Bitbond

Tokens made easy

Tokenization Megatrends 2024

Featured in:

Forbes | Handelsblatt | Frankfurter Allgemeine | Bloomberg

October 2024

Foreword

Roughly a year ago, we released the Tokenization Use Cases Bible, aiming to showcase the vast potential of tokenization and its real-world applications.

This year, we shift our focus to the key driving forces behind this revolution. "Tokenization Megatrends 2024" delves into 5 major trends shaping the tokenization landscape and propelling its widespread adoption:

1. Stablecoins
2. Memecoins
3. Decentralized Autonomous Organizations – DAOs
4. Real World Assets – RWA
5. Institutional Finance

These trends may resonate differently depending on your background. Finance professionals might be less familiar with the sheer amount, volume and influence of memecoins. Conversely, memecoin enthusiasts may underestimate the transformative potential of institutional adoption.

Notably absent are NFTs. While activity persists, the dynamism of previous years has waned. We remain optimistic about their resurgence and future impact however.

Our research aims to empower you to seize the opportunities presented by tokenization. The most effective way to understand its benefits is through active participation.

All trends and use cases discussed are supported by Bitbond Token Tool, providing a user-friendly platform for token creation, lifecycle management, and payment automation via easily configurable smart contracts.

Keep on tokenizing!

With kind regards from your Bitbond team

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COO

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5 Tokenization Megatrends dominated the last 12 months

5 Tokenization Megatrends with a total market cap of $276B

1 Stablecoins

Market Cap **$172B**

Token holders **122M**

2 Memecoins

Market Cap **$54B**

Token holders **3.2M**

3 DAOs

Market Cap **$24B**

Token holders **26.8M**

4 Real World Assets (RWAs)

Market Cap **$13B**

Token holders **63,216**

5 Institutional Finance

Market cap **$13B**

Issuers **40+**

Bitbond Token Tool has all you need to manage the token lifecycle

Bitbond Token Tool which can be found under **tokentool.bitbond.com** offers a great variety of smart contract templates and functions that allow you to create tokens and manage the token lifecycle effortlessly. Here is an overview of key functionalities that Token Tool offers. If you want to participate in some of the tokenization megatrends, Token Tool is your infrastructure.

Fungible Token

Fungible tokens (ERC-20/ERC-1400) are used when each token is equal to one another, e.g. bonds or tokens with the same utility or rights. They can be divisible and are often traded via centralized and decentralized exchanges.

Non-Fungible Token

Non-fungible tokens (ERC-721/ERC-1155) are used when each token is unique or represents a specific/unique asset. NFTs are not divisible, have unique IDs and are typically traded via marketplaces or auctions.

Create Token

Token Tool allows users to effortlessly create and configure tokens across leading EVM chains and across the token standards mentioned above with rich configuration options.

Manage Token

Token issuers can use Token Tool to manage the lifecycle of their token via an intuitive interface. Features include minting and burning tokens, managing black- and whitelist, updating documentation and transferring ownership.

Distribute Token

To send tokens to many investors at scale (e.g. bond coupon payments), Token Tool offers a multisend feature to batch hundreds of individual transfers into a single transaction including automated payout calculation.

Create Token Locker

The token locker enables token issuers to implement lock-up periods for team tokens as well as liquidity pool tokens via a dedicated smart contract. Users can specify the amount of tokens to be locked and the lock up period.

Create Token Sale

Token Tool's token sale smart contract enables token sellers to execute token offerings such as ICOs/STOs/IDOs end-to-end on chain. Investments can be accepted in any on-chain currency, a whitelist feature allows to implement KYC checks.

Token Vesting

Token vesting allows tokens to be distributed to a recipient over a defined period of time. It also includes an option to set up a cliff period, during which tokens are allocated but remain inaccessible. After the cliff period, tokens can be retrieved according to the vesting schedule

Delivery vs Payment

Token Tool's Delivery versus Payment (DvP) Settlement function enables the simultaneous exchange of assets and payments. It ensures that the transfer of tokenized assets and the corresponding payment occur concurrently. This feature is designed to provide a secure and synchronized settlement process that removes counterparty settlement risk.

Create NFT

Token Tool users can effortlessly create and configure NFTs across leading EVM chains. NFTs can be created as collections or as single assets. Creators can also run a NFT sale at zero cost to save fees they would otherwise have to pay on large NFT marketplaces.

Distribute NFT

To distribute NFTs at scale, Token Tool offers a multisend feature to batch hundreds of individual transfers into a single transaction. This feature helps users streamline their distribution process and save gas fees.

Agenda

Introduction to Stablecoins

Stablecoins are tokens designed to maintain a stable value, typically pegged to a fiat currency like the US dollar, Euro, or another asset such as gold. Unlike volatile cryptocurrencies like Bitcoin or Ethereum, stablecoins aim to offer the benefits of digital currencies — such as fast transactions and low fees — while minimizing price fluctuations. This stability is achieved through various mechanisms, including reserves of fiat currency, algorithmic control of supply, or a combination of both. Stablecoins are increasingly used for remittances, trading, and as a safe haven during market volatility.

Market Cap
$172B

Holders
122M

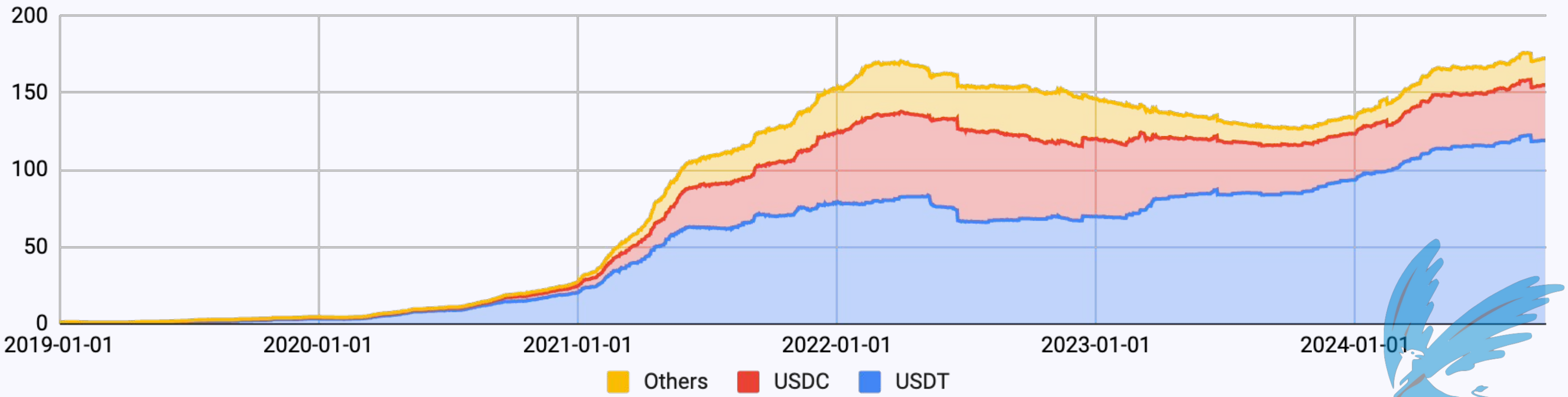
Monthly Transfer Volume
$1.5T

% of M2 Money Supply (*)
0.8%

Monthly Active Addresses
19.6M

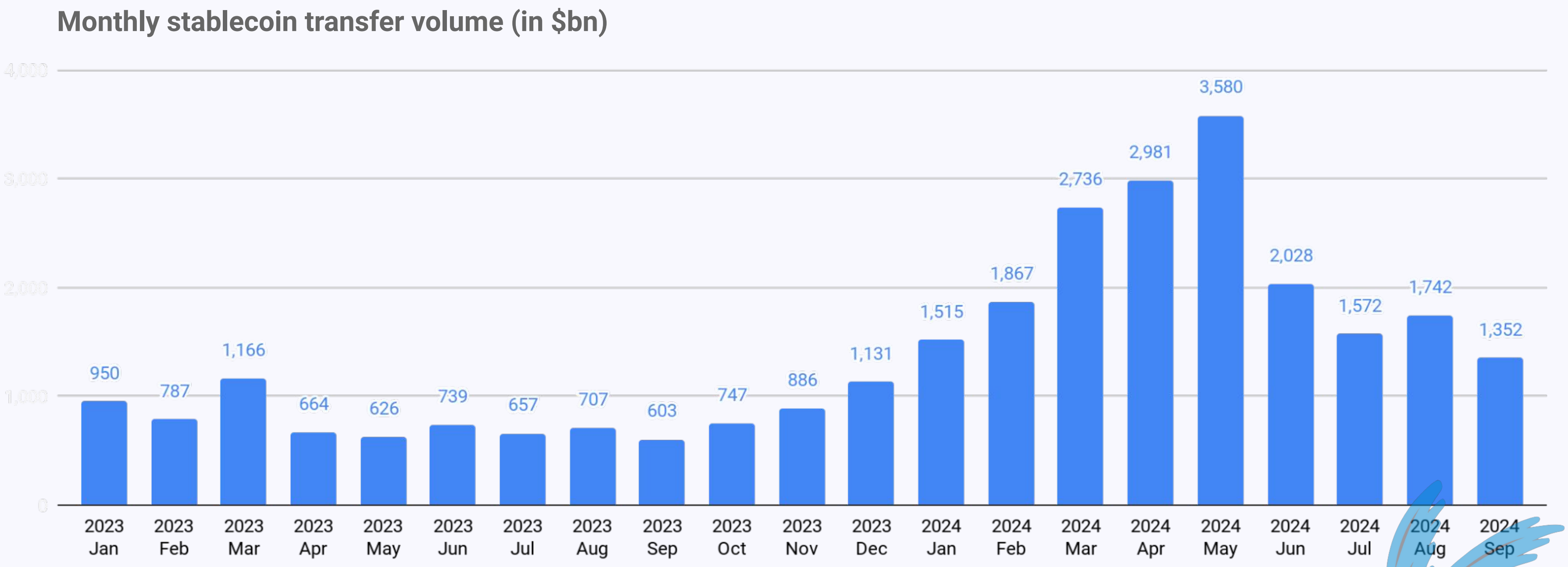
(*) Proportion of US Dollar money supply M2 that is tokenized via stablecoins

Total Stablecoins market capitalization (in $bn)



Sources: rwa.xyz, data as of 26/09/2024

Monthly transfer volume of stablecoins is currently around $1.5 trillion

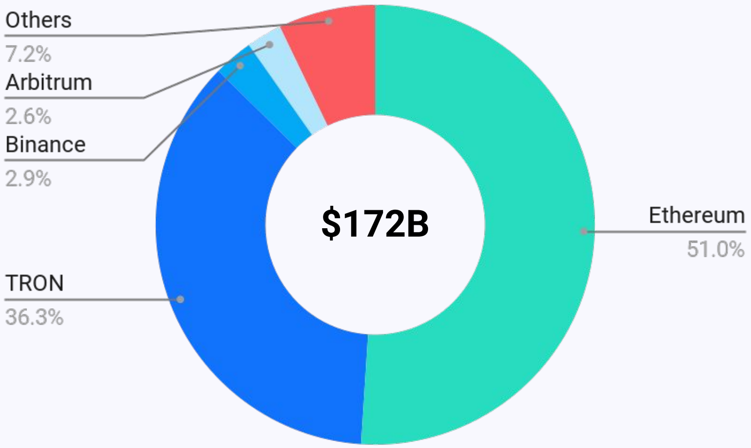


Sources: rwa.xyz & CoinMarketCap data as of 08/10/2024

USDT alone makes up 60% of the total stablecoin market cap

Rank	Issuer	Market Cap (in $M)	Volume / Mcap
1	Tether (USDT)	106,599	0.476
2	USDC (USDC)	32,162	0.168
3	Dai (DAI)	4,796	0.012
4	First Digital USD (FDUSD)	2,712	1.412
8	Athena USDe (USDe)	2,275	0.012
5	USDD (USDD)	659	0.004
6	PayPal USD (PYUSD)	637	0.038
7	TrueUSD (TUST)	443	0.064
293	STASIS EURO (EURS)	124	0.005
412	EURC (EURC)	75	0.09

Total stablecoins market cap by network



The two largest EUR denominated stablecoins make up only 0.1% of total stablecoin market cap

Sources: rwa.xyz, CoinMarketCap as of 25/09/2024

Fiat backed stablecoins dominate the market over crypto backed

Type	Description	Example	Market Cap (in $M)
Fiat backed stablecoin	These stablecoins are fully backed by cash or highly liquid assets and are redeemable at face value directly from the issuer. Typically, reserves are managed by regulated entities, offering a higher level of transparency through detailed attestation disclosures on reserve holdings and clear documentation of redemption rights.		143,141
Crypto backed stablecoin	Backed by other crypto assets which increase or decrease the supply of tokens according to market conditions. Typically structured on a decentralized, non-custodial basis and are considered part of decentralised finance (DeFi).		6,577
Algorithmic stablecoin	Stablecoin that maintain their price stability through algorithms and smart contracts rather than being backed by traditional assets like fiat currency. These algorithms automatically adjust the supply of the stablecoin in response to changes in demand, aiming to keep its value pegged to a specific asset, usually a fiat currency like the US dollar		921
Security backed stablecoin	These stablecoins are fully backed by non-cash equivalent assets, such as corporate bonds or commercial paper. In certain situations, issuers may have the ability to defer redemptions, offer redemptions in-kind, or impose higher redemption fees.		N.D.

Sources: CoinMarketCap, CoinGecko, Market data as of 25/09/2024

Fact sheet for largest stablecoins

	Tether	USD Coin	DAI	FDUSD (First Digital USD)	PYUSD (Paypal USD)
Rank By Market Cap	1st	2nd	3rd	4th	5th
First Issuance	2014	2018	2019	2023	2023
Currency Peg	USD	USD	USD	USD	USD
Legal entity	Tether Holdings limited; British Birgi Islands	Circle Internet Financial, LLC; United States	Maker DAO; United States	First Digital Trust Limited, First Digital Group	Paxos Trust Company, paypal
Classification	Fiat, securities, other assets, crypto	Fiat, securities	Crypto securities	Fiat, securities	Fiat, securities
Regulatory Oversight	None Found	UL: E-Money Issuer License US: Sale of Checks and Money transmitters Singapore: Majore Payment Institution License	None Found	New York State Department of Financial Services	New York State Department of Financial Services (for ERC20 only)
Reserve Reports	Quarterly assurance opinions provided by a third party. tether.to/en/transparency/#reports	Monthly examination reports provided by a third party. circle.com/en/transparency	None Found	Quarterly Stablecoin Stability Assessment Reserves held in a segregated bank accounts, monitored and audited by 3rd parties such as Prescient Assurance	Monthly reserve reports and attestations done and published by Paxos

Sources: www.pwc.com/gx/en/financial-services/pdf/pwc-global-cbdc-index-and-stablecoin-overview-2023.pdf , CoinMarketCap

Stablecoin use cases and applications

Stablecoins serve as a store of value, medium of exchange, and unit of account while operating on blockchain technology. They enable seamless interaction with digital assets and decentralized networks

This use case is relevant for

Financial Institutions

Corporates / SMEs / SPVs

Benefits for issuers

- Instant DvP at t+0 with no counterparty risk directly reducing costs
- Simpler bank-independent custody and easy global transferability
- Enhanced transparency through auditable and accountable financial services

Benefits for investors

- Price stability and reliable store of value
- Global accessibility for instant cross-border transactions
- Improved transparency and information flow

Benefits for the bank / arranger

- Cost-effective cross-border transactions with reduced costs, settlement times and immutable records
- Increased speed and efficiency in payment processing
- Regulatory compliance with compliant and transparent digital asset solutions

Challenges of Stablecoins

- Transaction speeds vary across blockchains, with inconsistent costs due to network congestion
- Transitioning to newer blockchain technologies may compromise decentralization to improve scalability and efficiency
- Financial stability risks remain a concern as the stablecoin market continues to grow

Sources: www.pwc.com/gx/en/financial-services/pdf/pwc-global-cbdc-index-and-stablecoin-overview-2023.pdf

Application of Stablecoins

- **Supporting Digitally Native Markets:** Facilitate digital asset trading and serve as a bridge between fiat currencies and blockchain-based assets
- **Facilitating Payments:** Expedite peer-to-peer and cross-border payments with programmable money
- **Remittances:** Offer cost-effective solutions for overseas workers sending money home
- **Internal Transfers & Liquidity Management:** Streamline transfers within organizations
- **Payroll:** Simplify financial management for global workforces
- **Escrow:** Automate escrow processes via smart contracts
- **Retail Businesses:** Lower transaction fees for retailers accepting stablecoins
- **DeFi (Decentralized Finance):** Underpin DeFi services like lending, market making, derivatives, decentralized exchanges, arbitrage trading

Potential of Stablecoin

More Inclusive Payment Systems: Facilitate faster, cheaper cross-border transfers, reducing financial barriers

Tokenized Financial Markets: Play a role in digitizing securities and enhancing market efficiency

WEB3.0

Next-Generation Innovations (Web3): Support microtransactions within decentralized networks, transforming online services

Regulatory landscape of stablecoins

MiCA Regulation

- In June 2023, the EU's Markets in Crypto-Assets Regulation (MiCA) became part of the EU's Single Rulebook
- MiCA aims to boost user confidence in crypto-assets by supporting stablecoin market development
- It covers stablecoins, currency tokens, and utility tokens, while security tokens and related derivatives remain under existing laws
- Stablecoin issuers must maintain 1:1 reserves for all claims and meet redemption rights
- The ECB can prohibit stablecoin issuance if necessary
- Since June 2024, MiCA rules apply to stablecoins, specifically asset-referenced tokens and e-money tokens
- By December 30, 2024, the broader set of regulations covering all other crypto-assets and service providers will take effect

Singapore Stablecoin Legislation

- In August 2023, Singapore's Monetary Authority (MAS) introduced a new regulatory framework for single-currency stablecoins (SCS) pegged to the Singapore dollar or any G10 currency
- This framework is part of the Payment Services Act (PS Act) and aims to ensure stability and consumer protection in the stablecoin market
- The MAS framework distinguishes between SCS and non-SCS stablecoins, with non-SCS stablecoins remaining under existing digital payment token regulations
- The legislation covers reserve assets, asset segregation, capital requirements, business restrictions, and redemption guidelines for SCS issued in multiple jurisdictions

NY DFS Guidance

- US lawmakers are debating a federal framework for stablecoins, while New York State continues to approve stablecoin issuances
- New York's Department of Financial Services (DFS) has issued guidance on risk management and auditing standards for US dollar-backed stablecoins
- This guidance is the first from a state regulator and applies to issuers of three of the six largest centralized dollar-backed stablecoins
- The SEC supported this by sharing views on digital asset accounting, leading to updates in the AICPA's practice aid and restatements by several crypto miners

UK Stablecoin Legislation

- The Financial Services and Markets Act 2023 (FSMA 2023) establishes the foundation for stablecoin regulation in the UK by recognizing payment stablecoins as digital settlement assets (DSAs)
- It grants the UK Treasury and the Financial Conduct Authority (FCA) authority to enforce rules on stablecoin issuance and use
- The UK government and the Bank of England have consulted on regulations, focusing on financial stability, operational resilience, and consumer protection
- The approach includes strict requirements for reserve backing, transparency, and compliance with AML and CTF regulations
- Implementation is expected to progress throughout 2024

Sources: www.pwc.com/gx/en/financial-services/pdf/pwc-global-cbdc-index-and-stablecoin-overview-2023.pdf

Agenda

Introduction to Memecoins

Memecoins are a unique and often whimsical subset of the crypto market, characterized by their origins in internet culture and memes. Unlike cryptocurrencies like Bitcoin and Ethereum, which are primarily valued for their technological innovation and practical applications, memecoins derive their value largely from social media trends, viral content, and community enthusiasm. The most famous examples include Dogecoin, which was started as a joke based on the popular "Doge" meme in December 2013 and Shiba Inu which launched in August 2020, inspired by the same breed of dog. Despite their humorous beginnings, memecoins have gained significant attention, community and investment, highlighting the powerful influence of internet culture on modern financial systems.

Market cap
$53.4B

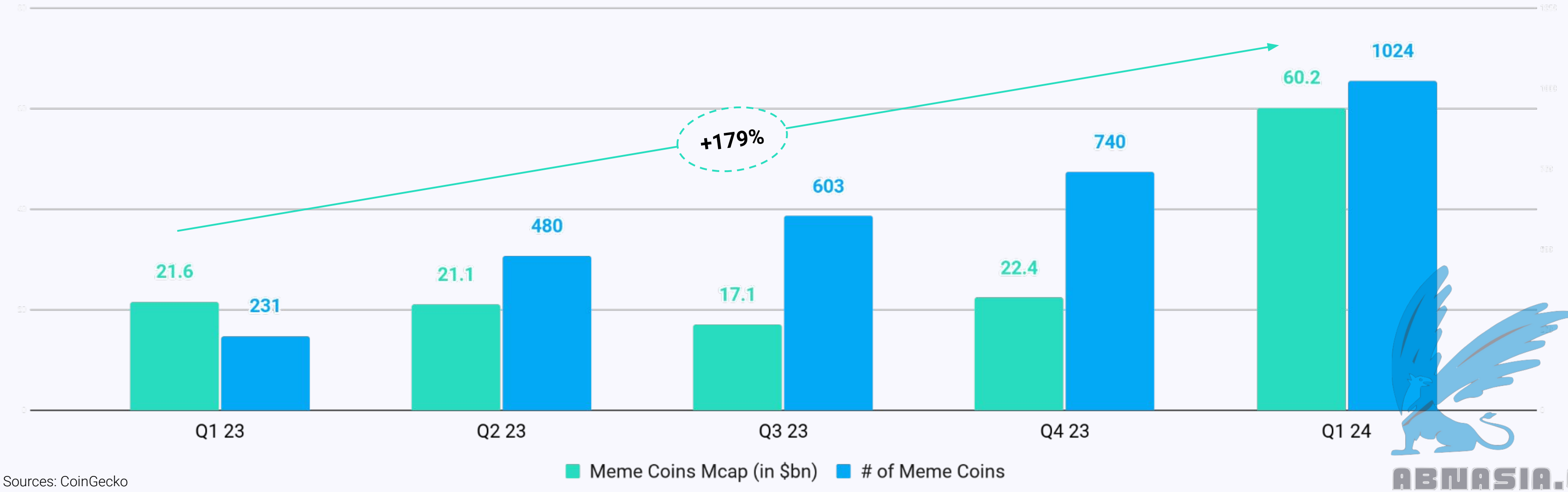
# of holders
3.2M

24h trading volume
$10.0B

Memecoins on Coingecko
1,938

DEX-listed memecoins
3.5M

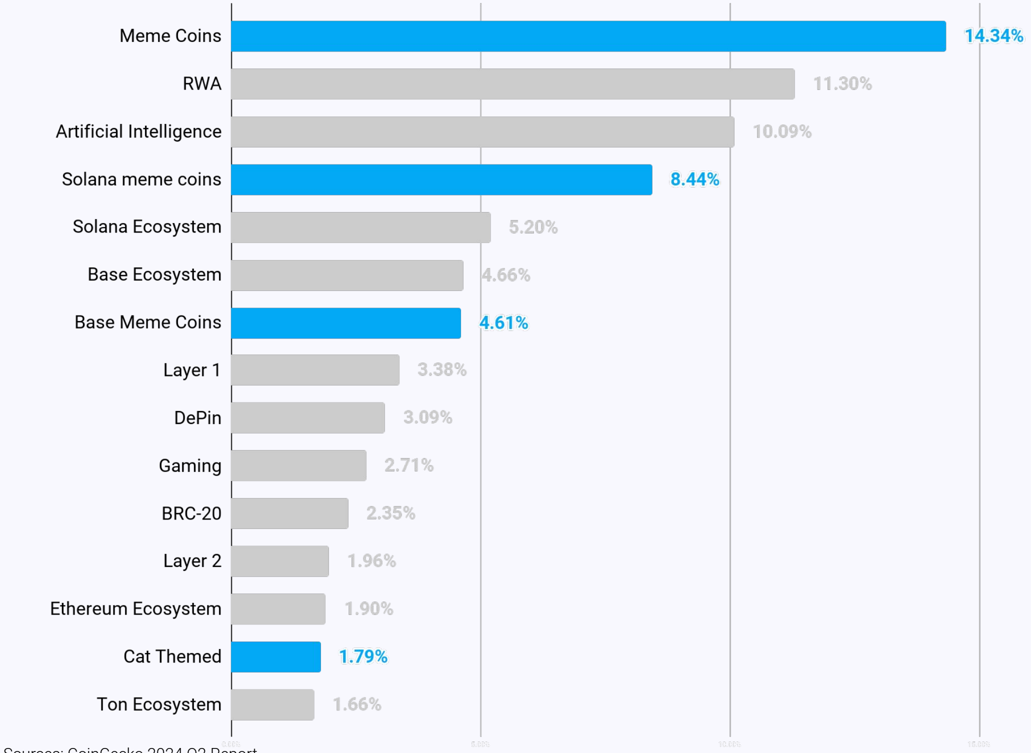
Growth of memecoin market cap (in $bn)



Sources: CoinGecko

Memecoins, together with RWA and AI dominate investor attention

Market share of CoinGecko Categories Web Traffic (2024 Q2)



Sources: CoinGecko 2024 Q2 Report

30%

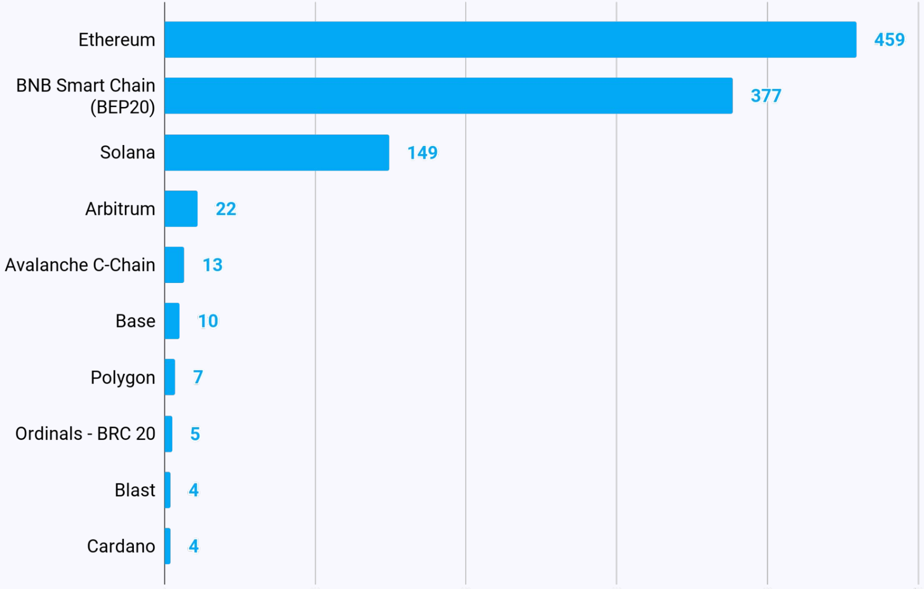
of CoinGecko Web traffic in their top 15 categories were memecoin related in Q2 2024

- In 2024 Q2, **Memecoins, Real World Assets (RWA), and Artificial Intelligence (AI)** emerged as the **most popular categories on CoinGecko**
- 4 of 59 blockchain ecosystems made it into the top fifteen crypto storylines in 2024 Q2: Solana, Ethereum, Base, and TON (the newest)
- Solana and Base were the two most widely used blockchains

90% of memecoins have a market cap below $100k

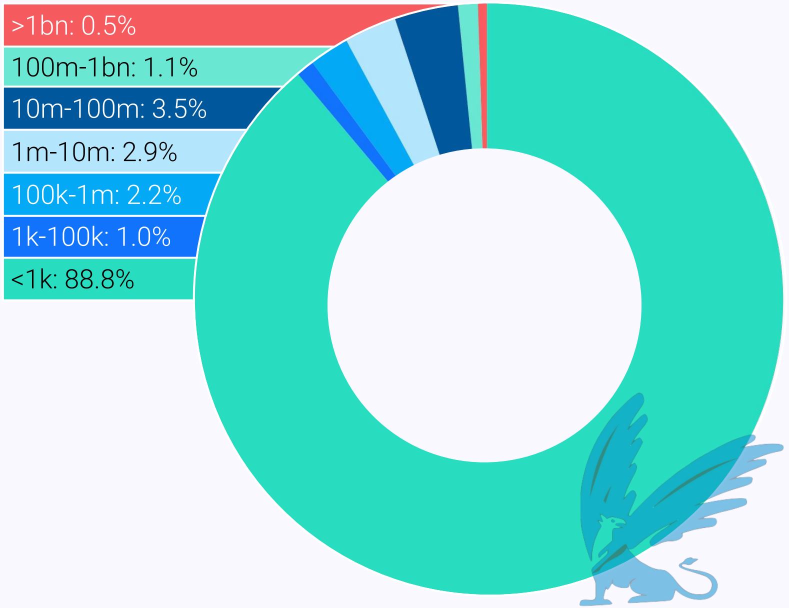
Number of liquid memecoin projects per chain

(i.e. memecoins with non-zero trading volume)



Memecoin distribution by market cap

The majority of memecoin projects (89%) have a market cap between zero and $1,000. Only 5% of memecoins had a market cap above $10 million in March 2024.



Sources: CoinGecko, CoinMarketCap, BDC Consulting

Memecoins so far outperformed other crypto assets in 2024

Top 10 memecoins by market cap and community

Icon	Memecoin name	Market Cap (in $M)	Followers on X (in thousands)
	Dogecoin (DOGE)	15,876	3,991
	Shiba INU (SHIB)	8,801	3,867
	PEPE (PEPE)	3,535	660
	Dogwifhat (WIF)	1,976	100
	FLOKI (FLOKI)	1,360	629
	Bonk (BONK)	996	328
	Popcat (POPCAT)	867	63
	Brett (BRETT)	528	116
	Cat in a dogs world (MEW)	496	119
	Mog Coin (MOG)	492	83

Sources: Ceteris, Coinglas, CoinGecko (market cap as of 25/09/2024), X

YTD returns of major memecoins vs other categories

January to mid June 2024

Category	Included assets (examples)	YTD Return
Memecoin	DOGE, WIF, PEPE	526%
AI & DePIN	AR, FET, RNDR	89%
Solana DeFi	JTO, JUP, PTYH	61%
Layer 1	ETH, SOL, TON	27%
Ethereum DeFi	PENDLE, MKR, LDO	11%
Modular	TIA, ARB, OP	-19%
Cosmos & Misc. Defi	OSMO, DYDX, STRD	-29%

Memecoins are often released via launchpads

Launchpad concepts

Presale: Initial offering of a token to early investors before public availability

- Allows projects to raise capital and generate interest
- Offers tokens at a potentially lower price than the public sale
- Often conducted as an IDO (initial DEX offering) where part of the funds raised is automatically added to a liquidity pool

Fairlaunch: Method of distributing tokens where everyone has equal opportunity to purchase at the same price

- No pre-sale or preferential treatment for early investors
- Aims to ensure fairness and prevent market manipulation
- Eliminates advantages for select groups

Liquidity bootstrap pools (LBPs): A decentralized finance (DeFi) mechanism used to launch new tokens and provide initial liquidity in a controlled manner

- Allows projects to set up a pool with an initial ratio of their token and a stablecoin or another established token
- Over time, the pool's weightings automatically adjust, typically shifting value from the stablecoin to the new token
- Helps mitigate risks of price manipulation and provides a fairer price discovery process
- Benefits both the project and early participants

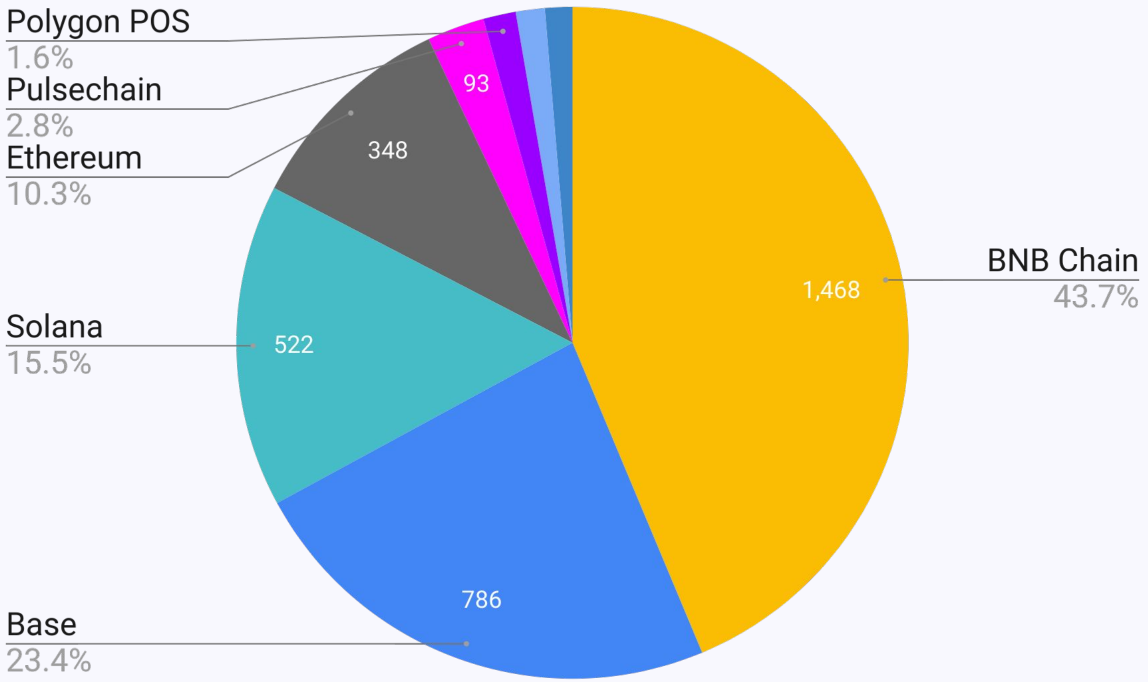
Steps to launching a memecoin

1. Define purpose & design tokenomics
2. Choose a blockchain
3. Generate memecoin and create token locker for team tokens
4. Promote memecoin and create respective liquidity pool on a DEX
5. Manage token lifecycle

Sources: www.bitbond.com/resources/how-to-create-a-meme-coin-a-step-by-step-guide/ , www.bitbond.com/resources/memecoin-presale-a-new-frontier-in-cryptocurrency-investment/

BNB Chain dominates as preferred chain for DEX listed tokens

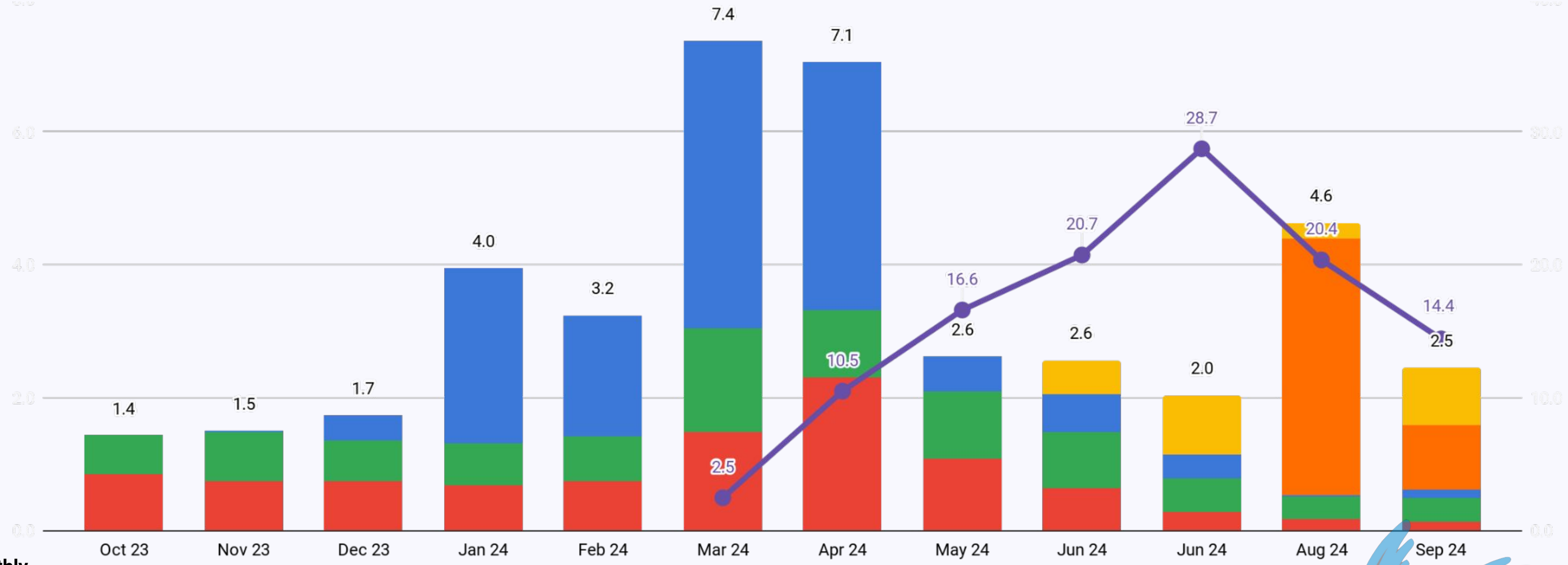
Number of tokens that are listed on decentralized exchanges per chain (in thousands)
(total number including smaller not shown chains is 3.5 million)



Sources: GeckoTerminal

Pump.fun emerged as *the* hyped memecoin launchpad

Estimated monthly revenue of major launchpads in $ million



	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jun 24	Aug 24	Sep 24
Monthly revenue	$1M	$2M	$2M	$4M	$3M	$10M	$18M	$19M	$23M	$31M	$25M	$17M

	Pump.fun	FJORD	PinkSale	UNCX NETWORK	SunPump	moonshot
LTM revenue	$114M	$15M	$10M	$9M	$5M	$3M

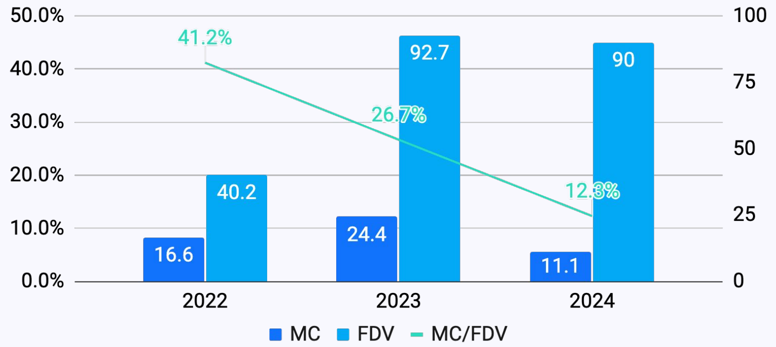
Sources: Zerion, Blockscan, DefiLlama

Investors appreciate healthy MC/FDV ratios in memecoins

What is MC/FDV

With many newly listed tokens and memecoins declining after major exchange listings, tokens with a low **market cap / fully diluted valuation ratio (MC/FDV)** have gained more attention.

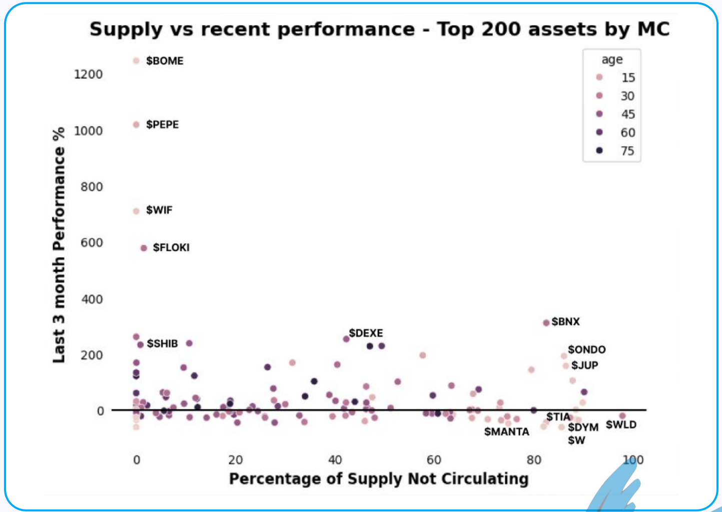
Investors worry that low MC/FDV tokens may serve as exit liquidity for insiders like VCs and project teams. According to Binance Research, the private market for accredited investors is growing, leading to higher VC investment volumes. Such insiders often assign high valuations and limit initial supply to launch tokens at high prices.



Average MC/FDV ratios have decreased over the past three years, with tokens now having a circulating supply of only 6%-18%. *Token Unlocks* projects $15.5 bn in tokens will be unlocked from 2024 to 2030, which may lower prices if buying pressure is weak.

Sources: Despread report, CryptoKoryo, Binance Research

Memecoins often launch without token lockups, making their MC and FDV identical. Retail investors, frustrated by inflated prices and post-unlock drops in other tokens, are increasingly attracted to memecoins as they pose no risk of token unlocks and lack venture capitalist involvement, offering a perceived fairer investment.



The above graph, showing the percentage of locked supply against returns from February to May 2024, highlights this trend. Among the top 200 by market cap, memecoins like $BOME, $PEPE, and $WIF, without lockup periods, show outstanding returns, while newly launched tokens with high lockup rates like $MANTA, $W, and $DYM show poorer returns.

First institutional money flows into memecoins

Anticipation of institutional inflow

There is growing interest from financial institutions in memecoins. In April 2024, VanEck, a leading asset manager, launched a **memecoin index fund (MEMECOIN)** that tracks the prices of six popular memecoins, including $DOGE, $PEPE, and $WIF. As of October 2024, the ETF has an **NAV of $170 million**.

MEMECOIN ETF components	Weight
Shiba Inu	30.5%
Dogecoin	28.7%
PEPE	17.7%
dogwifhat	9.3%
Floki	7.4%
BONK	6.4%
Subtotal	**100.0%**

Cryptocurrency funds are increasingly adding memecoins to their portfolios. For instance, Stratos launched a $WIF liquidity fund at $0.01 per token, achieving a 137% return in early 2024. Similarly, European hedge fund Brevan Howard invested in $WIF, according to Bloomberg. These actions suggest that financial institutions see the potential of memecoins, indicating a shift in their perception and valuation from community-driven assets to recognized investment opportunities.

Bitpanda crypto index – Memecoin leaders

Sources: Bitpanda, VanEck

Investors should be aware of the risks of memecoins

Security concerns: Memecoins may be more susceptible to hacking, fraud, and other cybersecurity threats due to less rigorous security measures at token creation.

Short-term focus: The community and developers behind memecoins may have short-term profit motives, leading to a lack of long-term development and sustainability.

Lack of intrinsic value: Memecoins often lack fundamental value or utility, relying heavily on social media hype and community interest.

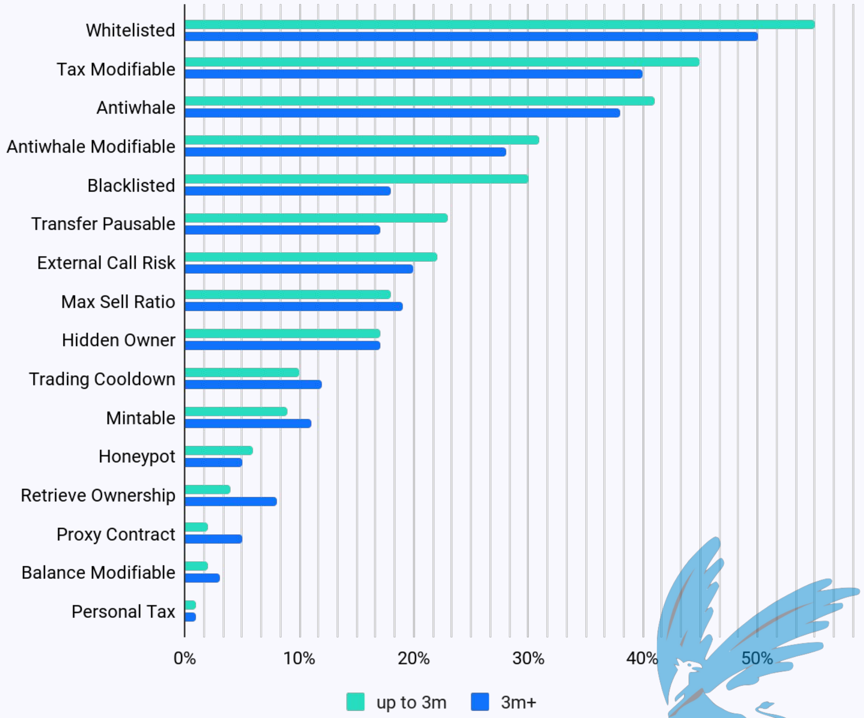
Regulatory risks: Memecoins may face legal scrutiny or regulatory crackdowns, which can negatively impact their value and liquidity.

Rugpulls: Developers/founding teams may abruptly withdraw all liquidity, causing the token's value to crash and leaving investors with worthless assets. This typically involves hyping the token, attracting investments, and then disappearing with the funds.

Scams: On the token smart contract level technical settings like whitelisting, blacklisting and other honeypot related features may allow the developers/founding teams to hype up the value, sell a significant portion of their holding and thereby collapsing the price.

Low MC/FDV: Low MC/FDV tokens may serve as exit liquidity for insiders like VCs and project teams.

Share of memecoins affected by specific smart contract vulnerabilities
(tokens issued less than 3 months and over 3 months ago)



Sources: bdc.consulting/insights/MarketResearch/memecoins

Agenda

Introduction to DAOs

Decentralized Autonomous Organizations (DAOs) represent a new model for organizational management and governance in the digital age. Unlike traditional organizations, DAOs operate on the blockchain, allowing for transparent, automated, and decentralized decision-making processes. In a DAO, governance rules are encoded as smart contracts, which execute decisions based on the votes of stakeholders, typically represented by token holders. This structure eliminates the need for central authority, empowering community members to collectively make decisions about the organization's operations, funding, and future direction. DAOs are increasingly being used for various purposes, from managing decentralized finance (DeFi) projects to creating autonomous communities, and they are paving the way for a new era of cooperative and trustless digital collaboration.

Market cap (DAO tokens)
$24B

Members (DAO Token Holders)
26.8M

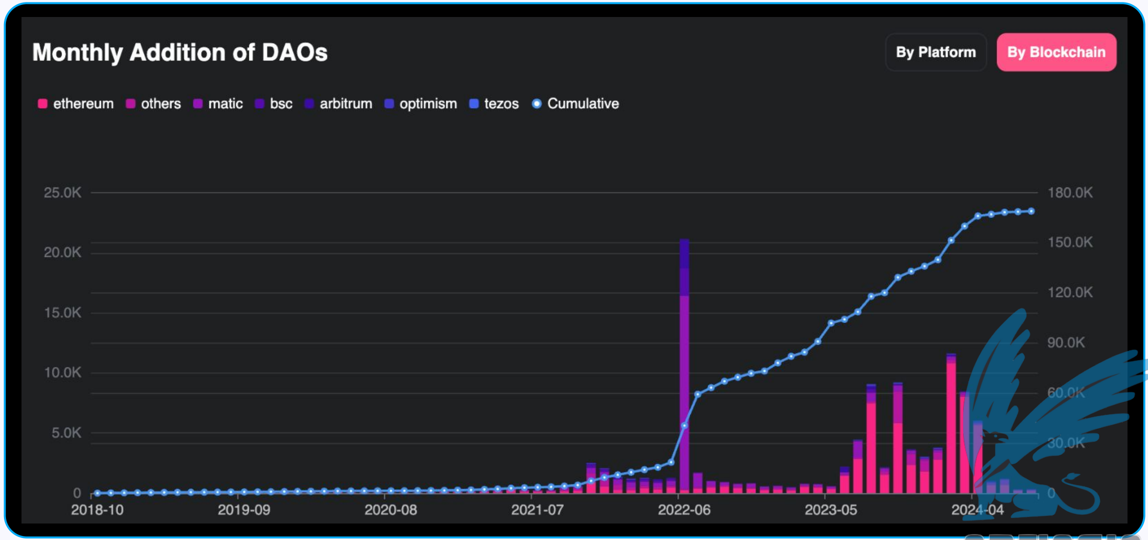
Total DAOs
169K

Total Treasury of DAOs
$22B

Proposals
427,060

Votes
63.6M

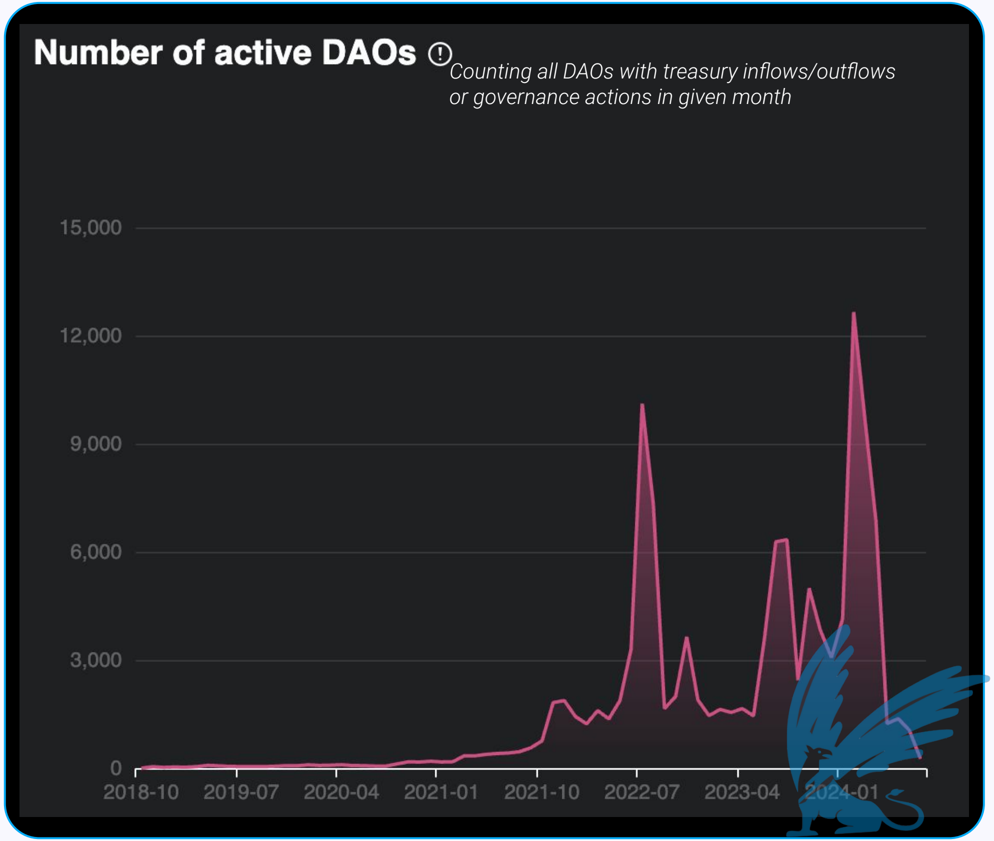
Voters
6.4M



Sources: daobase.ai & coinmarketcap.com/view/dao/ as of 08/10/2024

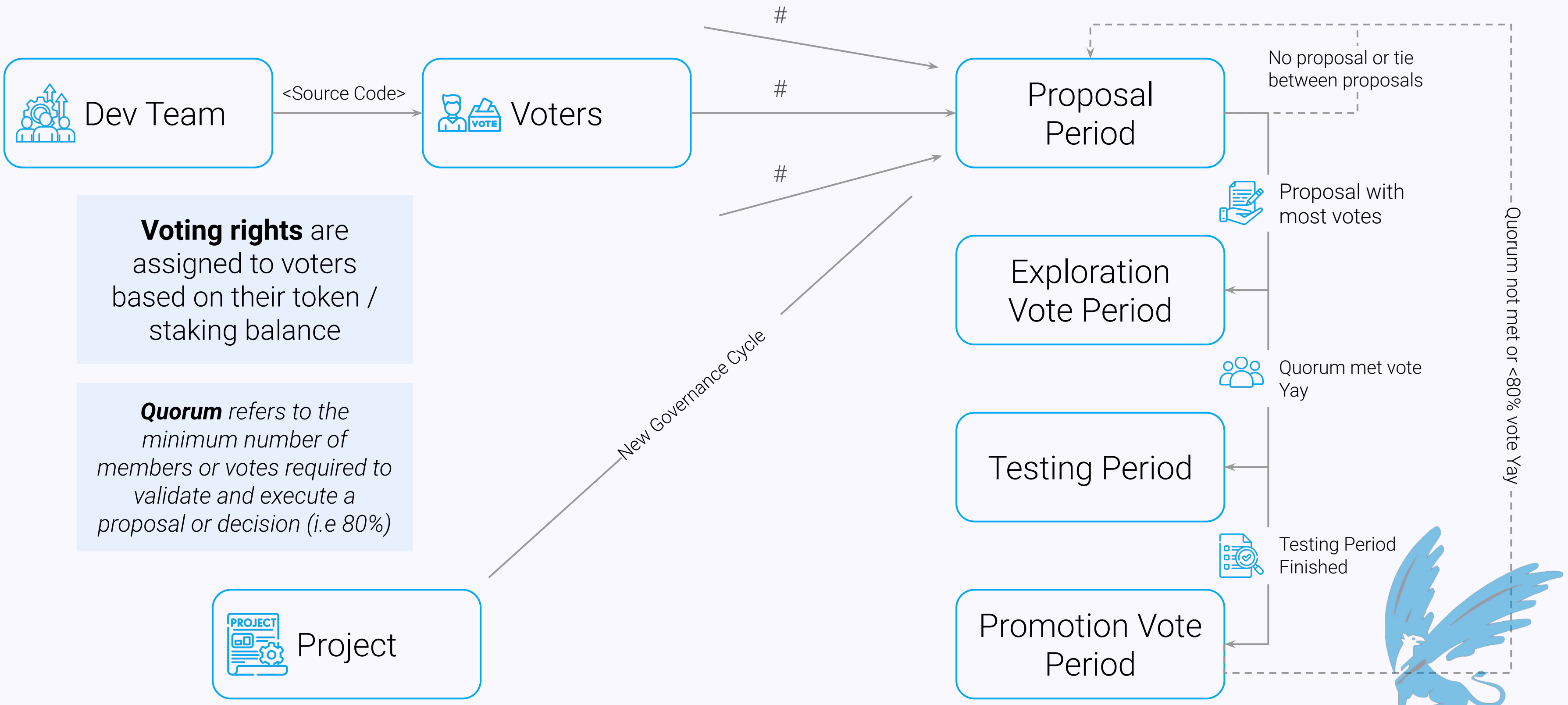
The top 6 DAOs each have a treasury of more than $1bn

#	DAO name	Treasury value (in $B)
1	Optimism	3.6
2	Uniswap	2.8
3	Arbitrum DAO	2.3
4	BitDAO	2.0
5	Gnosis	1.3
6	ENS DAO	1.2
7	Ethereum Foundation	0.7
8	The Graph	0.7



Sources: daobase.ai data from 25/09/2024

How does DAO voting work?



Voting rights are assigned to voters based on their token / staking balance

Quorum *refers to the minimum number of members or votes required to validate and execute a proposal or decision (i.e 80%)*

DAOs can be governed on- or off-chain

	On-chain Governance	Off-chain Governance
Security	Very high	Average
Cost	High	Very low
Flexibility	Very low	Very high
Tool	ARAGON, Tally, XDAO, boardroom, COLONY, Compound, Juicebox	snapshot, Discourse, Discord, Telegram
Example		

Category definitions & comments

Security: On-chain governance ensures very high security due to immutable blockchain records, while off-chain relies on external systems, which may introduce vulnerabilities

Cost: On-chain governance incurs high costs due to transaction fees and gas prices, while off-chain governance is more cost-effective as it doesn't require blockchain transactions

Flexibility: On-chain governance offers less flexibility due to the rigid nature of smart contracts, whereas off-chain governance is highly adaptable, allowing easier modifications and rapid decision-making

Tools: Different tools are optimized for either on-chain or off-chain governance. On-chain tools like Aragon and Tally ensure transparency and security, while off-chain tools like Snapshot and Discord facilitate flexible and quick community decision-making

Examples: Projects like Tezos and MakerDAO rely on on-chain governance for security and transparency, whereas Uniswap uses a hybrid approach with off-chain discussions and on-chain execution, highlighting the evolving nature of DAO governance.

Sources: medium.com/@daobase_ai/exploring-dao-governance-a-empirical-study-on-snapshot-2a1084e54471

Governance Tokens

Governance tokens are a type of digital asset that provide the holder with the right to participate in the governance of a decentralized network or protocol. Holders of governance tokens have the ability to influence the development and operation of a protocol by proposing, discussing, and voting on various aspects.

This use case is relevant for:

DAOs | Token Holders / Investors | Developers / Innovators

Benefits for DAOs

- Decentralized decision-making, enhancing transparency and community engagement
- Efficient governance, enabling swift voting on upgrades and policy changes
- Resilience and adaptability, facilitating response to ecosystem needs

Benefits for token holders & investors

- Active participation in governance, shaping the project's future
- Potential financial returns from successful governance decisions
- Alignment of interests through incentivized long-term engagement and commitment to the project's success

Benefits for developers & innovators

- Empowered role in governance, proposing and implementing protocol changes
- Open development process, fostering community contributions and innovation
- Recognition and reputation building through impactful governance contributions

Case Study: SAFE DAO token

August 2022

Safe

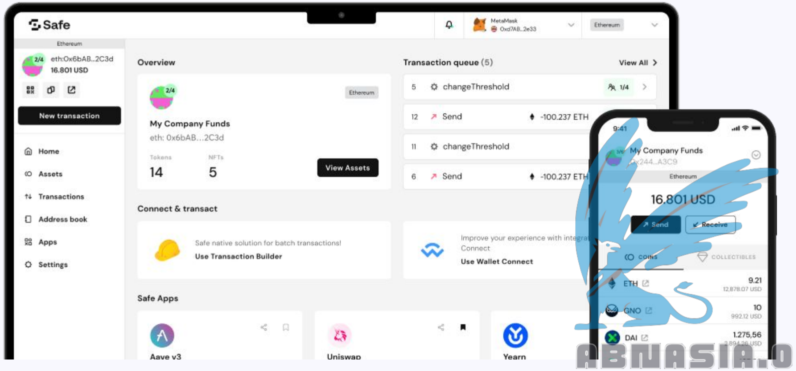
Safe is a trusted decentralized custody protocol and collective asset management platform on Ethereum and the EVM

The firm airdropped 50 million tokens in a bid to decentralize the community

The token ensures that Safe can be operated and maintained by the community. The structure of the DAO enables as well a way to decentralized focus so that Safe can be expanded for many use case

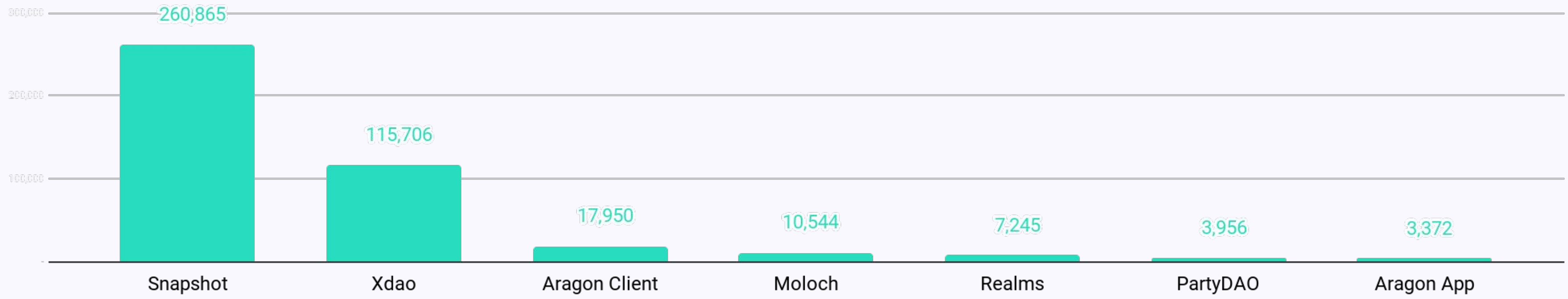
Technology stack

In-house development	ethereum	Safe
ERC-20 token creation and lifecycle management	Smart contracts deployed on Ethereum	Token contract ownership and transaction approval

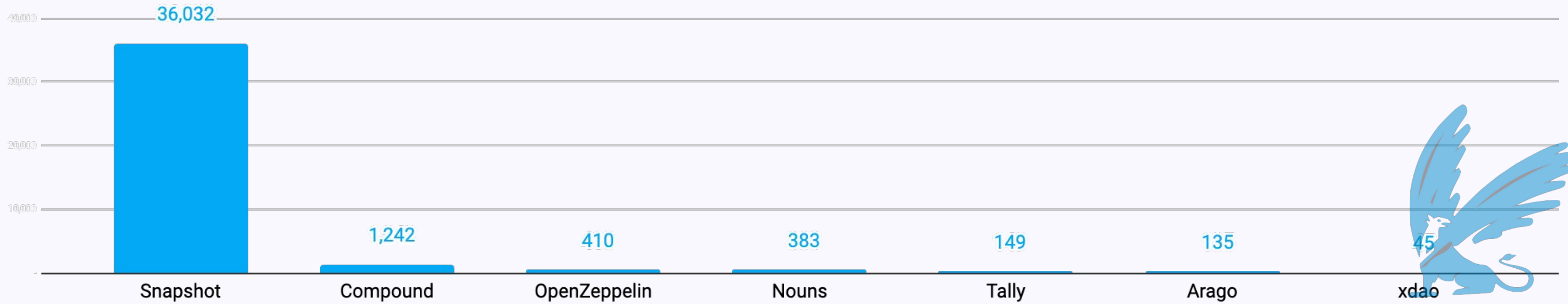


Snapshot is the most popular tool for managing DAO governance

Total number of proposals by governance tool

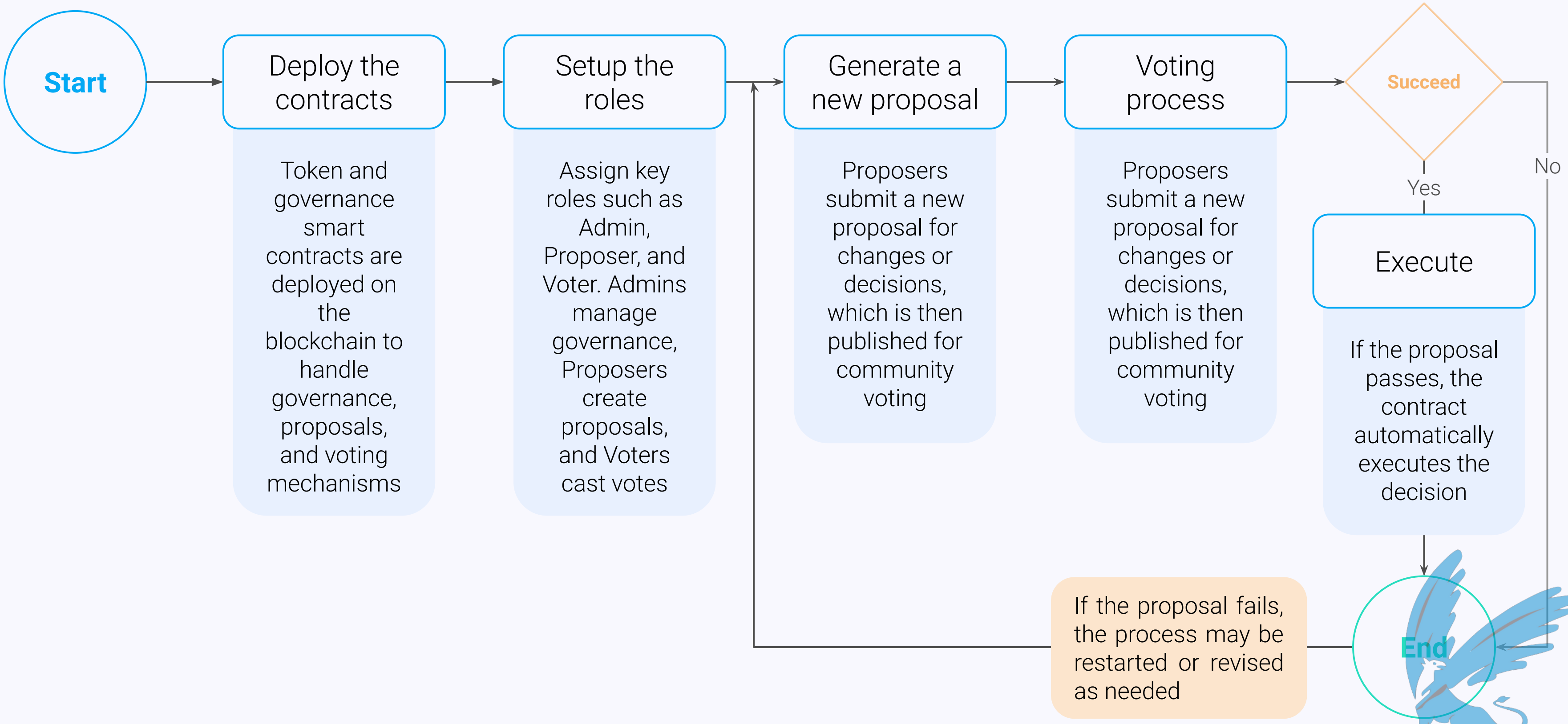


Total number of voters by governance tool



Sources: daobase.ai as of 08/10/2024

How to create a DAO?



There is a rich ecosystem of tools to operate a DAO

Governance

Aragon, Compound, snapshot, curiaLab, Chelo, Discord, Tally, Commonwealth, llama, Discourse, Spect, Council

Treasury

Bitbond, Bulla Network, ADAM, coinshift, (DAO,DAO), multis, Coordinape, UNSLASHED, Request, Sablier, Superfluid, remox

Infrastructure

ceramic, ENS, Grindery, IPFS, KIROBO, MUSE

DeFi

Chelo, Compound, Set TokenSets, (DAO,DAO), KIROBO, Zapper, Nexus Mutual, SOLV PROTOCOL, multifarm.fi

Analytics

DeepDAO, curiaLab, TOGETHER CREW, Tally, multifarm.fi

Legal & dispute resolution

daobox, KLEROS, OPENLAW, LexDAO

Security & Privacy

CERTIK, Immunefi, UNIKN, OpenZeppelin, Pessimistic

NFTs

Bitbond, MUSE, SOLV PROTOCOL

DAO launcher

Aragon, Clique, Common Ground, origami, CHARMVERSE, COLONY, SubDAO, gardens, XDAO, wonder

Sources: deepdao.io/dao_tools

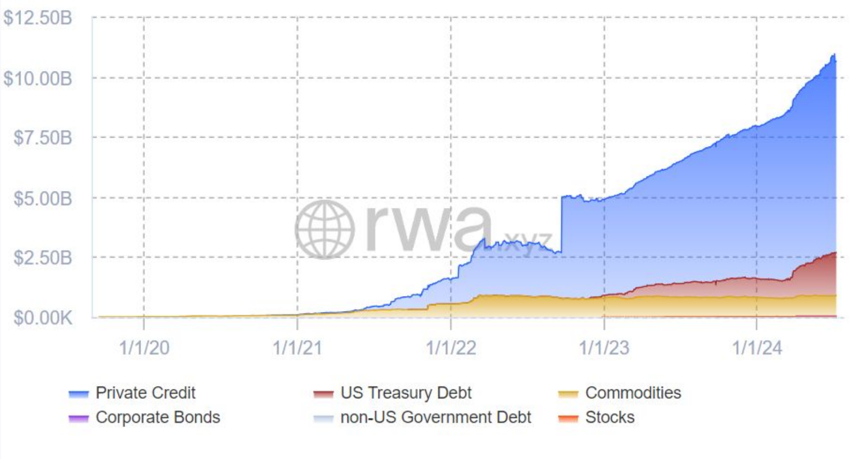
Agenda

Introduction to RWA

Real World Assets (RWA) tokenization is the process of creating digital tokens on a blockchain that represent ownership in assets such as private credit, corporate bonds, T-bills, commodities, or real estate. Tokenization allows these often illiquid assets to be traded and managed on digital platforms, providing greater liquidity and accessibility. Tokenization enables fractional ownership, meaning investors can own smaller, more affordable portions of assets leading to more diversification. Additionally, it enhances transparency and efficiency in asset management, as blockchain technology ensures secure, immutable records of ownership and transactions. Through RWA tokenization, investors can diversify their portfolios and participate in the global market with ease.

Total RWA Onchain	Total Asset Holders	Total Asset Issuers
$12.4B	63,216	115

Total RWA Value (excluding Stablecoins)



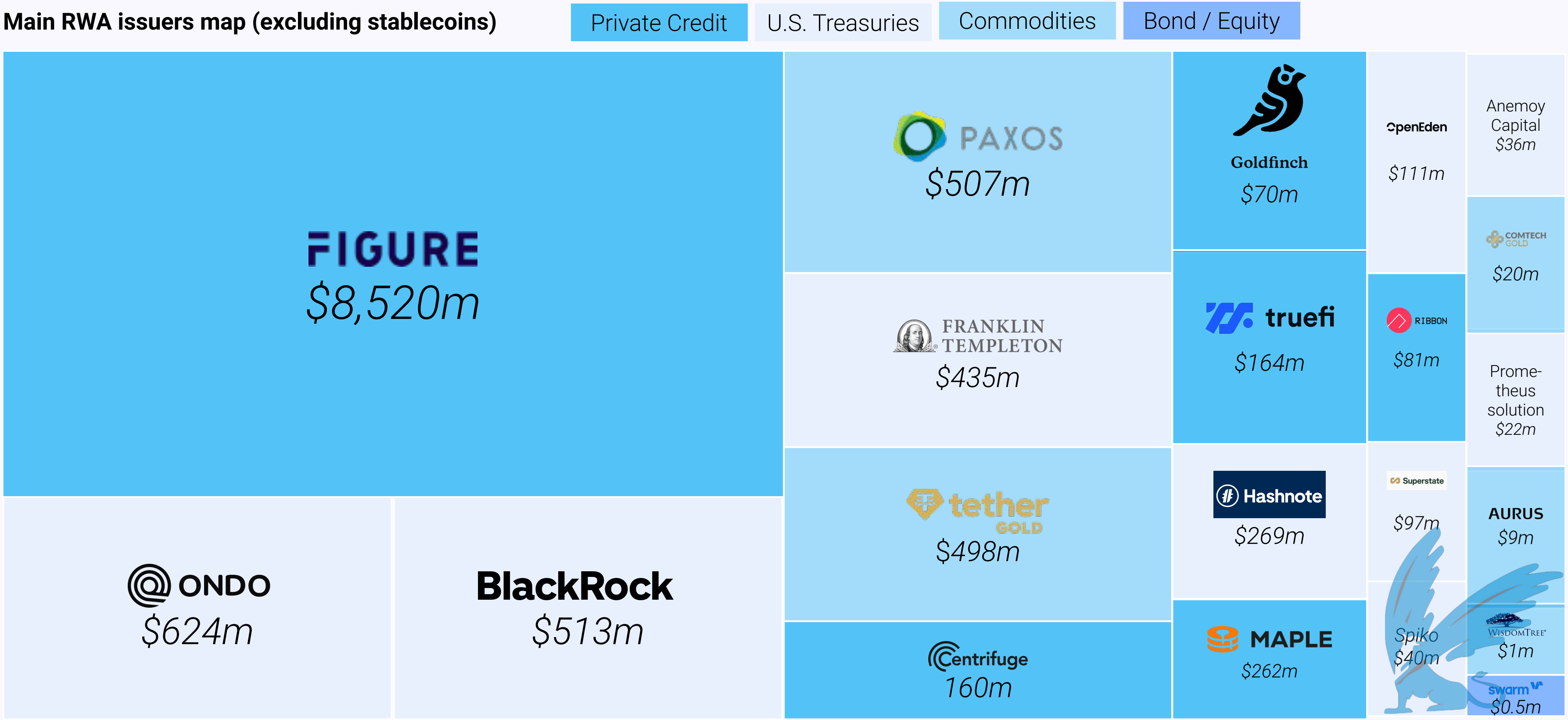
Top networks for RWA tokenization (excl. Stablecoins)

Logo	Network	Total RWA value (in $m)
	Provenance	8,558
	Ethereum *(ETH)*	2,823
	Stellar *(XLM)*	423
	Solana *(SOL)*	122
	Polygon *(MATIC)*	74
	Arbitrum *(ARB)*	39
	Avalanche *(AVAX)*	28
	Mantle *(MNT)*	27
	XDC *(XDC)*	17
	Aptos *(APT)*	16

Sources: rwa.xyz, data as of 26/09/2024

FIGURE is currently the largest RWA issuer with over $8.5bn

Main RWA issuers map (excluding stablecoins)



Sources: rwa.xyz

Private Credit – Market overview

Active Loan Value

$9.1B

Total Loan Value

$14.7B

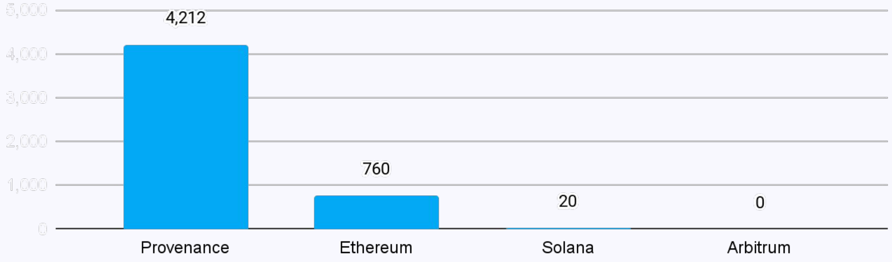
Total Loans

1,909

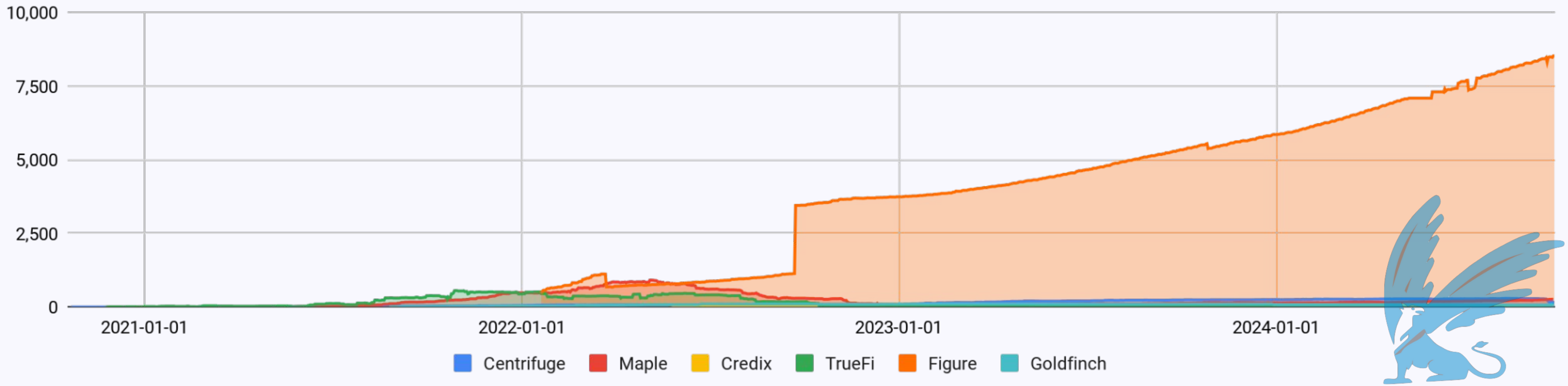
Current Avg. APR

9.0%

Active loans value per sector (in $m)



Value of current outstanding loans originated by each protocol (in $m)



Sources: rwa.xyz data as of 26/09/2024

Private Credit

Private credit tokenization involves representing private debt assets as digital tokens on a blockchain. The tokens represent ownership in the underlying debt instruments and are compliant with regulatory frameworks and enable the digitization of the asset's lifecycle, including issuance, trading, and settlement.

This use case is relevant for:

Issuers

Asset managers / Arranger

Investors

Benefits for issuers

- Efficient issuance process with immutable ownership records and automated interest payments
- Instant Delivery versus Payment with no counterparty risk directly reducing costs
- Simpler custody without CSD and easy global transferability

Benefits for asset managers / arranger

- Automation of lifecycle management (issuance, corporate actions) reducing operational costs and risks
- Improved transparency and traceability of asset performance

Benefits for investors (Institutional & Retail)

- Higher secondary market liquidity at smaller denominations
- 24/7 instant settlement
- Increased transparency with real-time information about performance and ownership

Case Study: Maple Finance

Founded in 2019

MAPLE

Maple Finance tokenize private credit assets, enabling borrowers to access a broader pool of lenders and offering investors diversified, liquid investment opportunities.

The platform uses smart contracts for transparent and efficient loan management, automating repayments and yield distribution.

Secondary market trading of tokens provides liquidity, while decentralized governance ensures active participant involvement.

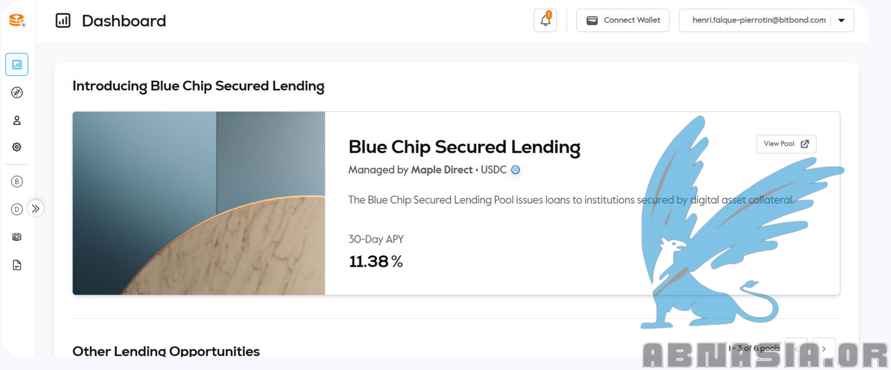
Technology stack

ethereum

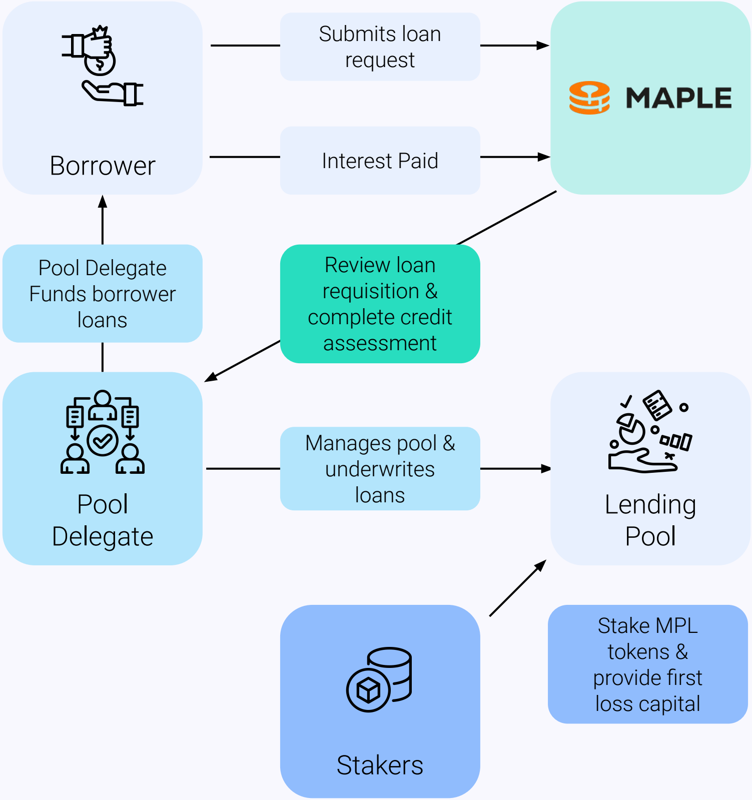
Smart contracts deployed on Ethereum

zodia CUSTODY

Custodian used for global lending arrangements



Maple Operating Model



Activity among participants

Pool delegates must be whitelisted prior to establishing a lending protocol. In order to be whitelisted, they must go through the Maple governance approval process. Once approved and profile and strategy are created, the lending pool is deployed. Delegates must provide minimum stake cover ($100,000) while stakers may add additional pool cover where desirable.

Both lenders and stakers would review the delegate profile and provide liquidity and pool cover where desirable.

Borrowers would also create profile, loan terms and submit request for quote (RFQ) on Maple for delegate review.

If there is interest on borrowers' proposed loan terms by the Pool delegate, further diligence are conducted.

The loan contract would be launched by the borrower once the terms are agreed upon by both parties allowing the delegate to fund the loan.

Borrowers draw down loan payment, pay interest and stake collateral over time while the establishment fee is drawn down separately and sent to the delegate and Maple DAO. This would happen until the final repayment occurs upon maturity for delegates to claim.

Sources: consensys.io/blog/maple-finance-creating-a-decentralized-credit-market

U.S. Treasuries – Market overview

Active Loan Value

$2.2B

Weighted Average Maturity

38.3 days

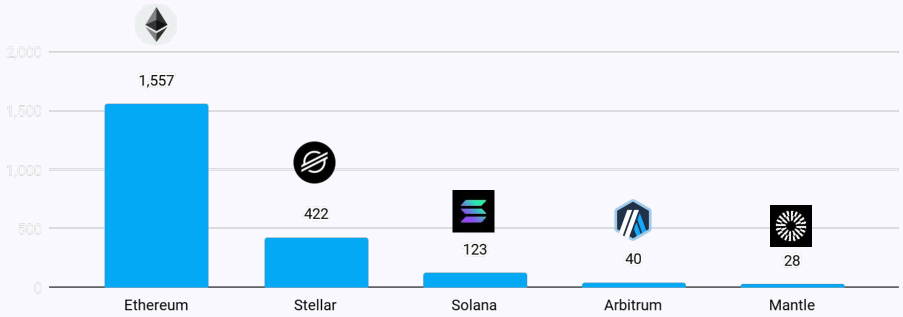
Holders

6,109

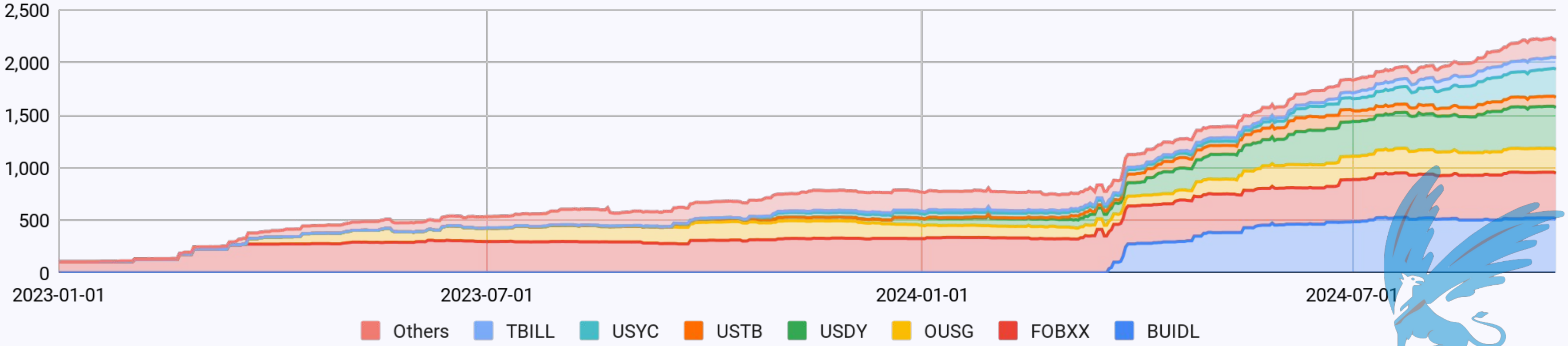
Current Avg. APR

4.9%

Top networks for tokenized U.S treasuries issuance (in $bn)



Value of current treasury market cap by each asset (in $m)



Sources: rwa.xyz data as of 26/09/2024

U.S. Treasuries

U.S. Treasuries tokenization involves representing U.S. government debt securities, such as Treasury bonds, bills, and notes, into digital tokens on a blockchain. These tokens represent ownership in the underlying Treasury securities, allowing for easier trading, enhanced liquidity, and greater accessibility for a wider range of investors

This use case is relevant for:

Financial institutions | Government & state agent | Investors

Benefits for financial institutions

- Efficient issuance process with immutable ownership records and automated interest payments
- Instant Delivery versus Payment with no counterparty risk directly reducing costs
- Simpler custody without CSD and easy global transferability

Benefits for asset government & state agent

- Streamlined processes for trading and settling U.S. Treasuries
- Enhanced product offerings for clients, including digital asset management
- Potential cost savings from reduced operational and settlement inefficiencies

Benefits for investors (Institutional & Retail)

- Higher secondary market liquidity at smaller denominations
- 24/7 instant settlement
- Increased transparency with real-time information about performance and ownership

Case Study: Ondo Finance

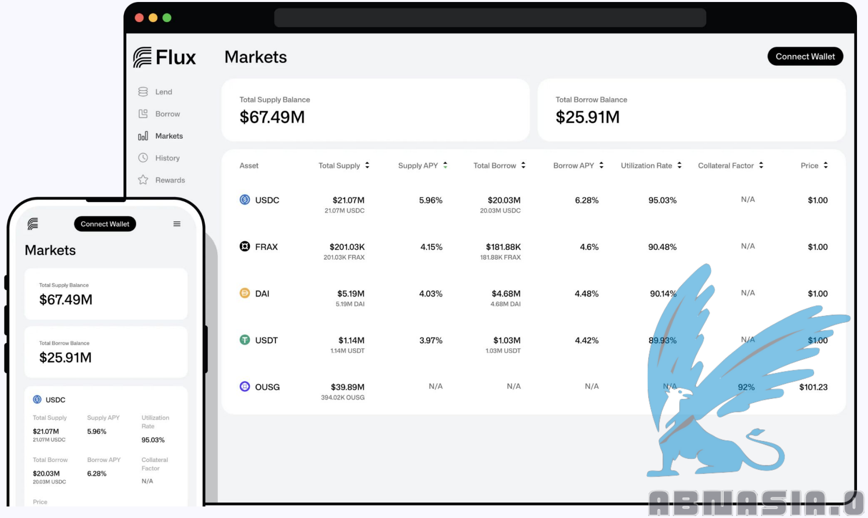
Since March 2021

ONDO

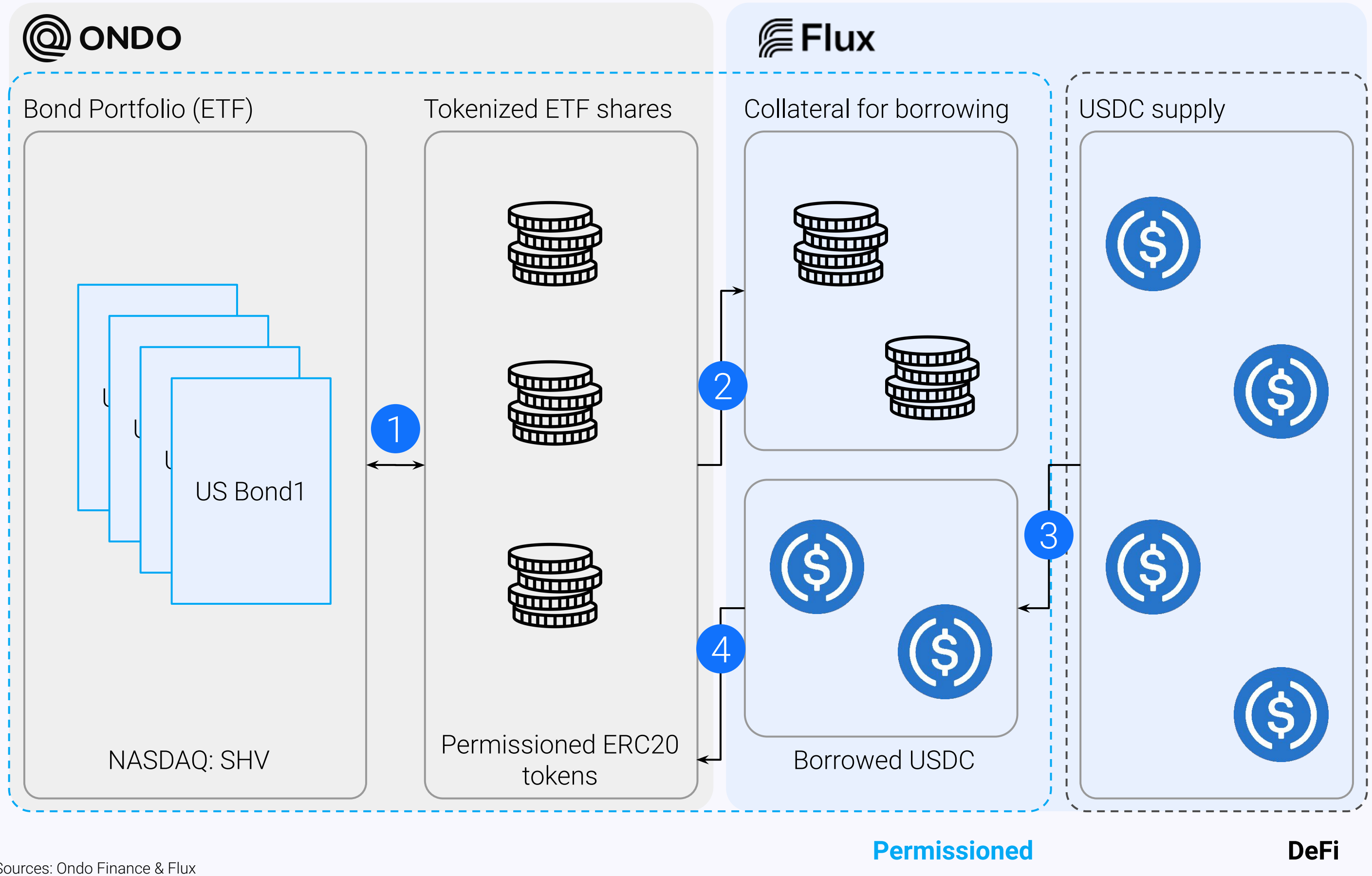
Ondo Finance offer innovative investment product catered to institutional investor

By leveraging blockchain technology and their Flux platform (see picture below), Ondo Finance aims to enhance transparency, efficiency, and accessibility in the US Treasury market

This innovative approach democratizes access to government bonds, allowing a broader spectrum of investors to participate in the traditionally exclusive US Treasury market



Ondo Finance and Flux operating model



1. Ondo "buys" ETF shares, creates a fund token and sends it to user wallets
2. User deposits fund tokens as collateral in the permissioned side of a lending protocol
3. Non-KYCed users can supply USDC for permissioned users to borrow
4. Permissioned users borrow USDC, collateralized by the fund tokens, with US Treasuries as the underlying risk

Sources: Ondo Finance & Flux

Commodities – Market overview

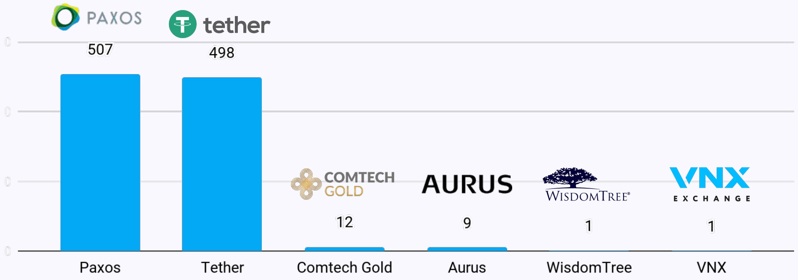
Market Cap
$1.0B

Monthly Transfer Volume
$123M

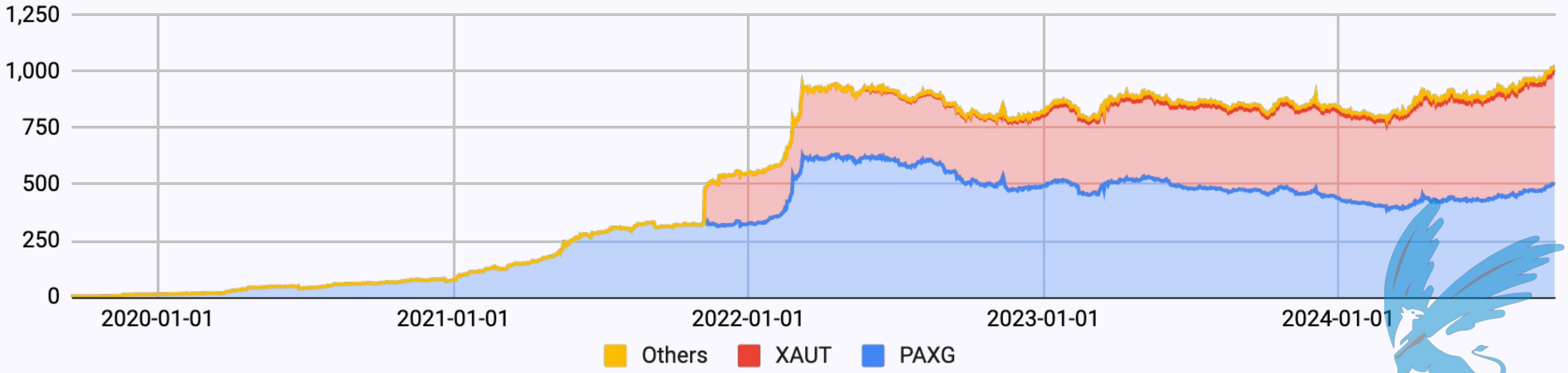
Holders
57K

Monthly active addresses
2,160

Top issuers for tokenized commodities



Value of current tokenized commodities market cap by each asset (in $m)



Sources: rwa.xyz data as of 26/09/2024

Commodities

Commodities tokenization involves representing physical commodities as digital tokens on a blockchain. The tokens represent ownership or claims to the underlying commodities, enabling efficient trading, liquidity, and accessibility for investors. It streamlines transfers, reduces costs, and enhances transparency and security in commodity markets.

This use case is relevant for

Financial Institutions

Corporates / SMEs / SPVs

Benefits for issuers

- Increased efficiency in the issuance and settlement of commodities
- Address a broader investor base via centralized and decentralized exchanges
- Improved transparency and traceability of commodity supply chains through real-time information
- Streamlined processes and cost efficiency through automated commodity trading
- Risk mitigation through improved transparency and secure transactions
- Expanded offerings and revenue streams by incorporating tokenized commodities

Benefits for investors

- Diversification opportunities by easily investing in a range of commodities
- Enhanced liquidity through fractional ownership and efficient trading
- Reduced counterpart risk by direct ownership of tokenized commodities

Case Study: Paxos

Since 2012

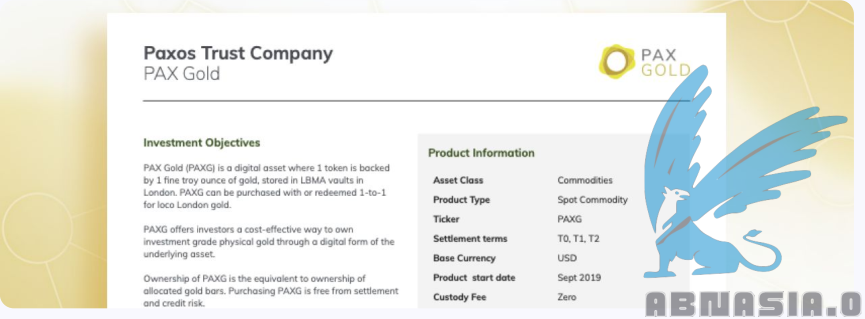
PAXOS

Paxos provides a platform for tokenizing commodities like gold. Its flagship product, PAXG, is a digital token backed by physical gold stored in secure vaults. Each PAXG token represents one troy ounce of a London Good Delivery gold bar, making gold investments more accessible to a wider range of investors.

By tokenizing LBMA gold bars, Paxos has democratized gold ownership, allowing investors to trade tokenized gold easily. Regulated by the NYDFS, PAXG offers added security, with assets being bankruptcy remote and issued by a Paxos Trust company.

In addition to its regulatory safeguards, PAXG's legal standing is more significant than its technology. Operating as an ERC-20 token on Ethereum, PAXG is available on DeFi platforms, enabling gold to be used as collateral in crypto lending pools.

Paxos monetizes its gold-backed token, Paxos Gold (PAXG), by charging fees for token issuance, redemption, and custody of the physical gold. They also generate revenue through trading fees via partnerships with crypto exchanges.



Paxos Trust Company
PAX Gold

PAX GOLD

Investment Objectives

PAX Gold (PAXG) is a digital asset where 1 token is backed by 1 fine troy ounce of gold, stored in LBMA vaults in London. PAXG can be purchased with or redeemed 1-to-1 for loco London gold.

PAXG offers investors a cost-effective way to own investment grade physical gold through a digital form of the underlying asset.

Ownership of PAXG is the equivalent to ownership of allocated gold bars. Purchasing PAXG is free from settlement and credit risk.

Product Information

Asset Class	Commodities
Product Type	Spot Commodity
Ticker	PAXG
Settlement terms	T0, T1, T2
Base Currency	USD
Product start date	Sept 2019
Custody Fee	Zero

Real Estate

Real estate tokenization is the conversion of physical properties into digital tokens on a blockchain. This divides assets into smaller, accessible units represented by tokens, enabling fractional ownership and secure trading.

This use case is relevant for

Financial Institutions

Homeowners RE Corporates

Buyers / Investors

Benefits for homeowners and Real Estate corporates

- Access to capital from a broader investor base
- Increased liquidity, potentially enabling easier trading
- Streamlined loan management processes through digitization and automation

Benefits for investors

- Portfolio diversification by gaining exposure to Real Estate assets across different locations/types
- Access to new passive income at a low cost
- Improved transparency, information flow and secondary trading

Example

PROPY

Blockchain-based real estate platform. Propy enables the tokenization of property assets, allowing investors to buy, sell, and trade fractional ownership of real estate using blockchain technology

By tokenizing properties, Propy offers increased accessibility, liquidity, and efficiency in real estate transactions, enabling fractional ownership and making property investment more accessible to a broader range of investors

Art

Art tokenization is the conversion of art ownership into digital tokens on the blockchain. These tokens represent fractional ownership, increasing liquidity, accessibility, and transfer convenience. It applies to various art forms such as paintings, sculptures, and other creative works.

This use case is relevant for

Artists / Collectors

Buyers / Investors

Galleries / Curators / Auctions

Benefits for art tokens issuers

- New monetization opportunities through fractionalization and broader investor base
- Increased exposure and recognition through wider market reach
- Enhanced transparency and trust in art dealing through the use of blockchain technology

Benefits for investors

- Lower barriers to entry allowing for better portfolio diversification
- Potential capital appreciation and investment opportunities with easier 24/7 trading
- Increased transparency and trust with real-time information about ownership and any other relevant information

Example

CANVAS

Canvas is an Australia-based provider of digital financial infrastructure, offering a privacy-focused Layer 2 solution for financial institutions built on StarkEx

The firm offers a gateway for institutional clients to tokenize a variety of financial instruments and real world assets

On behalf of a client, Canvas tokenized the artwork Harbour Grey Day (1978) by famous Australian artist Brett Whiteley

Agenda

Introduction to Institutional Finance

While crypto user-centric tokenization trends like stablecoins and memecoins have seen rapid growth (and volatility) in recent years, the adoption of tokenization in institutional finance has proven to evolve more slowly. Nonetheless, an ever-growing number of financial institutions around the globe are launching tokenization activities beyond one-off pilot projects. Issuers seek to unlock the obvious advantages of blockchain in capital markets, including faster and safer settlement, global market connectivity, cost efficiencies and overall digitization improvements. While the industry is still debating questions such as public vs private chains, ideal token standards and appropriate regulatory classification, the overall direction is clear: tokenization is here to stay, as underpinned by both issuance volume and transaction frequency growing steadily.

Market cap
$12.7B

Institutional issuers
40+

LTM issuance volume
$5.2B

LTM issuance count
20+

Issuance volume of tokenized securities issued by TradFi institutions

Q4 2023	Q1 2024	Q2 2024	Q3 2024
$430M	$720M	$230M	$5.2B

Sources: STO Market, ICMA Group

Recent notable transactions involving financial institutions

Siemens *(September 2024)*
$330m digital bond

Natixis *(August 2024)*
$110m registered covered bond

AIIB *(August 2024)*
$300m digitally native note

Berlin Hyp *(August 2024)*
$110m digital mortgage Pfandbrief

CDP and Intesa Sanpaolo *(July 2024)*
$27m digital bond

DZ Bank, DekaBank, ClearStream *(July 2024)*
$11m digital bonds

KfW, ClearStream *(July 2024)*
$4bn digital benchmark bond

World Bank *(May 2024)*
$233m digital bond

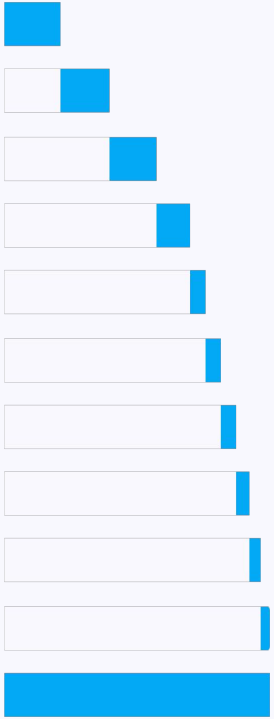
HKSAR *(February 2024)*
$790m digital green bonds

SG Forge, AXA *(December 2023)*
$11m digital green bond

Sources: STO Market, ICMA Group

Cash and funds are main assets expected to be tokenized by 2030

2030 tokenized asset market capitalization base case, $ trillion



Cash and deposits	*Excluded from total*	~1.1
Mutual funds and ETFs		~0.4
Loans and securitization		~0.3
Bonds and exchange-traded notes		~0.3
Alternative funds		~0.2
Alternative assets		~0.1
Unlisted equities		~0.1
Precious metals		~0.1
Publicly listed equities		<0.1
Intangible assets		<0.1
Derivatives		<0.1
Tokenized value by 2030		~1.9

Sources: McKinsey Tokenization Report

Example of use cases driving adoption

- 24/7 business-to-business payments
- Money market fund distribution
- Streamlined warehouse lending
- Intraday repo/collateral mobility
- Distribution and investor onboarding
- Liquid secondary market
- Liquid private markets for secondary sales
- Collateral in decentralized finance
- Clearing and settlement efficiencies
- Real-time distribution of royalties

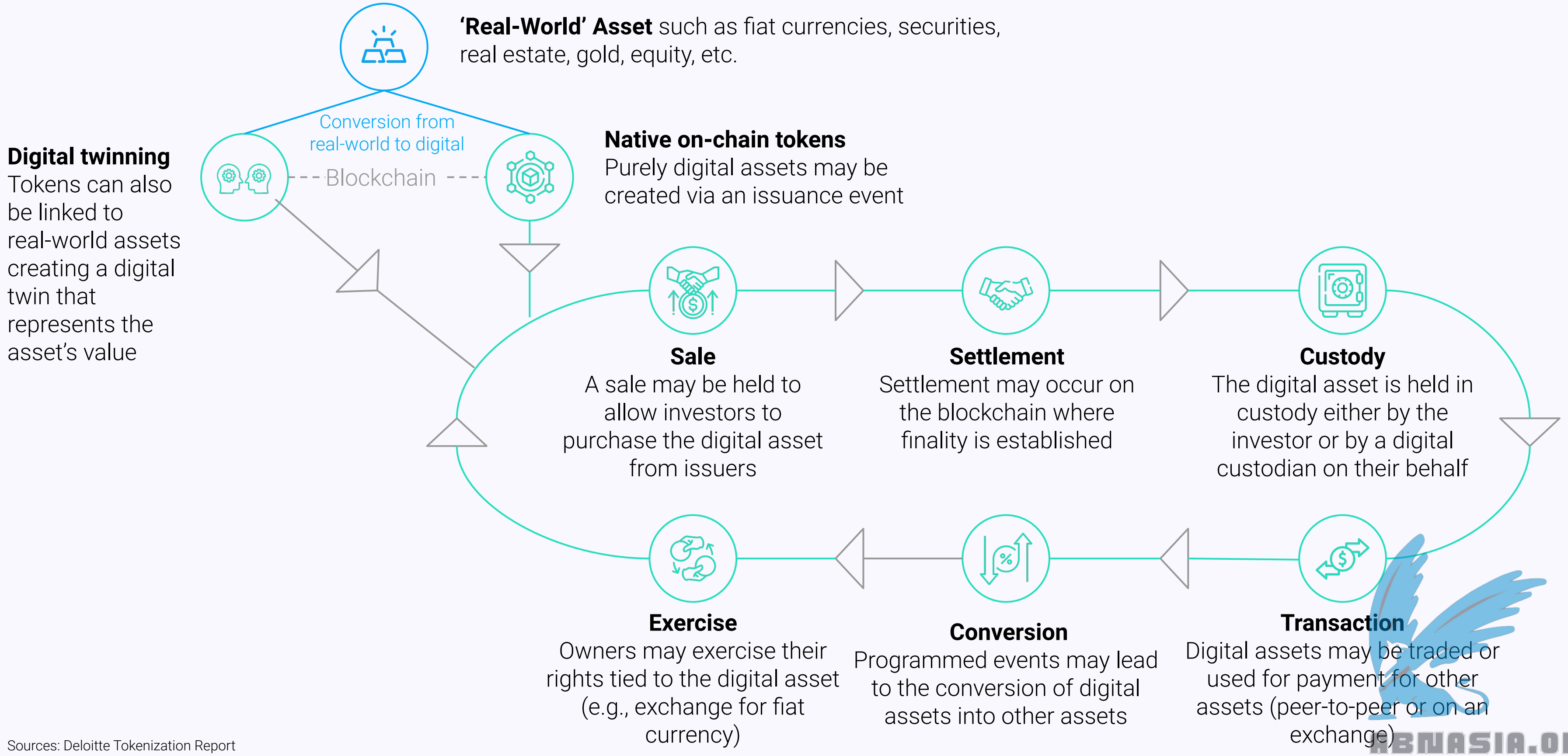
Most impacted markets

- Capital markets (stocks, bonds)
- Real Estate
- Private Equity
- Commodities
- Art and Collectibles

Financial institutions' role

- Custodians
- Brokers and intermediaries
- Issuers and underwriters

Asset tokenization process



Sources: Deloitte Tokenization Report

Financial institutions leverage various wallet tech providers

EXCHANGES | BROKERS | INSTITUTIONS | CORPORATES | FUNDS

Institutional custodians using third party technology

State Street, Fidelity Digital Assets, zodia, BNY Mellon, citi, DZ Bank, VBank Die Vermögensbank., Komainu, DBS, Boerse Stuttgart Digital, NYDIG, Commerzbank, BBVA, Societe Generale, BNP Paribas

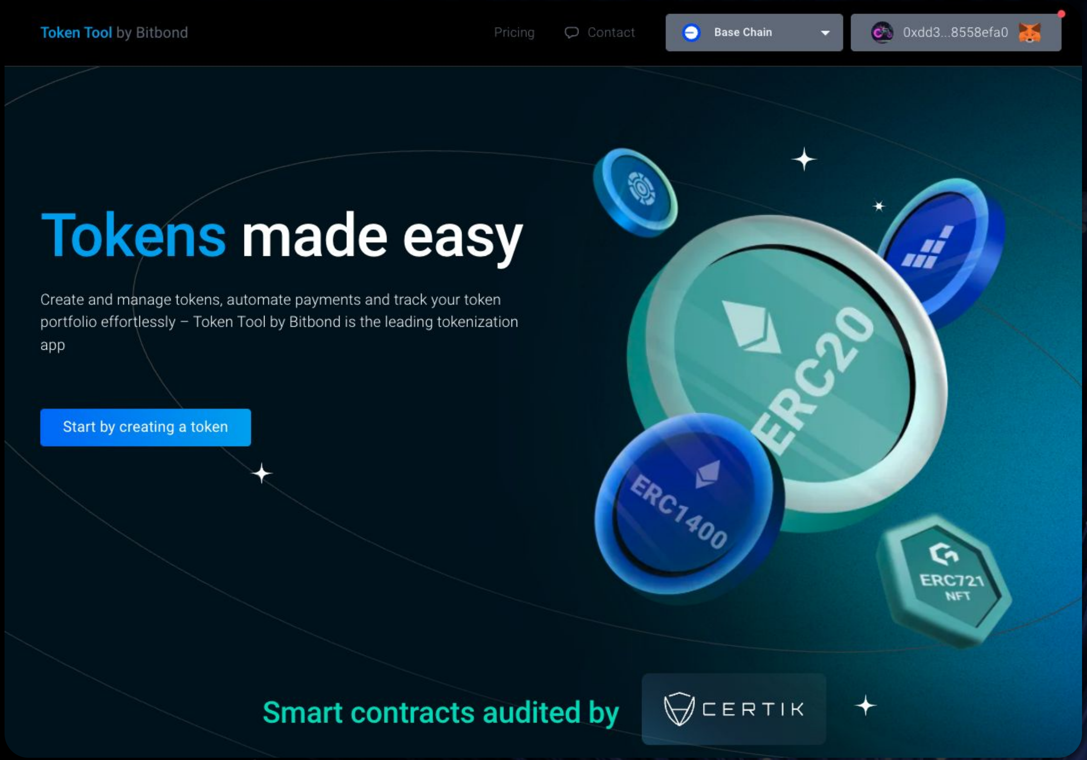
Enterprise custody tech providers

Fireblocks, Dfns, BitGo, Fordefi, GK8, Blockdaemon, copper, Taurus, utila, ripple

Institutional custodians using proprietary technology

copper, Gemini, coinbase, Tangany, BitGo, Finoa, Hex Trust, Anchorage Digital, Paxos Crypto Brokerage

Create your token with an exclusive discount code for our report readers



How to create your token

1. Visit tokentool.bitbond.com
2. Connect your wallet and select a blockchain
3. Select a template an configure your token
4. Enter your discount code

IRDKDAKM

and deploy your token!

Your contact

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Founder & CEO
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Felix Stremmer
COO
felix@bitbond.com

Bitbond is a trusted member of these industry organizations

bankenverband

bitkom

BLOCKCHAIN BUNDESVERBAND

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