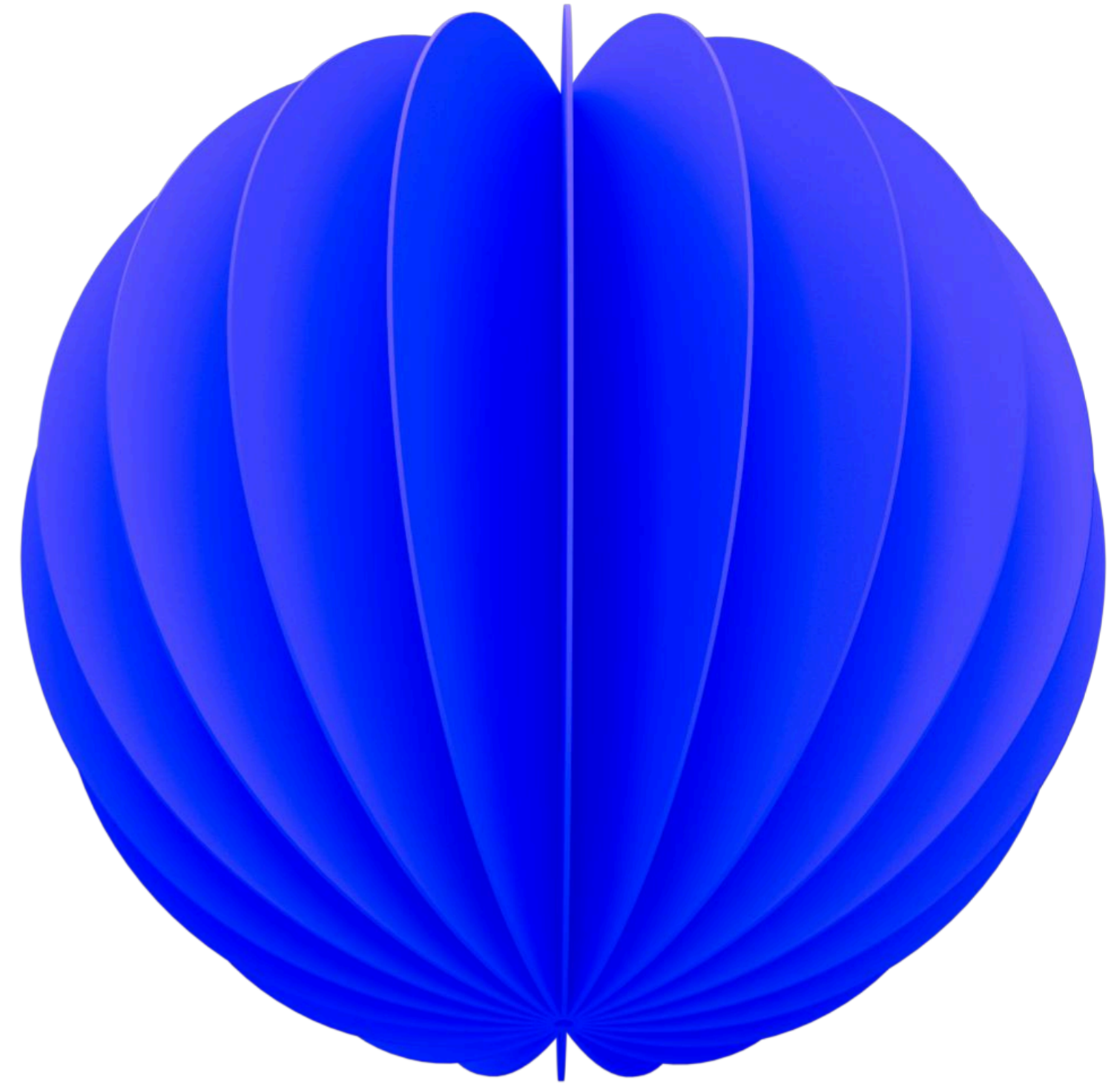
The value of the carbon offset market is substantial and expected to increase dramatically. In 2020, the voluntary carbon market was valued at \$2 billion according to Boston Consulting Group and is projected to **grow to between \$10 billion and \$40 billion by 2030⁷**. Long-term forecasts are even more optimistic, with Morgan Stanley estimating that the market could be **worth up to \$250 billion by 2050⁸** as demand for instruments of carbon reduction increases.

6 ["Record High Revenues from Global Carbon Pricing Near \\$100 Billion."](#) World Bank, May 23, 2023.

7 ["Why the Voluntary Carbon Market Is Thriving."](#) BCG, January 19, 2023.

8 [Carbon Offset Market Growth.](#) Morgan Stanley, April 11, 2023.

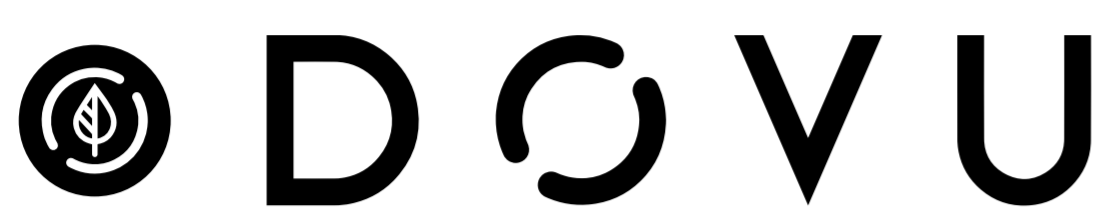
However, tokenization will undoubtedly be heavily utilized to fully realize the potential of this growing market due to the high programmability, auditable transparency, and standardized discoverability that digital assets have the potential to provide.



Total addressable market of ESG use cases⁹
\$800B - \$1.6T

⁹ [Carbon Credit Tokenization: Pioneering a Sustainable Future](#). PwC, April 2024.

Carbon market



As industries worldwide pursue net-zero emissions, transparent and trusted climate data solutions have become essential. [DOVU](#), a pioneer in carbon credit tokenization, is building the foundation for a more accessible and verifiable carbon economy on the Hedera network.

To this end, DOVU has **built an end-to-end marketplace that issues tokenized carbon credits¹⁰** inexpensively and securely to individuals, businesses, and governments. Leveraging the scalability and **energy efficiency of the Hedera network¹¹**, DOVU anchors all project data including onboarding, issuance, and retirement directly on-chain. In conjunction with this, DOVU has created **DOVU OS a modular operating system¹²** that simplifies and automates the process of carbon credit creation, verification, and tokenization, connecting all stakeholders with a unified infrastructure that is transforming sustainable project management.

DOVU has already had a major impact on the carbon market as part of the VCH Carbon Development Program, **a nine-year, \$1.1 billion initiative by Veteran's Carbon Holdings¹³** (VCH). Through this initiative, DOVU is tokenizing carbon credits generated by U.S. farmers who sequester organic carbon in soil. This collaboration enables transparent tracking, rapid settlement, and trusted compensation for climate-smart agricultural practices.

10 ["DOVU Carbon Market Launch."](#) DOVU, December 15, 2021.

11 [An Analysis of Energy Consumption and Carbon Footprints of Cryptocurrencies and Possible Solutions.](#) Digital Communications and Networks 9, no. 1 (February 2023): 79-89.

12 ["DOVU OS."](#) DOVU.

13 ["DOVU OS."](#) DOVU.

Additionally, by building on Hedera Guardian, Hedera's open-source platform for digital environmental assets, DOVU benefits from built-in policy logic, auditable metadata, and immutable data assurance. Guardian's verifiable lifecycle tracking ensures that every tokenized carbon credit aligns with recognized environmental standards, strengthening trust across the value chain.

Together, DOVU and Hedera are accelerating decarbonization efforts worldwide, empowering stakeholders to take meaningful climate action through verifiable, tokenized assets.



DOVU is building the trust layer for carbon offset integrity... By utilising the Hedera Guardian, DOVU can provide full transparency into the minting of carbon credits down to the sub metric tonne, allowing every actor who contributes to be verifiable and all data to be cryptographically signed.

Irfon Watkins
CEO/Founder



Digital currencies

Cross-border payments

The current landscape of global finance is a complex web of intermediaries, inefficiencies, and legacy systems. Traditional cross-border payments are often slow and expensive, foreign exchange transactions are subject to fluctuating rates and high fees, creating uncertainty and risk, and the fragmented nature of currencies has resulted in an environment lacking in standardization and interoperability.

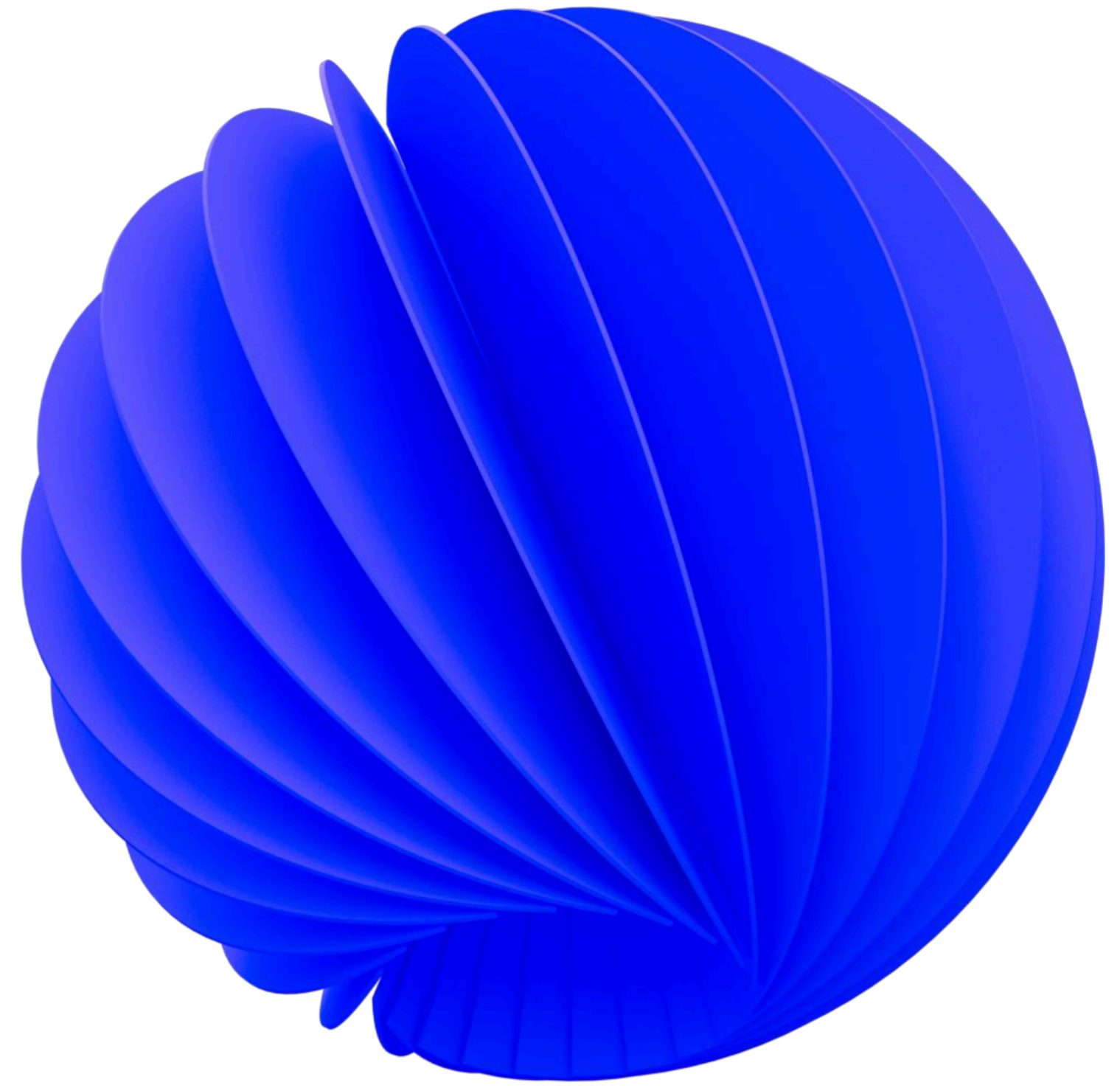
DLTs and the tokenization capabilities they enable have the potential to revolutionize this landscape. By providing a decentralized, transparent, and secure method of recording transactions, these technologies can eliminate many of the inefficiencies inherent in the current system. For instance, stablecoins such as USD Coin can enable faster, cheaper, and more transparent cross-border payments by removing the need for intermediaries. Similarly, DLT can provide a more stable and efficient method of conducting foreign exchange transactions, reducing risks and uncertainties.

Global Value of Remittances 2024¹⁴

\$905B USD

¹⁴ [Migration and Development Brief 40](#). World Bank Group, June 2024.

These technologies have the potential to fundamentally reshape the way we conduct international transactions, creating a more inclusive, efficient, and secure global financial system. By democratizing access to financial services, DLT and blockchain could empower individuals and businesses around the world, fostering economic growth and financial inclusion. While challenges remain, the potential for DLT to transform cross-border payments and foreign exchange is immense.



Average Remittance Fees 2025¹⁵

6.49%

¹⁵ [Remittance Prices Worldwide Quarterly: An Analysis of Trends in Cost of Remittance Services, Issue 53](#). World Bank Group, March 2025.

Digital currencies

Cross-border payments



The international money transfer industry is fraught with challenges - high transaction fees, slow processing times, and a lack of transparency. These issues are particularly pronounced for migrant workers and their families, who often rely on these remittances for their livelihoods.

Shinhan Bank - the oldest financial institution in South Korea - in collaboration with SCB TechX recently completed a **proof-of-concept stablecoin remittance pilot**¹⁶ on the Hedera network - achieving real-time settlement and real-time foreign exchange rate integration across tokenized representations of the Thai Baht (THB), New Taiwan dollar (NTD), and South Korean won (KRW).

The pilot's success is a testament to the transformative potential of tokenized assets, demonstrating that it is possible to conduct cross-border transactions that are not only faster and cheaper but also more transparent than traditional methods.

¹⁶ ["Shinhan Bank, SCB TechX Successfully Pilot Stablecoin Remittances on the Hedera Network."](#) Hedera.

By harnessing the power of tokenization in the form of stablecoins, Shinhan Bank and SCB TechX have shown that it is possible to overcome the limitations of the current paradigm and pave the way for a more efficient, transparent, and equitable financial system.



We are pleased to have partnered with Hedera to explore the potential of stablecoins as a means of facilitating cross-border remittances... The successful completion of this second PoC marks an important step forward in our efforts to make cross-border payments faster, cheaper, and more accessible to people around the world.

Byunghee Kim
Chief of Blockchain

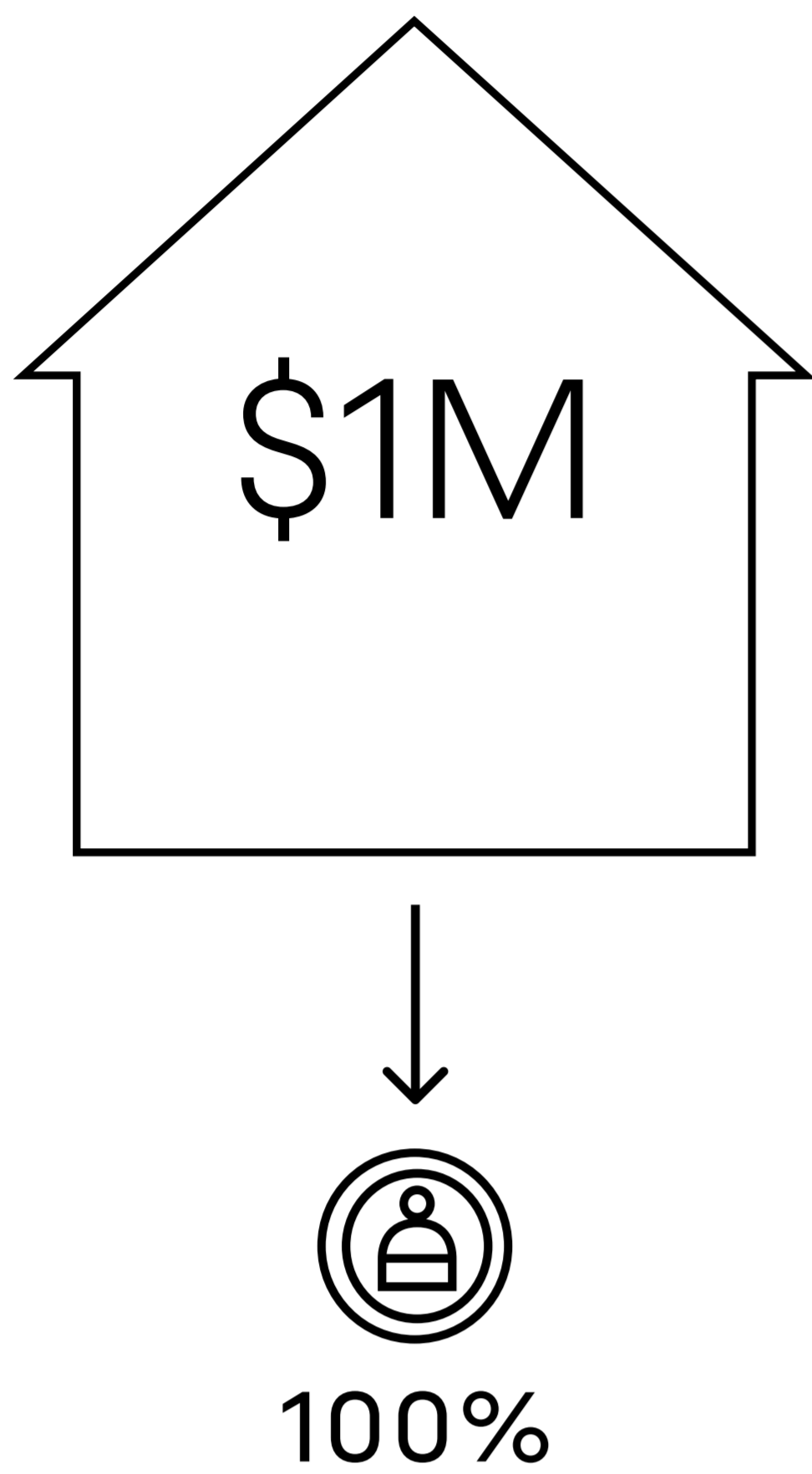


Real estate

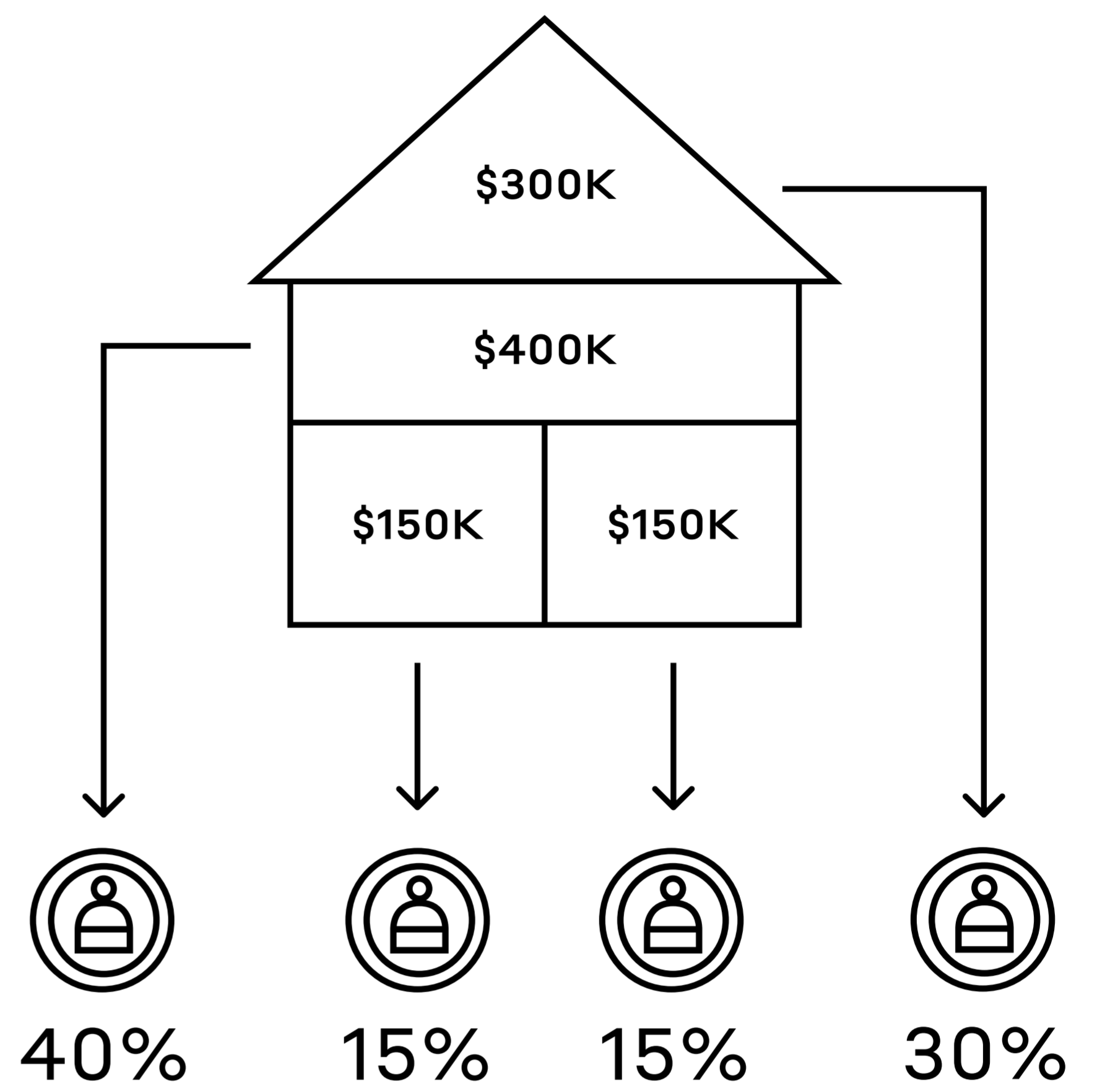
Real estate is one example of a traditionally illiquid asset, the market of which is set to be greatly disrupted with the introduction of tokenization. While the market for commercial and residential real estate turns over trillions of dollars every year regardless of macroeconomic conditions, the relatively high capital requirements for those looking to purchase and/or invest in such assets make the market largely prohibitive to the majority of prospective participants. This affects not only buyers but sellers as well, where a lack of adequate liquidity restricts both the number of people available to purchase and, consequently, reduces the collective capital available to potentially be used for buying or investment on any given property.

Through tokenization, the traditionally illiquid nature of real estate can now be challenged to bring improved liquidity, effective price discovery, and increased accessibility to the market. A key functionality enabled by tokenization is fractionalization. This relatively new concept of “fractional ownership” enabled through tokenization brings unprecedented benefits to an increasingly inaccessible real estate market, reducing capital-intensive barriers to entry for buyers and increasing the number of potential buyers for sellers.

Traditional Model



Fractionalized Model



For example, imagine a scenario with a property on the market for \$100,000. The seller is looking for someone with either \$100,000 to spend or enough capital to secure a mortgage through which he will then be in debt and required to make payments towards. Both options are restrictive in their own ways: the former requires capital that a vast majority will not have or be willing to spend, and the latter involves taking on long-term debt (in addition to any down payment which in itself may be unfeasible). The inherently high capital requirements of the real estate market means that sellers are unable to tap into the true potential of the collective market and potential investors or buyers are restricted from participating due to a lack of sufficient capital.

56%

of institutional investors see increased liquidity as the top driver to invest in tokenized assets¹⁷.

Now let's introduce tokenization into the equation. The seller tokenizes the property, enables fractional ownership, and lists it on the open market. Whereas before, the pool of prospective investors was made up of those able to pay \$100,000, through tokenization, that pool now includes those willing to pay just \$50,000 for a 50% share of the property, those willing to pay \$10,000 for a 10% share of the property, those willing to pay \$1,000 for a 1% share of the property, and so on. Sellers can market their property to a wider base of potential buyers, and buyers are no longer restricted due to a lack of capital. In this way, a traditionally and relatively illiquid real estate asset becomes highly liquid with minimal friction in buying and selling.

¹⁷ [Institutional Investor Tokenization Survey](#). EY-Parthenon, May 2023.

Real estate



In the rapidly evolving world of commercial real estate, RedSwan CRE is making waves by leveraging distributed ledger technology.

Recognizing the potential of DLT, **RedSwan has launched its token studio on the Hedera network for asset tokenization¹⁸**. This innovative approach allows for the tokenization and fractionalization of real estate, leading to increased liquidity, improved price discovery, and reduced operational fees. By fractionalizing assets on the platform, RedSwan is democratizing access to real estate investment opportunities.

Utilizing the native Hedera Token Service and Hedera's Asset Tokenization Studio, RedSwan can tokenize institutional-grade real estate efficiently and securely with a combination of speed, sustainability, security, and low fixed fees. Network-native KYC and AML functionalities mean that RedSwan can both issue their tokens as securities and adjust their product offering in line with regulatory bodies, with protocol-enforced royalties to ensure equitability throughout asset lifecycles.

¹⁸ ["RedSwan."](#) Hedera.

With \$5B in tokenized assets and an expectation of growing to \$25B in the next year, RedSwan is not just disrupting the commercial real estate market but also shaping its future - broadening opportunities for investors and introducing unprecedented liquidity to traditionally illiquid assets.



The Hedera network is the backbone of our platform. Its speed, security, and global reach allow us to provide a truly accessible and efficient marketplace for tokenized real estate investments worldwide.

Ed Nwokedi
Founder & CEO

RED-SWAN

Commodities

The commodity market is characterized by volatility and complexity, and is not immune to the structural inefficiencies. One of the main issues commonly referenced with discussing the commodity market is the lack of transparency, resulting in market opacity, fragmentation of reporting, and insufficient data.

Tokenization can significantly mitigate the inefficiencies of information asymmetry and lack of transparency in commodity markets. By representing commodities as tokens, each transaction is immutably and transparently recorded, providing an auditable chronological record of ownership and trades. This transparency helps reduce the opacity that often leads to market inefficiencies, as all market participants have access to the same information regarding the supply, demand, and provenance of commodities.

Furthermore, tokenization can enable more granular data to be collected at each step of a given commodity's lifecycle. DLT allows for the integration of real-time data from various sources, such as IoT sensors and supply chain updates, which can be attached to the tokenized asset, resulting in a richer dataset that is readily available to all market participants for enhanced decision-making processes and more accurate price discovery.



Both institutional and HNW investors are most motivated to invest in tokenized products due to the following benefits¹⁹:



Increased liquidity



Lower transaction costs



Improved performance



Increased transparency

The increased data availability and improved market intelligence can lead to more efficient and fair markets, ultimately benefiting all stakeholders involved.

¹⁹ [Driving Meaningful Opportunity: Tokenization in Asset Management](#). EY-Parthenon, 2023.

Commodities



Diamonds have long been considered symbols of wealth and exclusivity for the elite, but as investment vehicles they have lagged due to information asymmetry and inadequate market liquidity. However, the advent of diamond tokenization by Diamond Standard is disrupting this status quo, democratizing access to diamond investments for a broader audience using distributed ledger technology and introducing unprecedented liquidity to the market.

Diamond Standard's suite of asset-backed tokenized diamond investments - Carats, Coins, and Bars respectively in ascending value - is a pioneering step in this direction. By leveraging the Hedera network and the native Hedera Token Service, Diamond Standard has created a secure digital alternative to traditional commodity investing, making diamond investment accessible to anyone with as little as \$100.

Investors are constantly seeking ways to diversify their portfolios and hedge against market volatility and inflation. Diamond Standard's tokenized diamond solution provides a digital asset that combines the security of physical commodities with the increased liquidity and accessibility enabled by distributed ledger technology.

By tokenizing diamonds, Diamond Standard is not only creating a new asset class but also ensuring that this asset class is inclusive, secure, and poised for the future. It's a revolutionary step forward, one that could pave the way for the democratization of various other traditionally exclusive investment assets.



We chose to build on Hedera because its speed, security, and transparency were essential to our vision of democratizing access to diamonds as an asset class. Hedera's enterprise-grade distributed ledger technology will enable Diamond Standard to offer investors unprecedented transparency and liquidity.

Rajiv Sohal
CTO



Benefits of tokenization on Hedera

Strong governance model

Governed by a council of diverse, reputable, world-leading organizations across a broad range of industries, Hedera is ensuring a stable and reliable **network governance model**²⁰. This governance structure provides a level of trust and stability that is appealing to institutions, enterprises, and investors looking for a reliable platform to tokenize assets.

Compliance and regulatory features

Hedera Token Service provides native and programmable whitelisting capabilities designed to **ensure compliance with various regulatory frameworks**²¹ - a critical factor for tokenized registered assets trading. These features enable the enforcement of Know-Your-Customer (KYC) and Anti-Money Laundering (AML) regulations by allowing token issuers to control who can buy, sell, or hold their tokens. This is particularly important in the real estate sector, where regulatory compliance is stringent.

Customizable compliance rules

Compliance rules can be customized to meet specific regulatory requirements, allowing token issuers to define whitelisting criteria based on factors such as geographic location, investor accreditation status, or transaction limits. This flexibility enables tokenization projects to be tailored to the legal and regulatory frameworks of different jurisdictions.

²⁰ [Hedera Governing Council](#). Hedera.

²¹ [Fair Timestamping and Fair Ordering of Transactions](#). Hedera.

Asset Tokenization Studio

Asset Tokenization Studio is an open-source toolkit for configuring, issuing, and managing tokenized securities and equities on the Hedera network—supporting both ERC-1400 and ERC-3643 standards to enable compliant, interoperable asset tokenization with greater speed and reduced risk.

- ERC-1400 for security tokens requiring fine-grained control, asset partitioning, and integration with legacy systems in single-jurisdiction markets.
- ERC-3643 for global, regulated markets needing enterprise-grade compliance, cross-border rule enforcement, and an efficient on-chain compliance framework.

hedera.com/asset-tokenization-studio



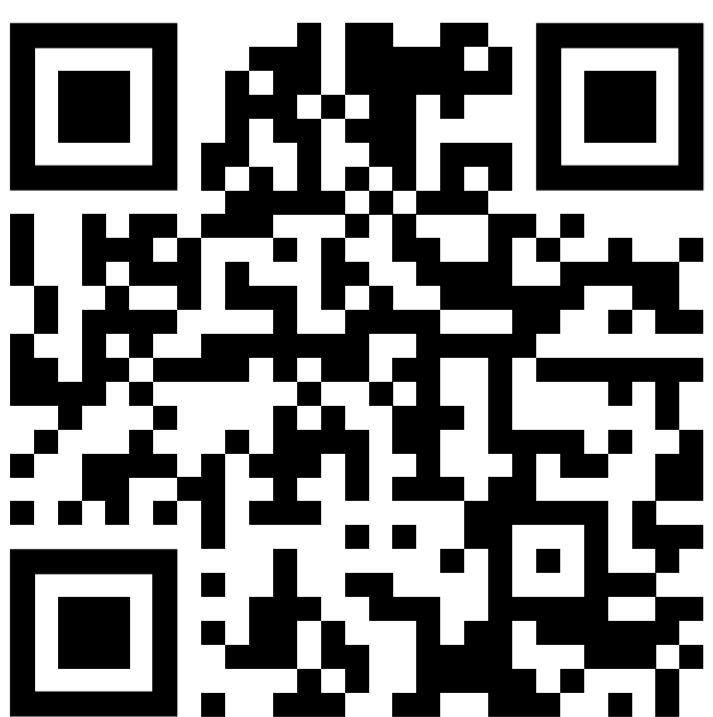
Getting started with Asset Tokenization Studio

HashSphere

HashSphere is a private, permissioned network powered by Hedera technology—purpose-built for regulated enterprises that require the full performance and tooling of the public Hedera network within a secure, compliant, and controlled environment.

- EVM-compatible development using Solidity and other EVM languages, with seamless dApp deployment from other private networks—no additional infrastructure required.
- Native interoperability between private HashSphere networks and the Hedera public network, enabling cross-border payments, asset transfers, and tokenized workflows without vendor lock-in.
- In-network confidential value exchange powered by a Privacy SDK, zero-knowledge proofs, and homomorphic encryption—enabling private atomic swaps for DvP and PvP settlement where transaction anonymity and amount confidentiality are guaranteed.
- Fully managed service with dedicated support, low operational costs, configurable node geography, and data residency controls to meet KYC/AML and jurisdictional compliance requirements.

hedera.com/product/hashsphere



Getting started with HashSphere

About Hedera

As the trust layer of the digital economy, Hedera empowers builders to create real-world impact. Hedera stands apart as the only public network governed by some of the world's most respected institutions. Built for speed, security, and scalability, Hedera provides a trusted platform for decentralized applications across highly regulated industries such as finance, supply chain, energy, healthcare, and government.

Its open-source network combines high-throughput technology, fixed low-cost fees, and real-time transaction ordering, delivering predictable performance and fairness without compromising compliance. With a thriving ecosystem and strong developer tools, Hedera is driving innovation in tokenization, AI, digital identity, DeFi, and sustainable finance.

For more information, visit hedera.com, or follow us on [X](#), [LinkedIn](#), or [Discord](#). The Hedera whitepaper can be found at hedera.com/papers.

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