

STATE OF CRYPTO 2023

State of Crypto today

Progress. New builders are entering web3 at record pace. Academic research is accelerating. Ambitious products are launching regularly. Key infrastructure is improving. A recent example: Ethereum's successful transition to energy-saving "proof-of-stake", one of the most significant upgrades in the history of open source software development.

Setbacks. Noise drowned out signal with negative events dominating headlines. High-profile projects collapsed. Highly visible investors went bankrupt. Major smart contracts were exploited. Global cryptocurrency market cap fell. DeFi and NFT activity declined.

Market cycles. The "price-innovation" cycle we previously observed continues today. Apparently chaotic cycles in the crypto market are driven by an underlying logic: Rising prices are a leading indicator for innovation. Numbers generate interest, which spurs ideas and activity, which leads to innovation. This positive feedback loop has held true since Bitcoin's creation in 2009.

Regulation. Crypto faces a shifting regulatory environment. Policymakers are proposing bipartisan bills. Courts are deliberating over significant cases. Agencies are issuing enforcement actions. These are precedent-setting times.

Opportunity. We believe recent setbacks underscore the failure of opaque, centralized systems in contrast to the resilience of decentralized infrastructure. We believe decentralized computing platforms can also counter the trend of power consolidating into the hands of a few giant tech corporations. The internet needs web3. Those who understand this will fight for the future of these technologies.

Our view

- Web3 is more than a *financial movement*, it's an *evolution of the internet*.
- Blockchains are more than *ledgers*, they are *computers*.
- Crypto isn't just a new *financial system*, it's a new *computing platform*.

WHY WEB3 MATTERS

Web3 is the next evolution of the internet, combining the best features of earlier eras

web1

- Open decentralized protocols: email (SMTP), web (HTTP)
- Community-governed
- Limited functionality
- No value accrual to the network

web2

- Siloed centralized services: Google, Facebook, Twitter
- Corporation-governed
- Advanced functionality
- Value accrues to Big Tech companies

web3

- **Decentralized blockchain networks: Bitcoin, Ethereum**
- **Community-governed**
- **Advanced functionality**
- **Value accrues to network participants**

1990→

2005→

2020→

Web1 and web2 democratized information and publishing. Web3 democratizes *ownership*.

ERA	WEB1	WEB2	WEB3
TOOL	WEBSITE	POST	TOKEN
UNLOCKS	INFORMATION	PUBLISHING	OWNERSHIP
	/READ	/WRITE	/OWN

Users have more power, and earn a greater share of revenue, on web3 versus web2 platforms

Comparison of take rates (% of revenue network owners take from users)

web2



Facebook
~100%



Instagram
~100%



Twitter
~100%



YouTube
45%



Spotify
30%



App Store
Up to 30%



Steam
Up to 30%



Fiverr
28%



Roblox
25%

web3

The network design has economic consequences.

- Users can easily exit
- Code is open source
- Data is public
- Products are extensible
- Platforms can commit to rules



OpenSea
Up to 2.5%



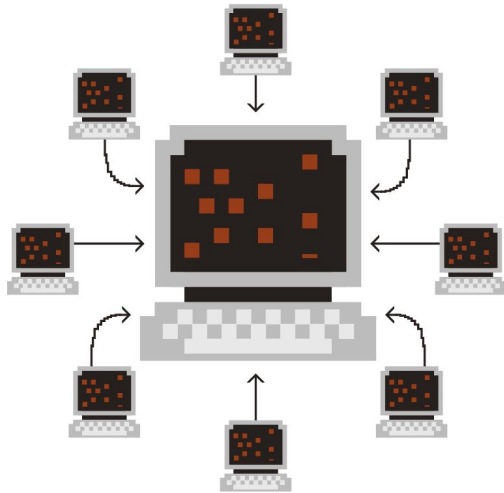
Uniswap
0.30%¹



Ethereum
~0.06%²

Web3 counterbalances the trend toward internet consolidation

Big Tech

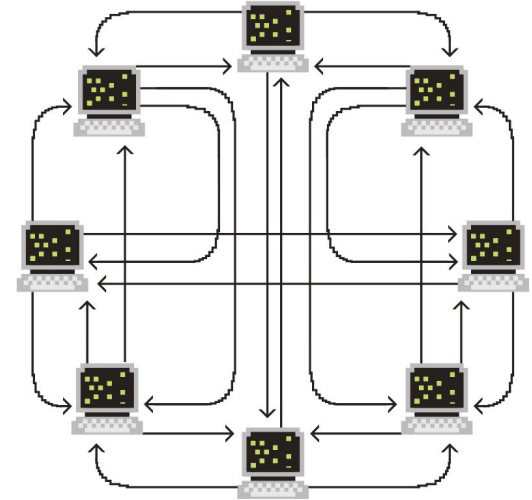


3 companies now generate a third of all global web traffic.



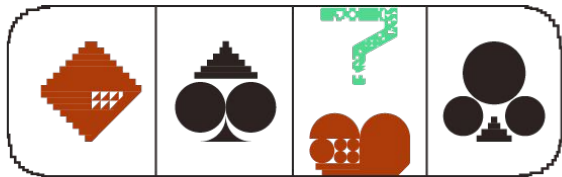
5 companies represent 50% of the Nasdaq 100's total market cap, up from 25% a decade ago.

web3



Blockchains transfer control from *centralized* entities to *decentralized* communities.

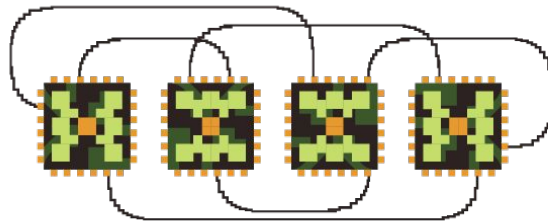
Web3 advances the internet through crypto computers, not crypto casinos



CASINOS ✗

- Financial speculation
- Trust in management
- Opaque operations
- Fragile

VS

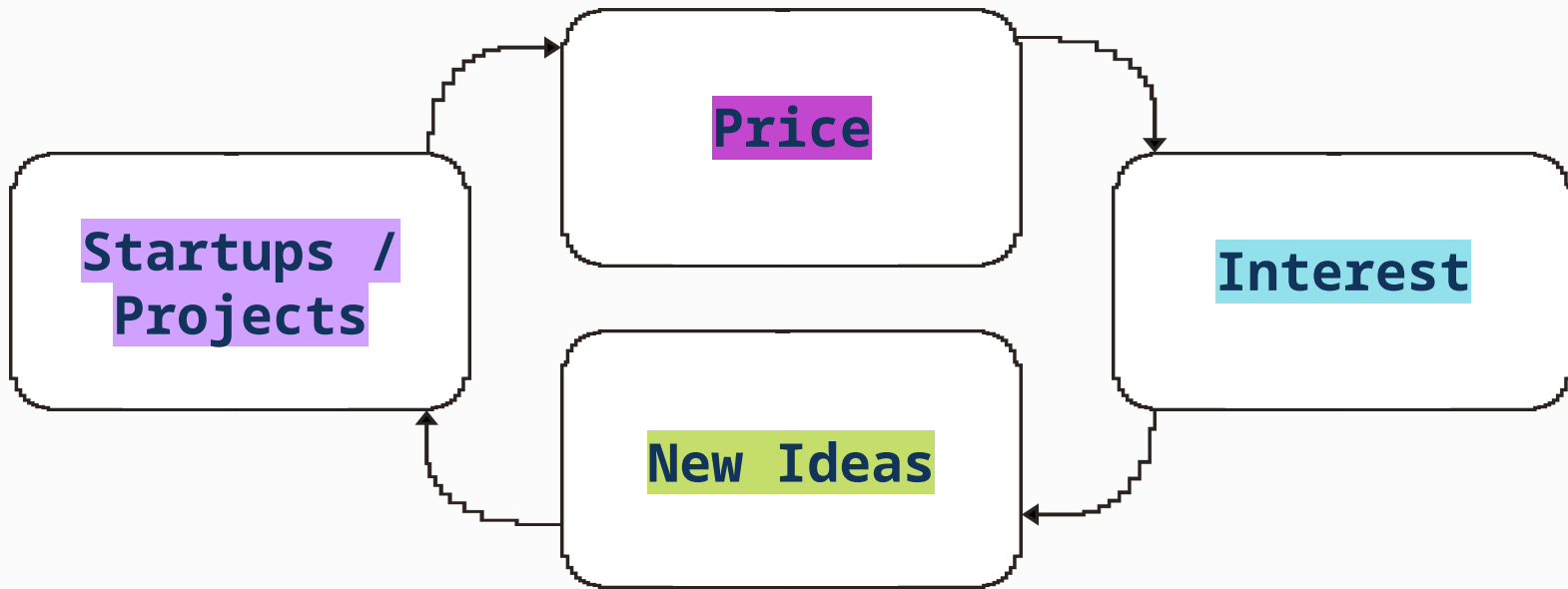


COMPUTERS ✓

- Tech innovation
- Code-enforced rules
- Transparent operations
- Resilient

MARKET CYCLES

A positive feedback loop drives crypto market cycles



Apparent chaos has underlying order

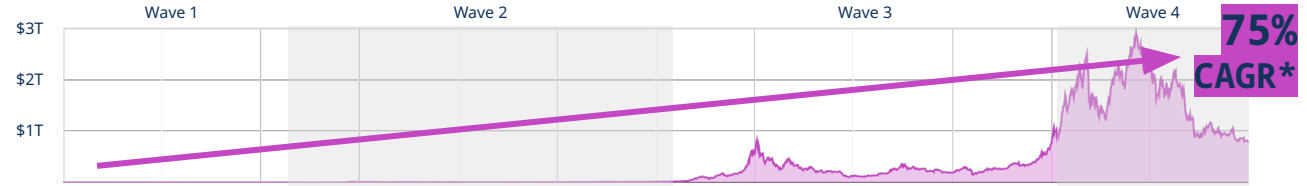
The market has undergone four cycles, each bigger than the last.

Sources:

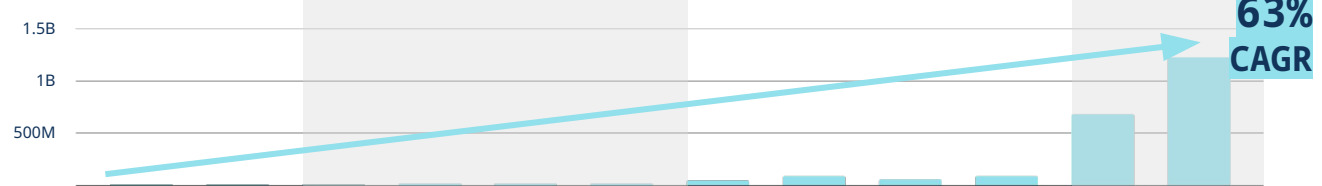
- 1/ CoinMarketCap
- 2/ Twitter; crypto-related mentions
- 3/ GitHub and Electric Capital; stars on public crypto repositories
- 4/ Pitchbook; crypto company funding rounds

Data is through 12/31/2022.

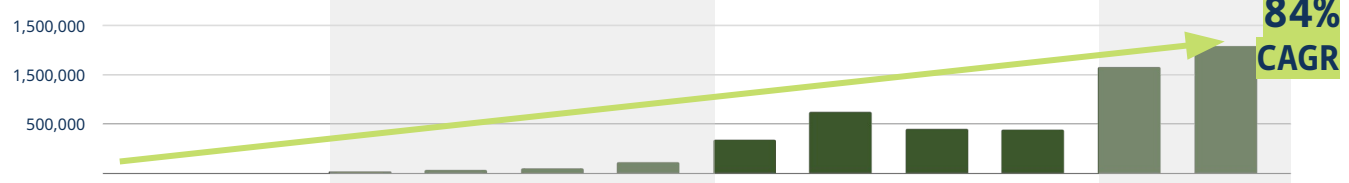
Price (Global crypto market cap¹)



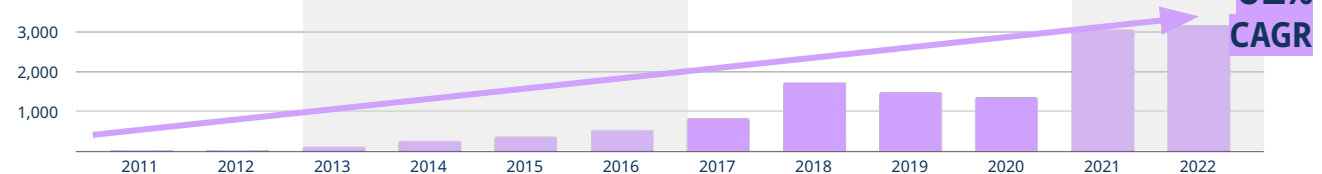
Interest (Social media activity²)



New ideas (Developer activity³)



Startups / Projects (Funding activity⁴)



*Compound Annual Growth Rate

Great products get built regardless of financial upswings and downswings

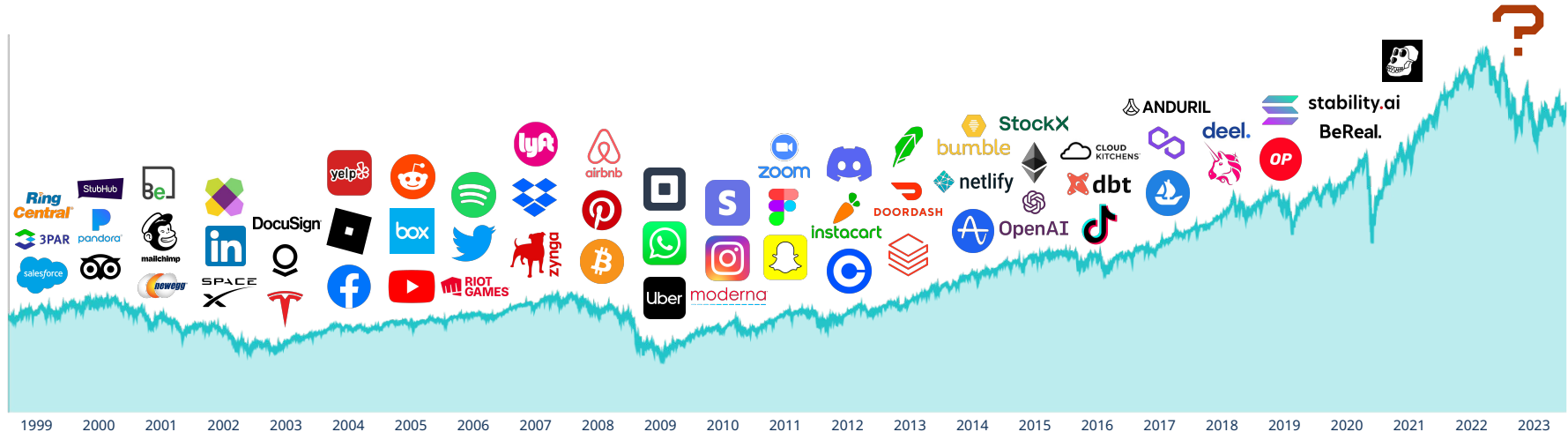


Financial cycles fluctuate unpredictably, often based on macroeconomic conditions.



Product cycles are more predictable, often based on consumer behavior and broader tech trends.

S&P 500 performance and tech company year founded



TRENDS TO WATCH

Blockchains are scaling through multiple promising paths

New Layer 1s

New “Layer 1” blockchains are expanding the set of possible infrastructure choices for builders, improving on scalability, programmability, security, and decentralization. App ecosystems can be built on multiple blockchains communicating seamlessly.



APTOS



Avalanche

NEAR

Application-specific

Blockchains can be exclusively designed to operate one specific application. Computation and storage resources are not shared with other apps.



zkSync

Hyperchains

CØSMOS

Zones

OPTIMISM

Superchain



polygon

Supernets



Polkadot

Parachains

Optimistic rollups

Separate “Layer 2” blockchains that extend the base layer and inherit its security guarantees. Transactions are assumed to be valid, but can be challenged if necessary.

OPTIMISM



Zero knowledge rollups

Separate “Layer 2” blockchains that extend the base layer and inherit its security guarantees. State transitions are computationally verified by generating off-chain validity proofs.



STARKNET



zkSync



AZTEC



polygon

Data availability

Solutions to augment a blockchain’s capacity to store and access data. This will help reduce transaction costs on “Layer 2” rollups, which are critical to making blockchains more scalable.



CELESTIA



EigenDA



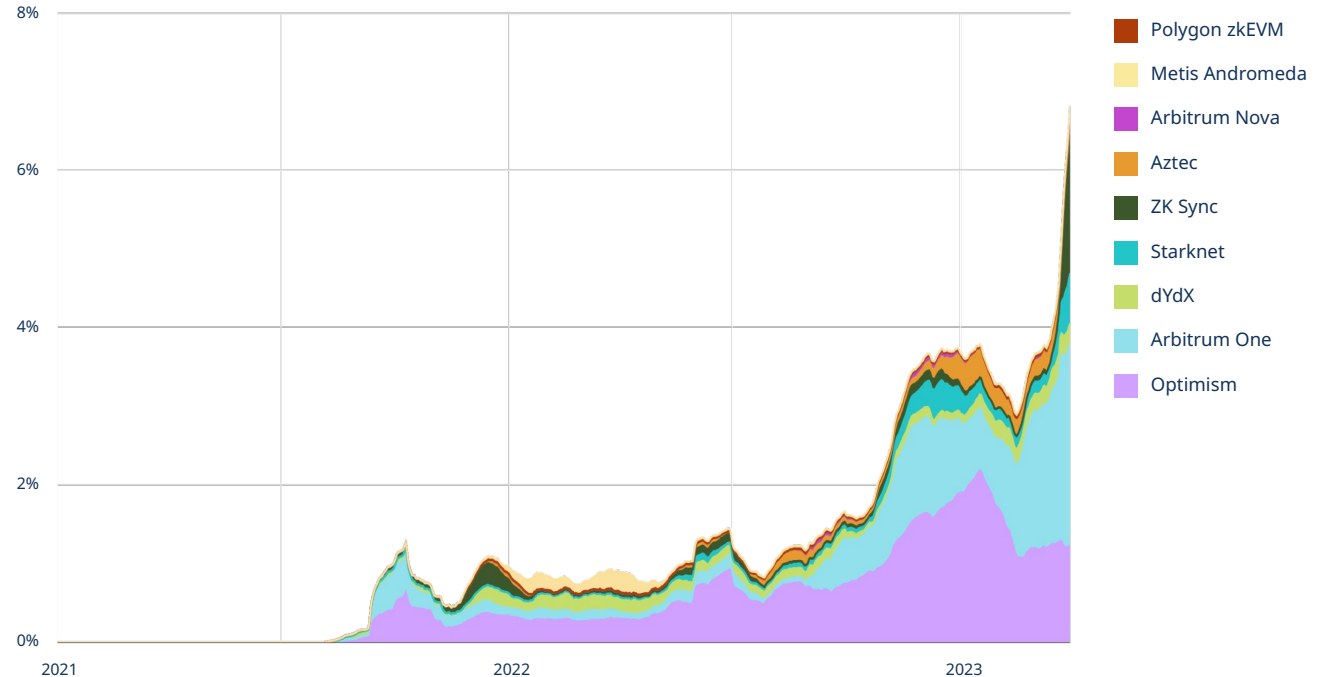
Proto-Danksharding

Blockchain-extending rollups are scaling Ethereum

~7%

of all Ethereum fees are paid by L2 rollups.*

Fees paid by L2 rollups on Ethereum (% of all L1 fees, rolling 30D avg)

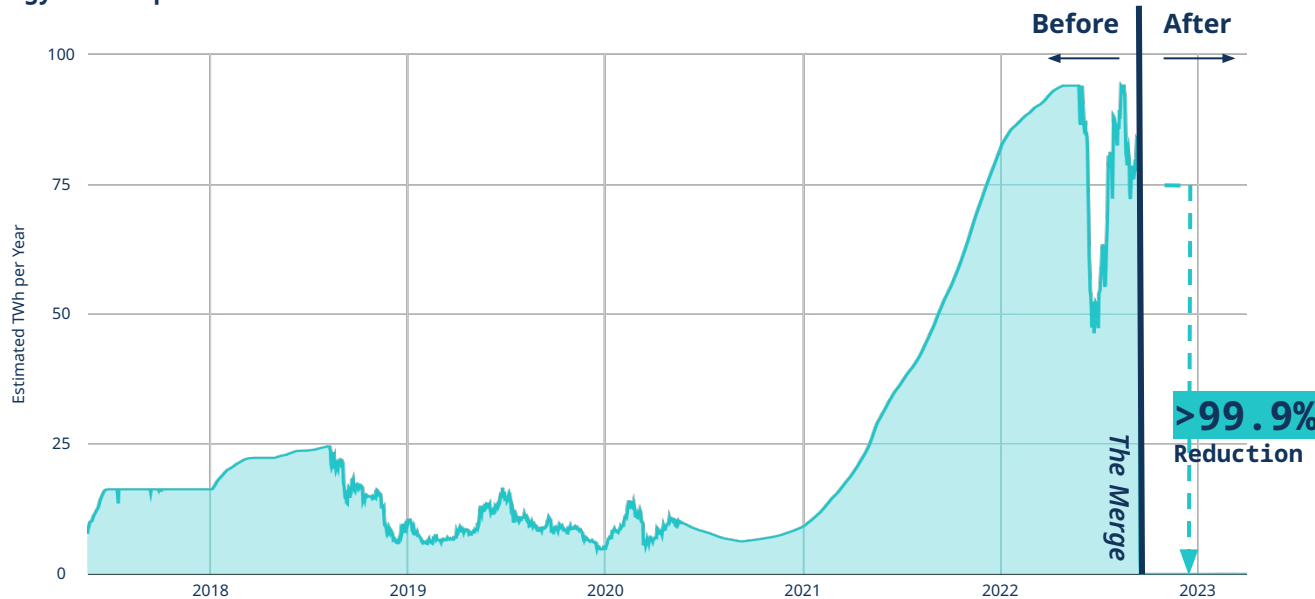


Source: L2BEAT and Dune Analytics. Data is as of 3/31/2023.

*Layer 2 (L2) rollups are separate blockchains that extend the base layer and inherit its security guarantees.

A major Ethereum upgrade years in the making eliminates environmental objections

Energy consumption of Ethereum



Ethereum transitioned to a new, energy-saving consensus mechanism* through a series of activities culminating in **“The Merge”** on September 15, 2022.

Source: <https://digiconomist.net/ethereum-energy-consumption>. Data is as of 3/31/2023.

*A consensus mechanism is a blockchain's method for securely validating transactions.

Ethereum now consumes 0.001% of the energy that YouTube consumes annually

Ethereum switched to energy-saving Proof of Stake (PoS) from energy-intensive Proof of Work (PoW)*

Estimated energy consumption

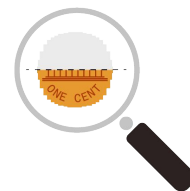
	Annualized energy consumption (TWh)	Comparison to PoS Ethereum
YouTube	244	94,000x
Gold mining	130 - 240	50,000 - 92,000x
Global data centers	200	78,000x
Bitcoin	100 - 130	38,000 - 50,000x
PoW Ethereum*	78	30,000x
Gaming in USA	34	13,000x
PayPal	0.26	100x
PoS Ethereum*	0.0026	1x

Note: Ranges represent the lower and upper bounds from different sources. Estimates can vary dramatically.
For the full list of sources, visit <https://ethereum.org/en/energy-consumption/>.

Source: <https://ethereum.org/en/energy-consumption/>.

*PoW and PoS are consensus mechanisms for securing blockchains.

Height
comparison
for scale



PoS Ethereum

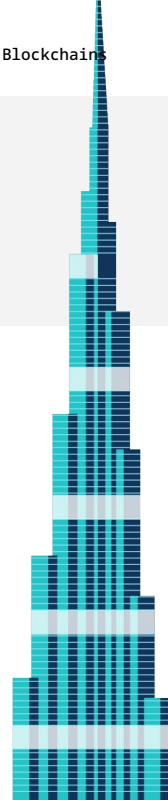
Half a penny

0.95 cm
(0.0026 TWh)

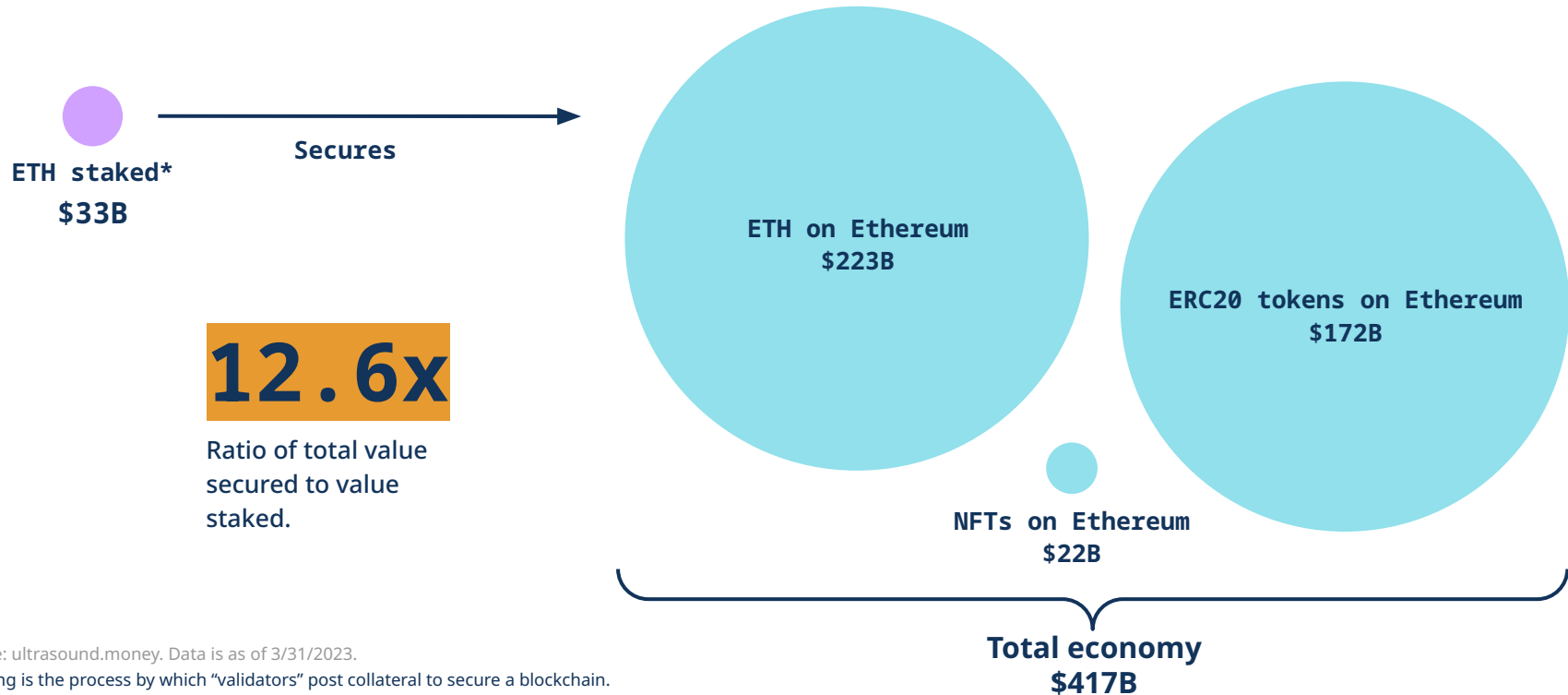
YouTube

Burj Khalifa

830 m
(244 TWh)



Staking transforms collateral into outsized economic security



Source: ultrasound.money. Data is as of 3/31/2023.

*Staking is the process by which "validators" post collateral to secure a blockchain.

Uses for zero knowledge (ZK) proofs are becoming tangible

What is a ZK proof?

A cryptographic method for proving a statement is true *without revealing any information* about the statement – other than that it is true.

How can blockchains use ZK proofs?

1. Scaling
2. Privacy

Recent developments

Hardware costs are **decreasing rapidly**.

Educational materials are proliferating, including **online courses, tutorials, and books**.

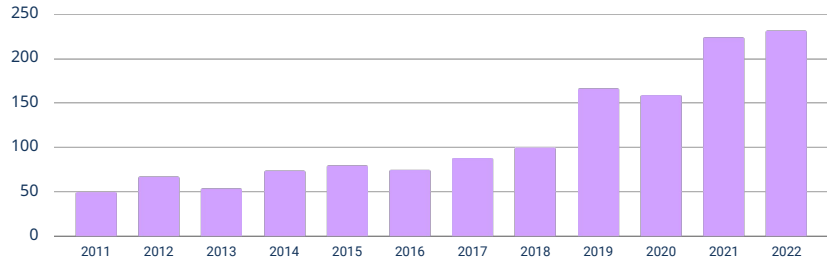
High-level programming languages, such as **Noir** and **Leo**, are maturing.

Several ZK-EVM projects*, including **ZK Sync**, **Polygon zkEVM**, and **Scroll** are launching.

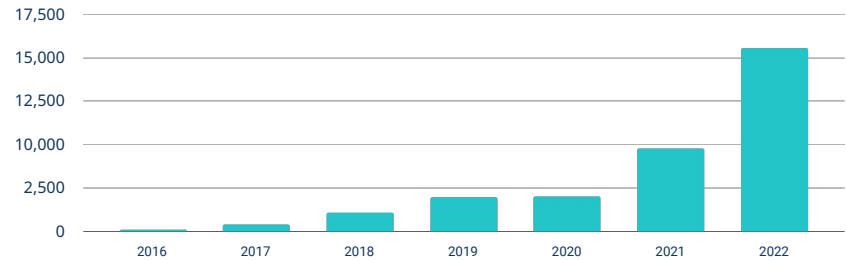
*ZK-EVM (Ethereum Virtual Machine) projects enable highly scalable blockchains.

The zero knowledge field is gaining momentum

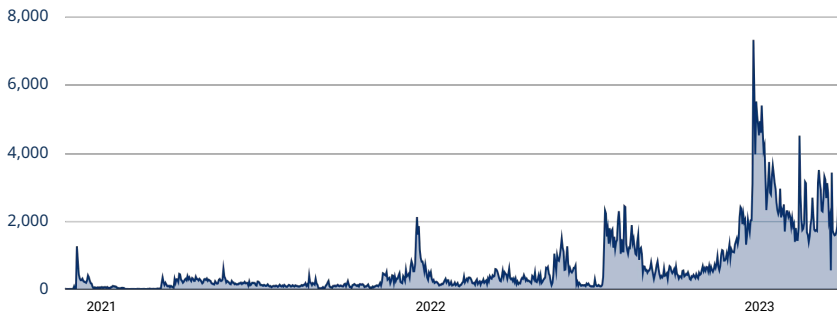
ZK-related academic publications by year¹



Github stars for key ZK repositories²



Daily transactions verifying ZK proofs on Ethereum³



R1CS benchmarks at N=2²⁰ constraints⁴

ZK tech is improving at “Moore’s Law”-like pace

Scheme	Prover Time	Proof Size	Verifier Time
Ligero (2017)	~69 sec	~20 MB	~31 sec
Aurora (2019)	~485 sec	~1.5 MB	~108 sec
Brakedown (2021)	~3.1 sec	~10 MB	<1 sec
Orion (2022)	~3.09 sec	~1.5 MB	<1 sec

22x faster

13x smaller

30x faster

1/ Based on a keyword search of publication titles | Source: dblp

2/ Based on a curated list of notable ZK repositories | Source: GitHub

3/ Based on a keyword search of verified contracts on Ethereum | Source: <https://github.com/tintinweb/smart-contract-sanctuary-ethereum> and Dune Analytics

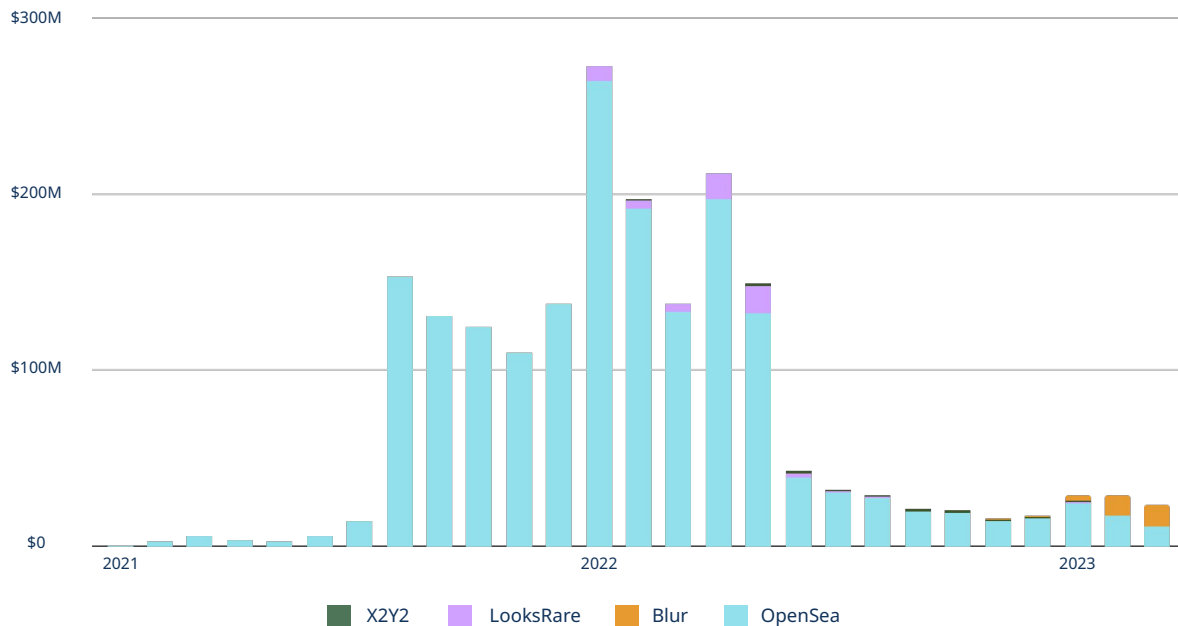
4/ Includes schemes that work on R1CS and have transparent setup and plausible post-quantum security. Note that pre-quantum systems generate much shorter proofs. | Sources: <https://eprint.iacr.org/2022/1010.pdf>, <https://eprint.iacr.org/2021/1043.pdf>



**NFT creators
have earned
more than
\$1.9 billion
in royalty
revenues**

Transfer-based royalties are under fire due to a lack of viable on-chain enforcement. The industry is exploring alternative solutions.

NFT creator royalties paid by marketplace (on Ethereum)



Source: Flipside Crypto. Data is as of 3/31/2023.

The world's biggest brands are exploring web3, beginning with NFTs



Starbucks starts NFT-based loyalty program.



Tiffany & Co. crafts jewel-encrusted pendants for CryptoPunks NFT owners.



Budweiser purchases beer.eth ENS name and debuts multiple NFT collections.



DraftKings opens marketplace focused on mainstream NFT accessibility.



Reddit mints 5 million collectible avatar NFTs.



Nike makes NFT platform .Swoosh for digital sneakers.



Nickelodeon bases NFT collectibles on *Rugrats* and *Hey Arnold!* characters.



TIME introduces NFT initiative TIMEPieces.



Adidas Originals creates NFT collection *Into the Metaverse*.



Porsche launches NFT collection and virtual experiences centered around the iconic Porsche 911.



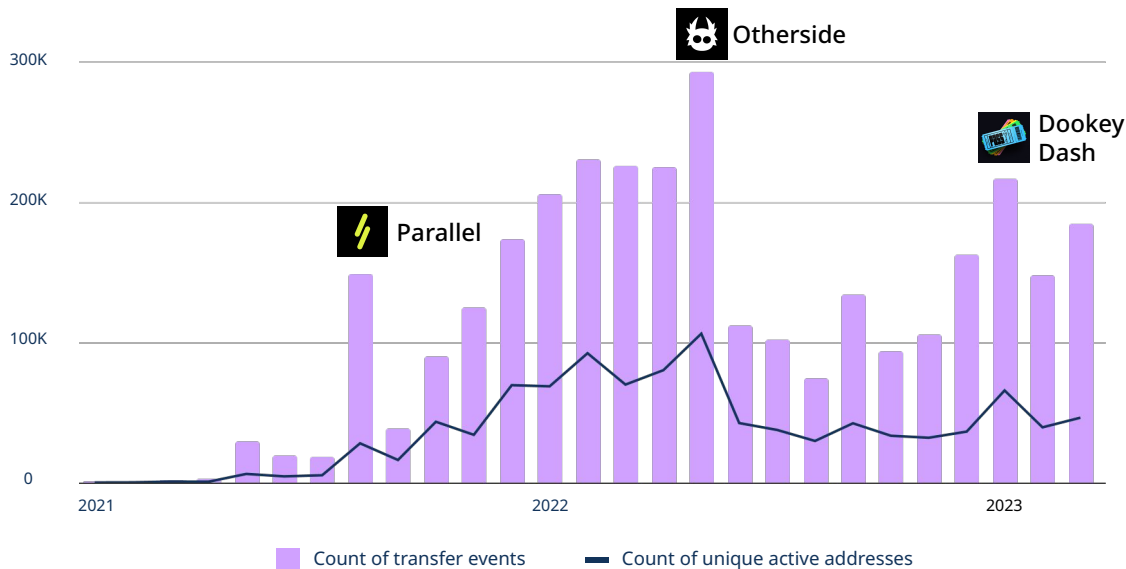
Gucci showcases collectible NFTs in art exhibit called *The Next 100 Years of Gucci* and partners with Yuga Labs' metaverse project.



Louis Vuitton lets players collect NFTs in a self-branded mobile game.

Web3 games are a huge opportunity to welcome new users to crypto

Gaming & metaverse related NFT activity on Ethereum



Source: Dune Analytics, Nansen. Data is as of 3/31/2023.

Consumers spent an estimated **\$67.9 billion** on digital in-game purchases in 2022.

717 new web3 games launched last year.

Web3 games generate **23x** more on-chain transactions than DeFi.

Source: Business Research, Footprint Analytics, DappRadar.

Web3 is experimenting with novel forms of community governance

Communities are driving public-goods funding for new projects

Decentralized Autonomous Organizations (DAOs) funded more than **\$60 million** in grants.

DAOs hold roughly **\$10 billion** in liquid treasury assets.

Governance is moving beyond simple token voting

Delegation and **councils** are becoming more common.

DAOs are exploring new **checks and balances** to prevent governance attacks.

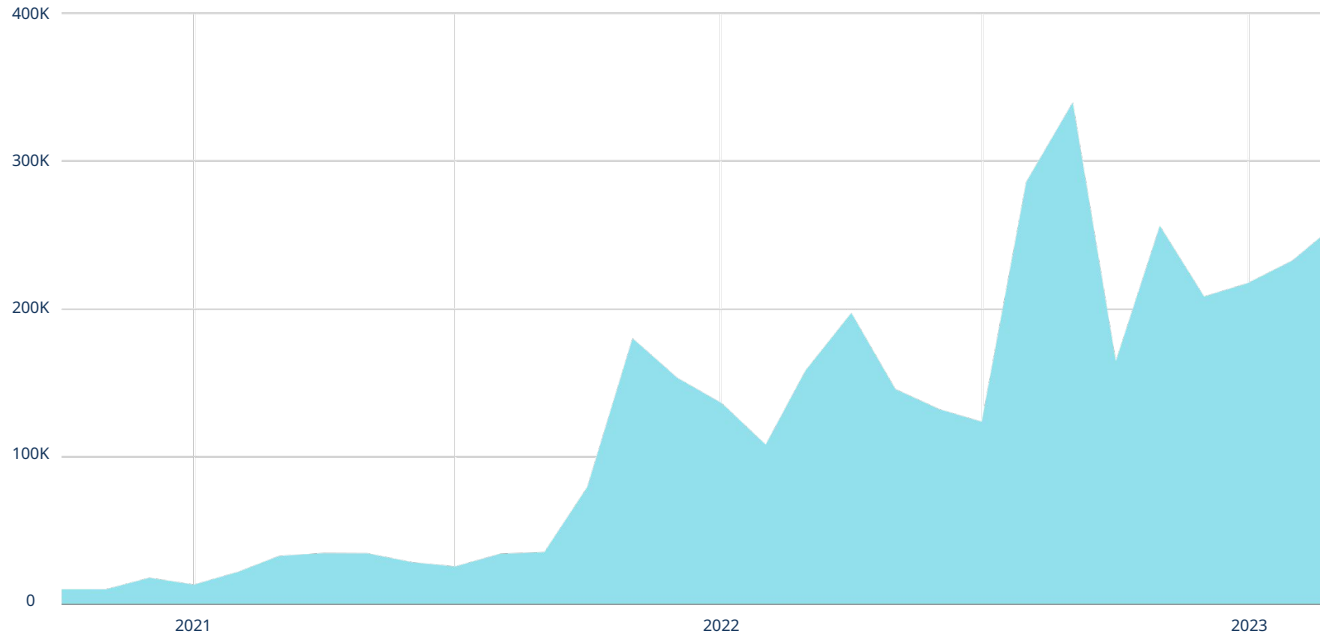
DAOs are becoming formal legal entities

Projects are using legal entities such as **LLCs, LCAs, UNAs**, and **Foreign Foundations**.

Legal entities enable DAOs to fulfill **tax obligations** and **regulatory reporting requirements**.

Participation in DAO governance is growing

DAO governance proposals - Monthly active voters (via Snapshot*)



All time stats (Snapshot)

13.0M

Total
votes

1.9M

Unique
voters

78K

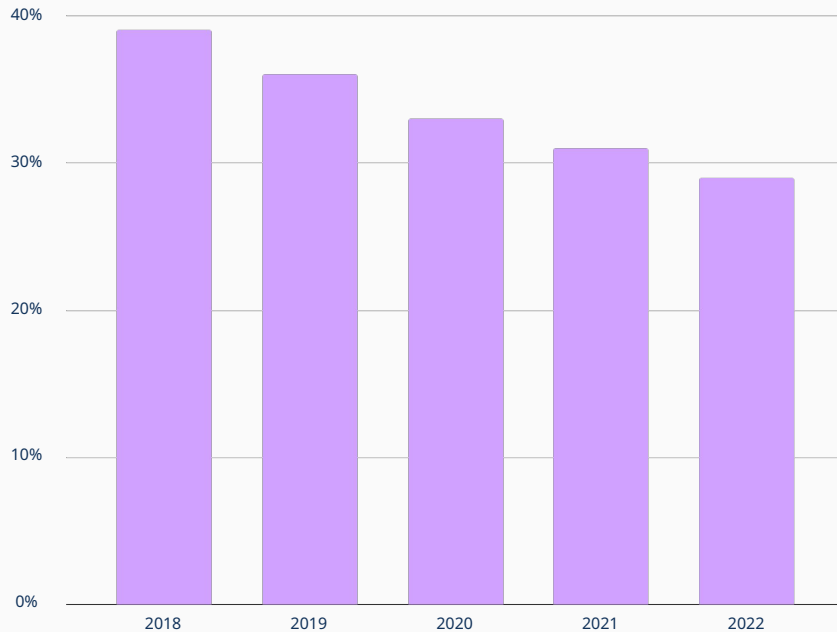
Unique
proposals

Source: Snapshot (via Flipside Crypto). Data is as of 3/31/2023.

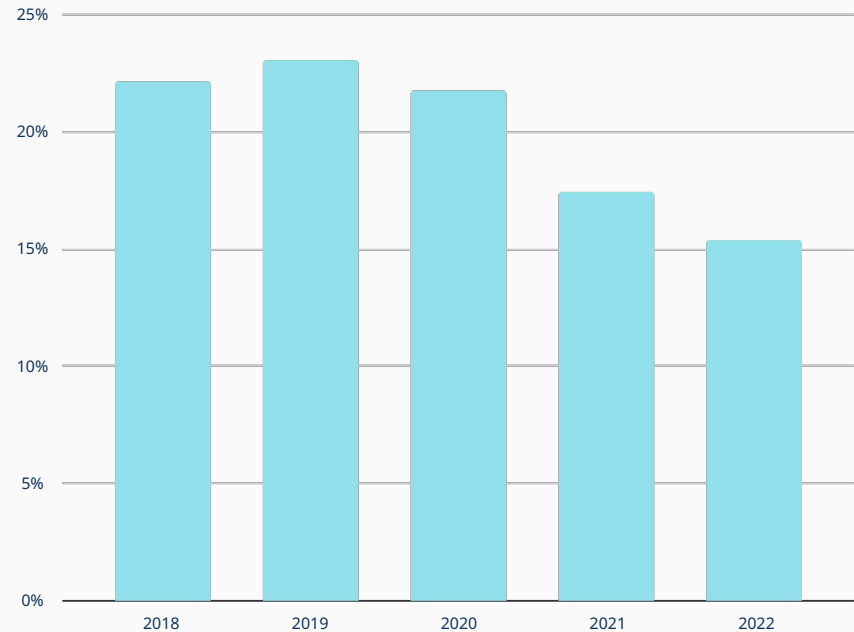
*Snapshot is a popular platform used for DAO governance proposals and voting.

The U.S. is losing its lead in web3

% of crypto developers in the United States



Top crypto websites* - % of traffic from the United States



How policy and regulation impacts U.S. crypto, our views:

- 1/ **Banning new business models or technologies undermines American values** and drives innovation and jobs elsewhere.
- 2/ Agency guidance or new legislation that establishes **appropriate, clear rules will protect consumers** and help the web3 industry flourish.
- 3/ Legal businesses and their customers **deserve access to financial services and lawful protections**, from banking relationships to data privacy.
- 4/ **Businesses should be the focus of regulation**, whereas decentralized, autonomous software should not. See: "[Regulate Web3 Apps, Not Protocols.](#)"

See more on our policy principles at a16zcrypto.com/policy.

Regulation is being debated

Proposed market legislation could provide needed clarity

Responsible Financial Innovation Act / Sens. Lummis R-WY & Gillibrand D-NY

Digital Commodities Consumer Protection Act / Reps. Stabenow D-MI & Boozman R-AR

Digital Commodity Exchange Act / Reps. Thompson R-PA, Khanna D-CA, Soto D-FL, & Emmer R-MN

Courts are set to decide many impactful cases

SEC **Ripple** Enforcement Action

Treasury **Tornado Cash** Civil Actions

CFTC **Ooki DAO** Enforcement Action

CeFi Bankruptcy Actions (e.g. **Voyager, Celsius, FTX**)

SEC **Wahi** Enforcement Action (Coinbase insider trading)

CFTC/SEC Eisenberg Enforcement Action (**Mango Markets** fraud)

SEC **Terraform Labs/Do Kwan** Enforcement Action

Government and industry are actively engaging

White House Executive Order
Comment Letters & Reports

Pending rulemakings:

- **Proposed SEC Custody Rule**
- **FinCEN Unhosted Wallet & Travel Rules**
- **IRS Tax Rules and Form Changes**

+ Ongoing interactions between industry and government agencies

Bipartisan momentum is building

Digital assets, blockchain technology and cryptocurrencies have experienced tremendous growth in the past few years and offer substantial potential benefits if harnessed correctly. It is critical that the United States play a leading role in developing policy to regulate new financial products, while also encouraging innovation and protecting consumers.

.....
Senator [Kirsten Gillibrand](#) (D-NY)

America is at a once-in-a-generation inflection point: we have the opportunity to be the leader in the digital currency space and reap the benefits this leadership enshrines, or we can concede our leadership role to geopolitical adversaries who are eager to take the mantle as the 21st century's global heavyweight.

.....
Coinbase Founder & CEO [Brian Armstrong](#)

[V]ery interesting developments are happening in the digital asset space. In many emerging markets – like India, Brazil and parts of Africa – we are witnessing dramatic advances in digital payments, bringing down costs and advancing financial inclusion. By contrast, many developed markets, including the U.S., are lagging behind in innovation, leaving the cost of payments much higher.

.....
BlackRock Chairman & CEO [Larry Fink](#)

The future is here and crypto has the ability to decentralize control and empower each and every one of us.

.....
House Majority Whip [Tom Emmer](#) (R-MN)

Crypto is the future. It could enable the poor to make payments & remittances without long delays and high fees. It could enable artists & musicians to earn a living. It could challenge the concentrated power of Big Tech & Wall Street.

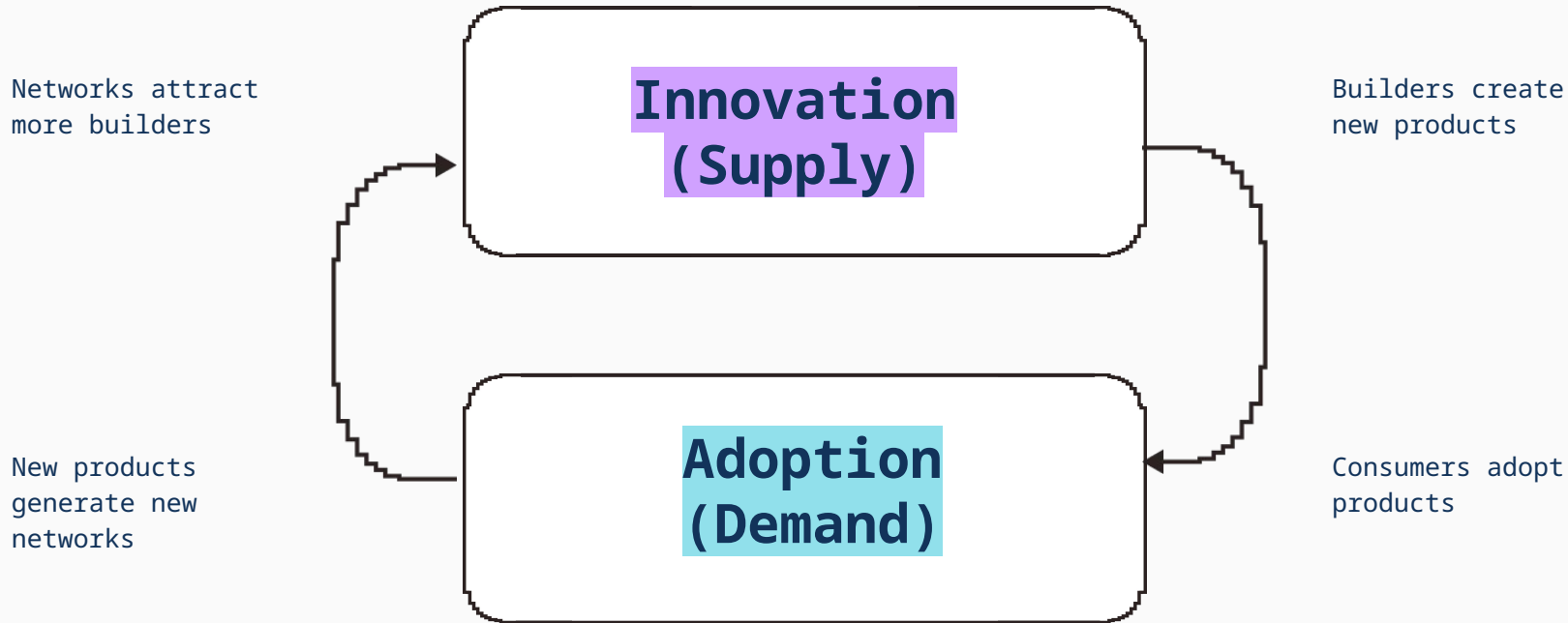
.....
Representative [Ritchie Torres](#) (D-NY)

[W]e must: support technological innovation that promotes the responsible development and use of digital assets...and reinforce our leadership in the global financial system in order to maintain U.S. competitiveness.

.....
Representative [French Hill](#) (R-AK)

MARKET METRICS

Tech markets are a function of supply and demand, or *innovation* and *adoption*



INNOVATION INDICATORS

Developers, products, and research drive *innovation*

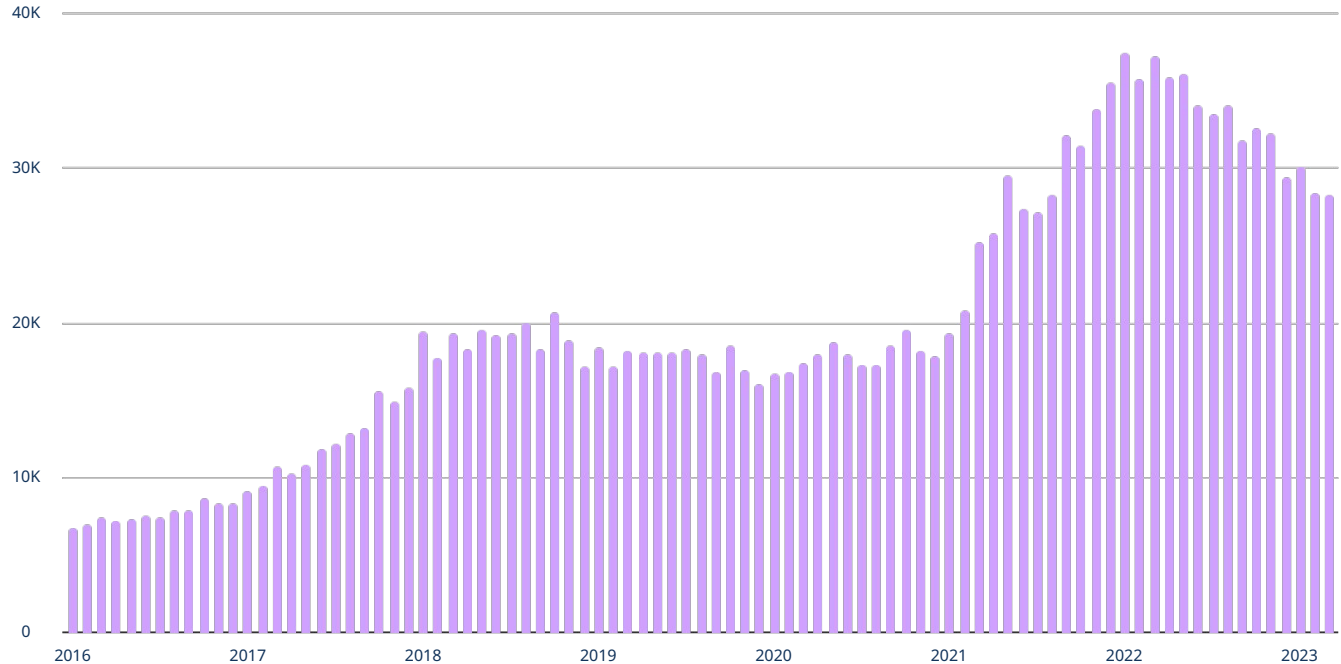
Supply-side KPIs

- 1 ACTIVE DEVELOPERS
- 2 INTERESTED DEVELOPERS
- 3 CONTRACT DEPLOYERS
- 4 VERIFIED SMART CONTRACTS
- 5 DEVELOPER LIBRARY DOWNLOADS
(WEB3+ETHERS)
- 6 ACADEMIC PUBLICATIONS
- 7 JOB SEARCH INTEREST

Bull markets attract new developers who tend to stick around

Active Developers

Number of unique GitHub users who have committed to or forked a public crypto repository during the month.

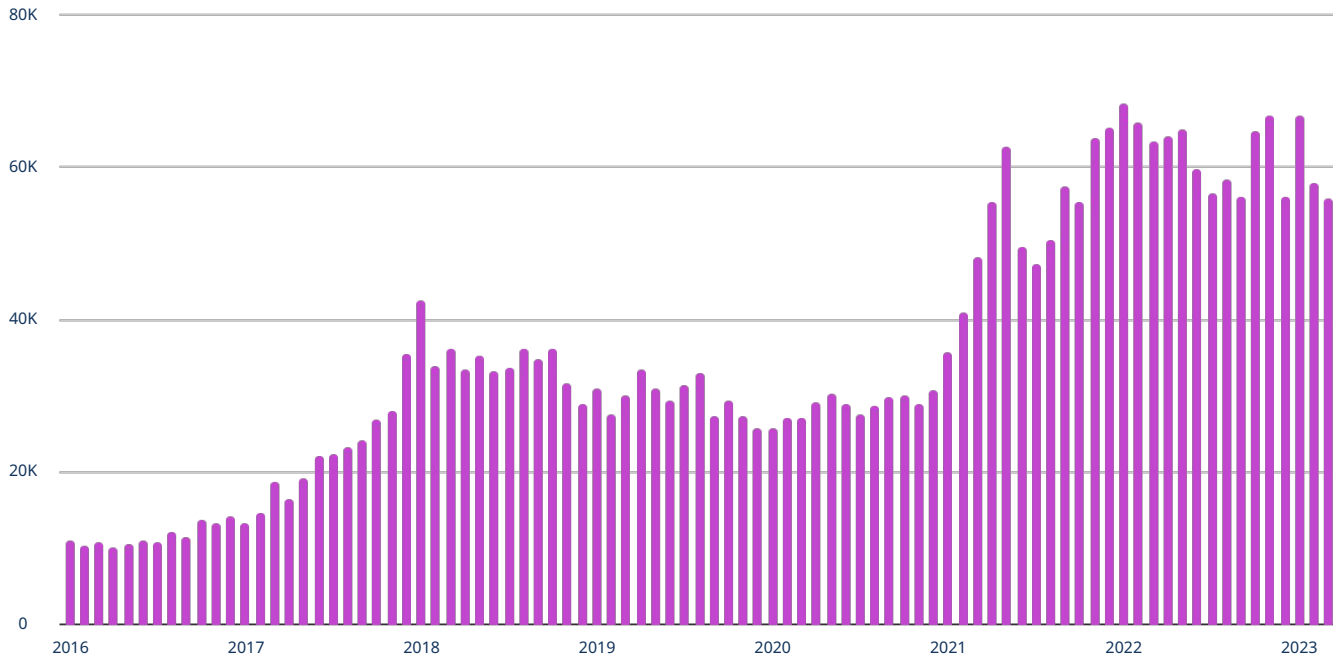


Source: Github and Electric Capital (<https://github.com/electric-capital/crypto-ecosystems>).

More than 50K developers interact with crypto-related Github repositories monthly

Interested Developers

Number of unique GitHub users who have starred, committed to or forked a public crypto repository, during the month.

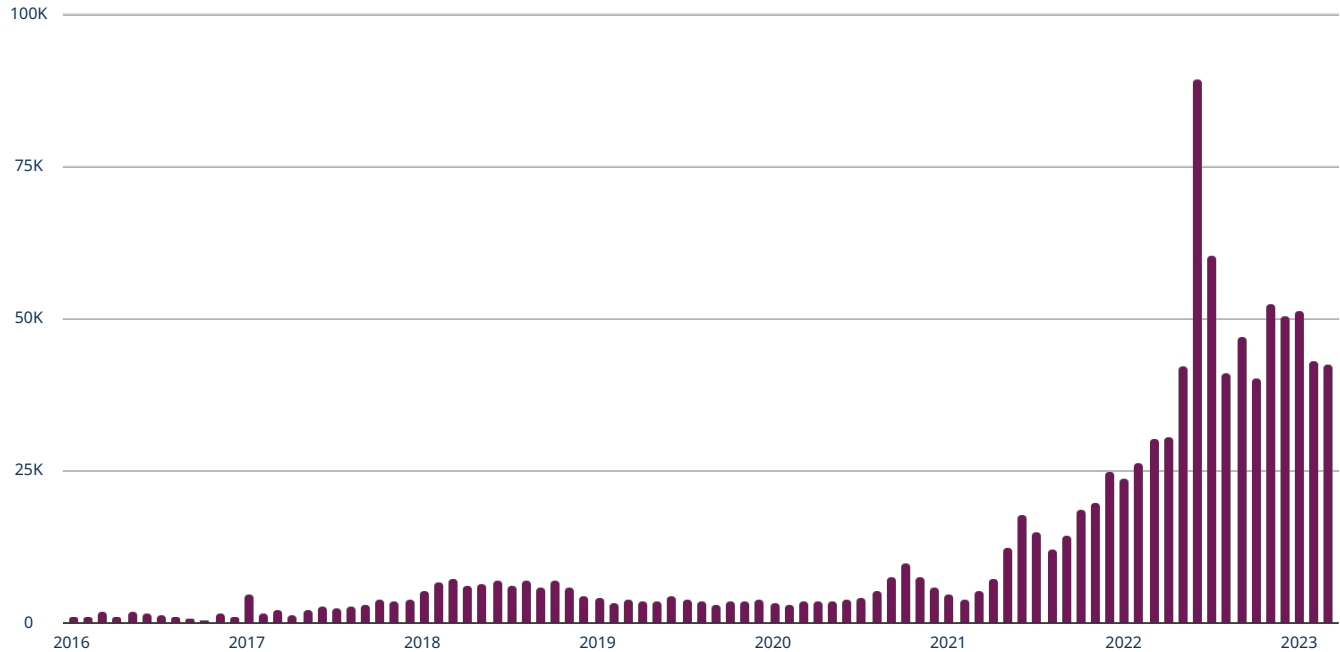


Source: Github and Electric Capital (<https://github.com/electric-capital/crypto-ecosystems>).

NFT activity and better tooling have driven exponential growth in contract deployers

Contract Deployers

Number of unique addresses deploying smart contracts on all tracked blockchains during the month (EOAs* only) .



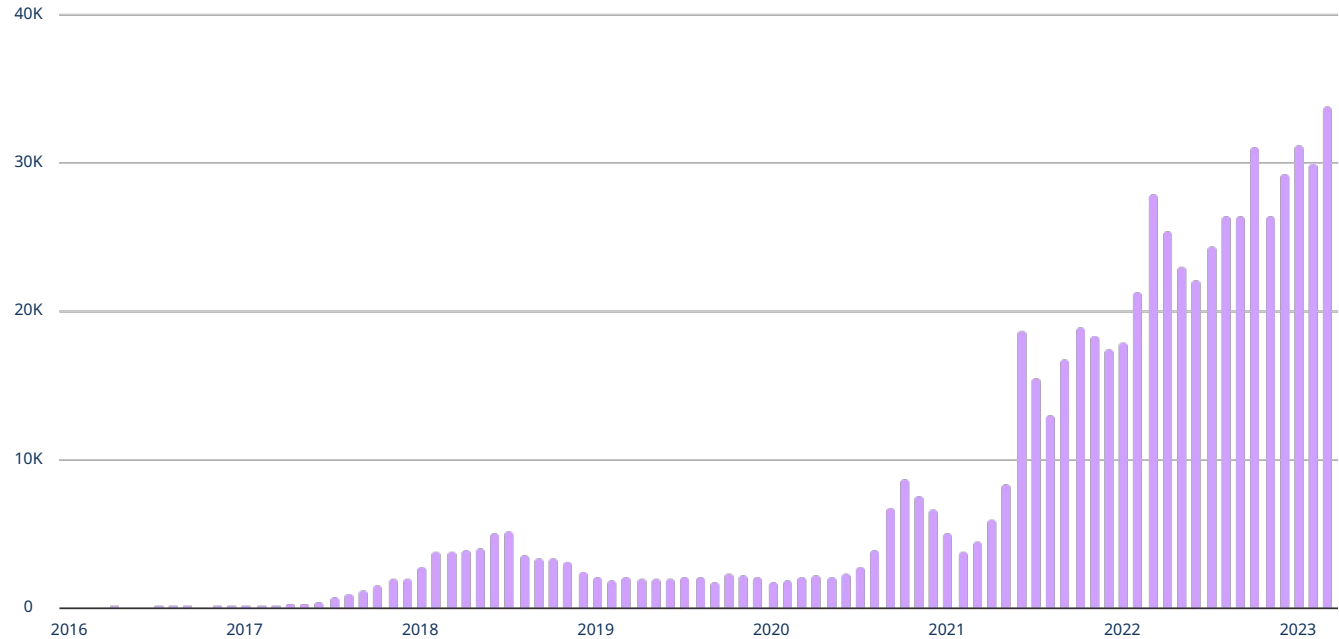
Source: Nansen Query. Tracked blockchains include Ethereum, Polygon, Solana, Avalanche, Fantom, Celo, Optimism, and Arbitrum.

*EOAs are "externally owned accounts" - user owned and controlled crypto wallets.

Verified smart contracts are at an all-time high, indicating a robust pipeline of product launches

Verified Smart Contracts

Number of smart contracts verified* during the month.



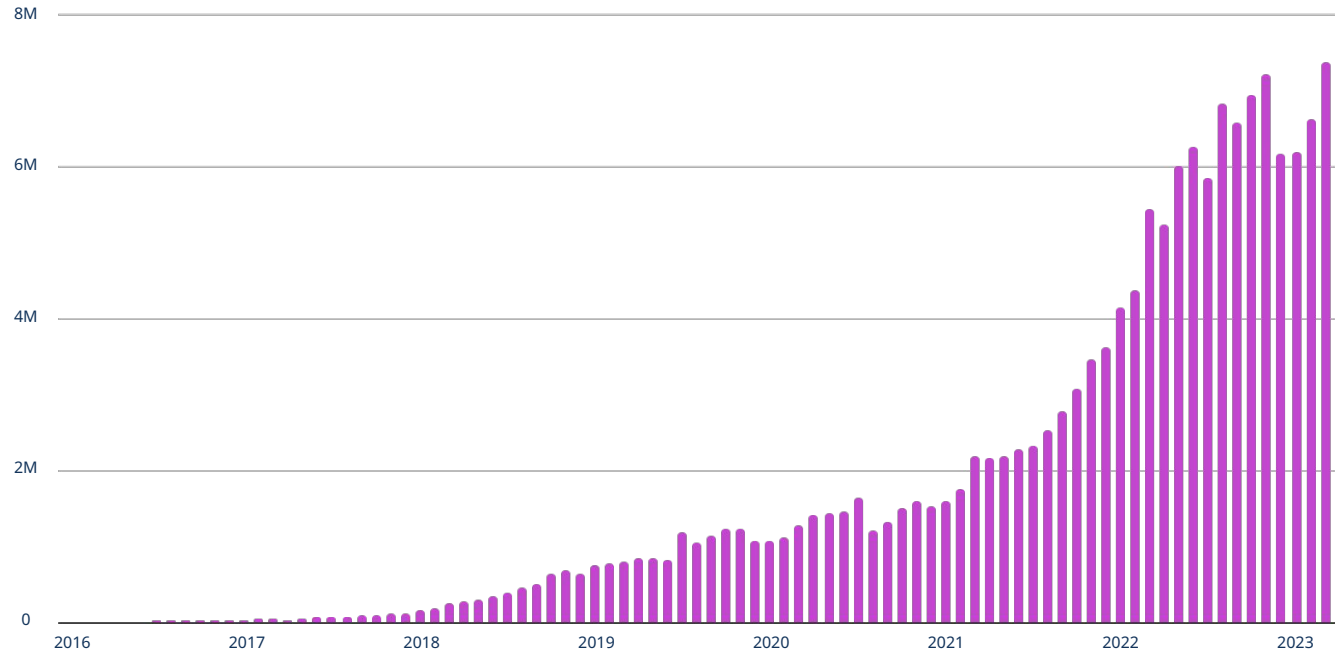
Source: Etherscan and other block explorers from Polygon, Fantom, Celo, Arbitrum, and Optimism.

*Contract verification assures that the published contract code is the same code running at the contract address.

Core crypto developer library usage is increasing, highlighting steady growth in the dev community

Developer Library Downloads (web3+ethers)

Number of npm downloads for web3.js and ethers.js developer libraries during the month.

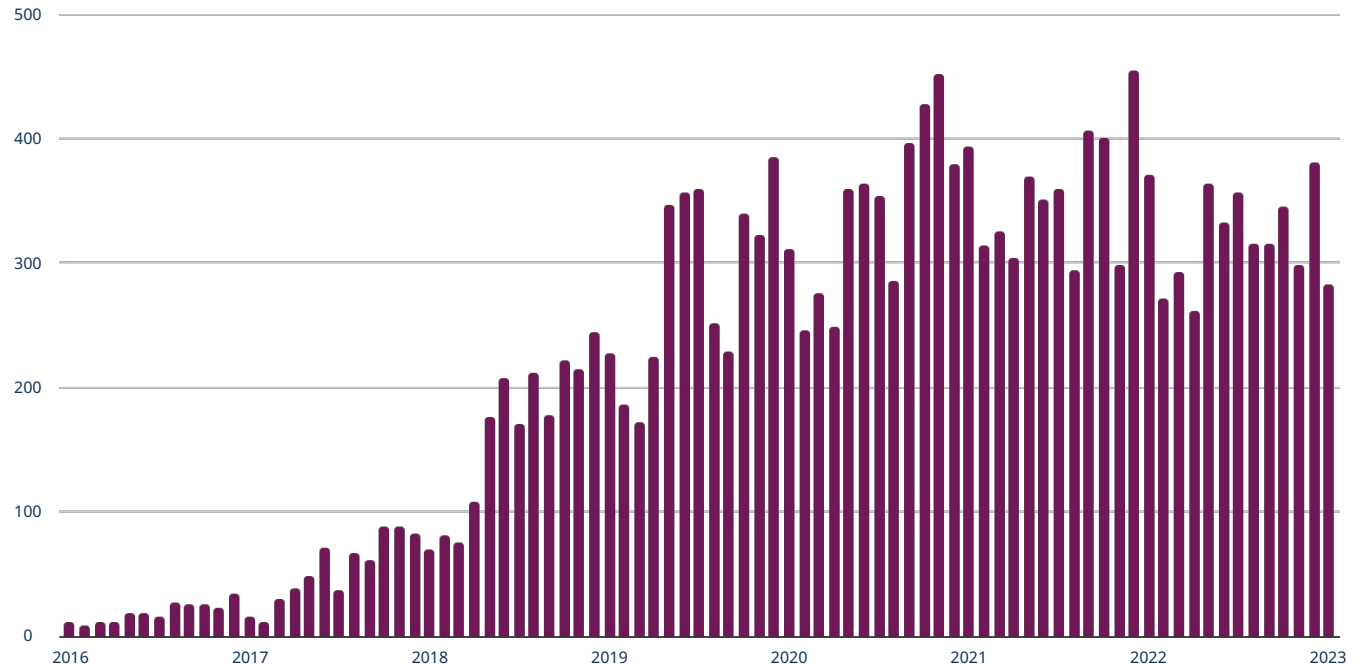


Source: npm.

Crypto has become a significant area of academic research

Academic Publications

Number of crypto-related academic publications released during the month. Based on a keyword search for "Cryptocurrency", "Blockchain", "Bitcoin", and "Ethereum".

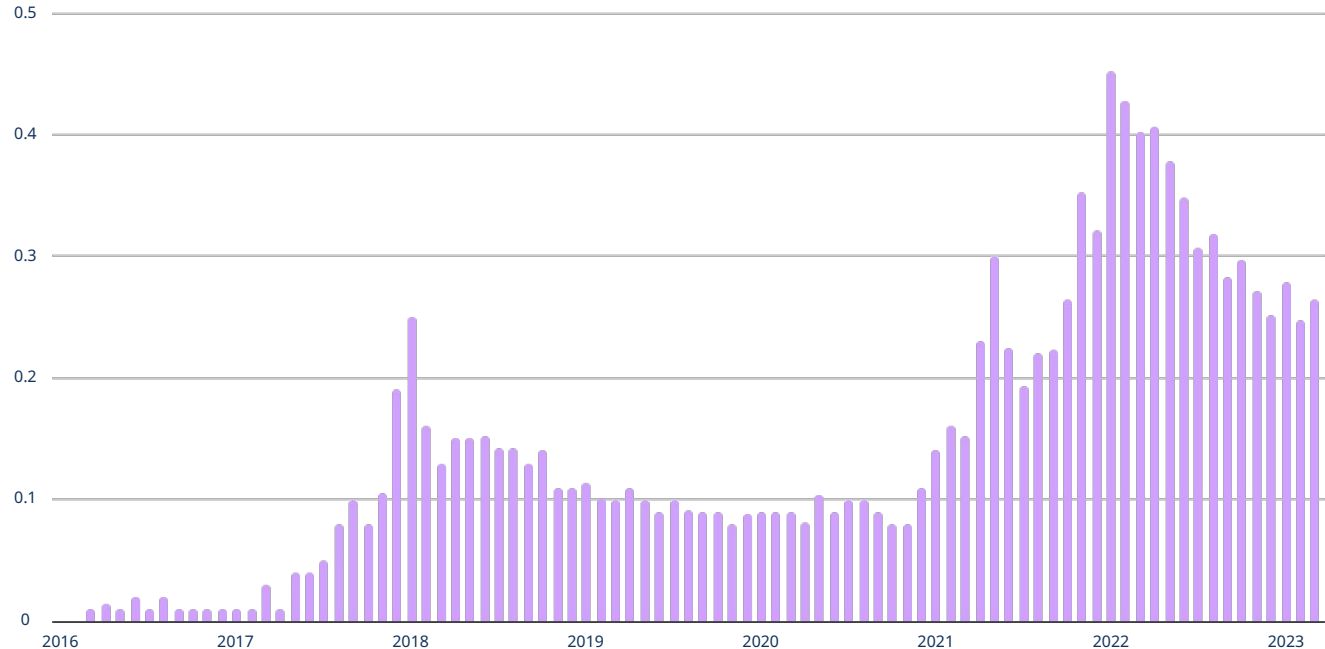


Source: dblp. Chart includes data through Jan 2023 due to 2-month lag in reporting source data.

Rising crypto prices generate interest in crypto-related jobs

Job Search Interest

Aggregate interest over time score of worldwide searches for "blockchain jobs", "crypto jobs", "cryptocurrency jobs", and "web3 jobs".



Source: Google Trends. Interest Over Time scores are denormalized (and thus unbounded) using a method called *Google Trends Anchor Bank*.



ADOPTION INDICATORS

Consumer uptake drives *adoption*

Demand-side KPIs

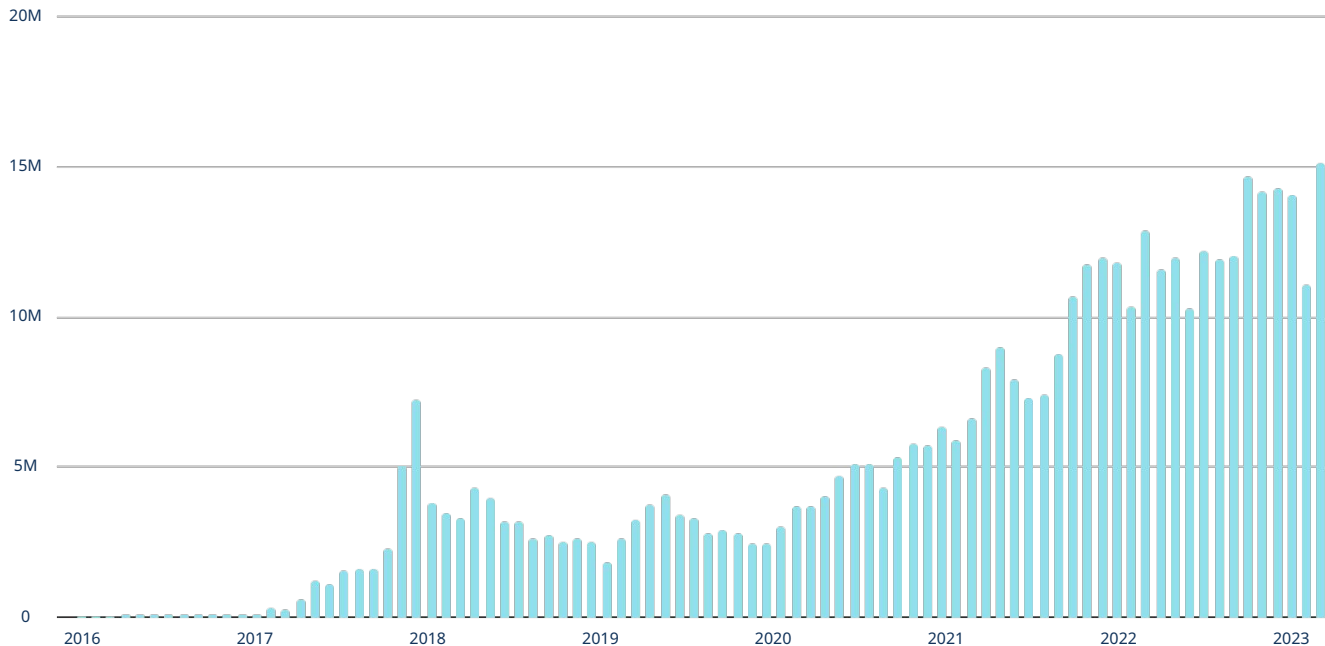
- 1 ACTIVE ADDRESSES
- 2 TRANSACTIONS
- 3 TRANSACTION FEES PAID
- 4 MOBILE WALLET USERS
- 5 DEX VOLUME
- 6 NFT BUYERS
- 7 STABLECOIN VOLUME



Active addresses are growing steadily as web3 adoption increases

Active Addresses

Number of unique active (sending) addresses across all tracked blockchains during the month.

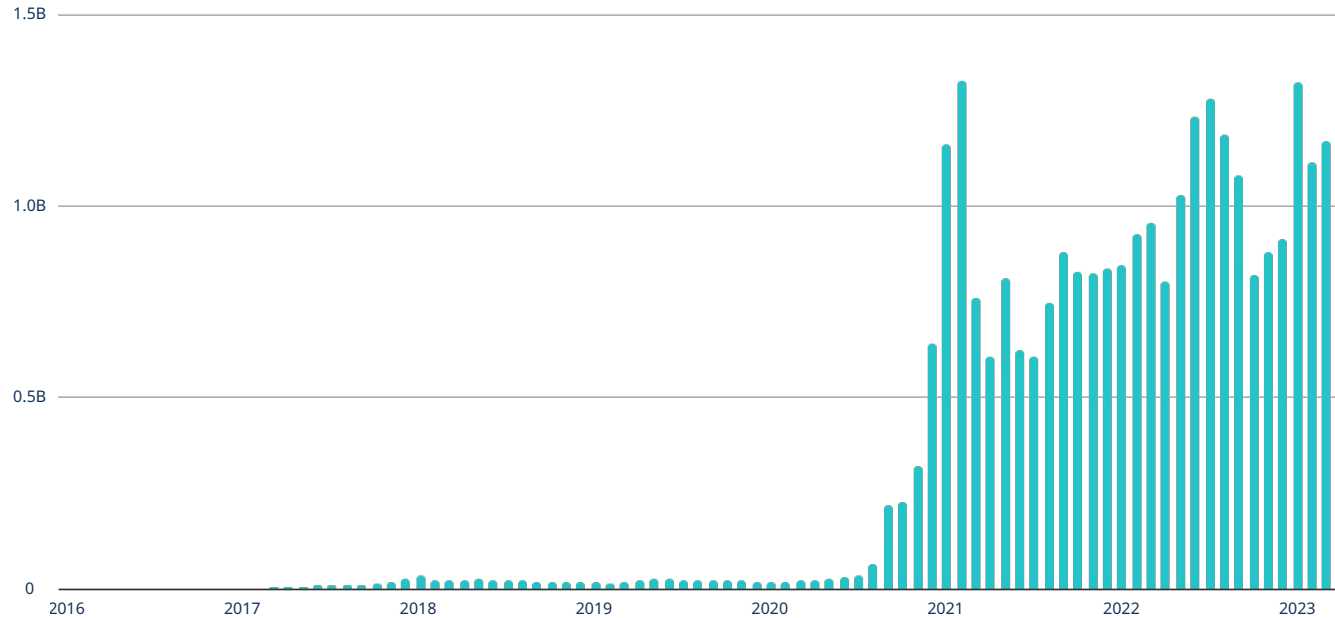


Source: Nansen Query. Tracked blockchains include Ethereum, Polygon, Solana, Avalanche, Fantom, Celo, Optimism, and Arbitrum.

Blockchain transactions exploded as scaling technologies reduced transaction fees

Transactions

Number of successful transactions across all tracked blockchains during the month.

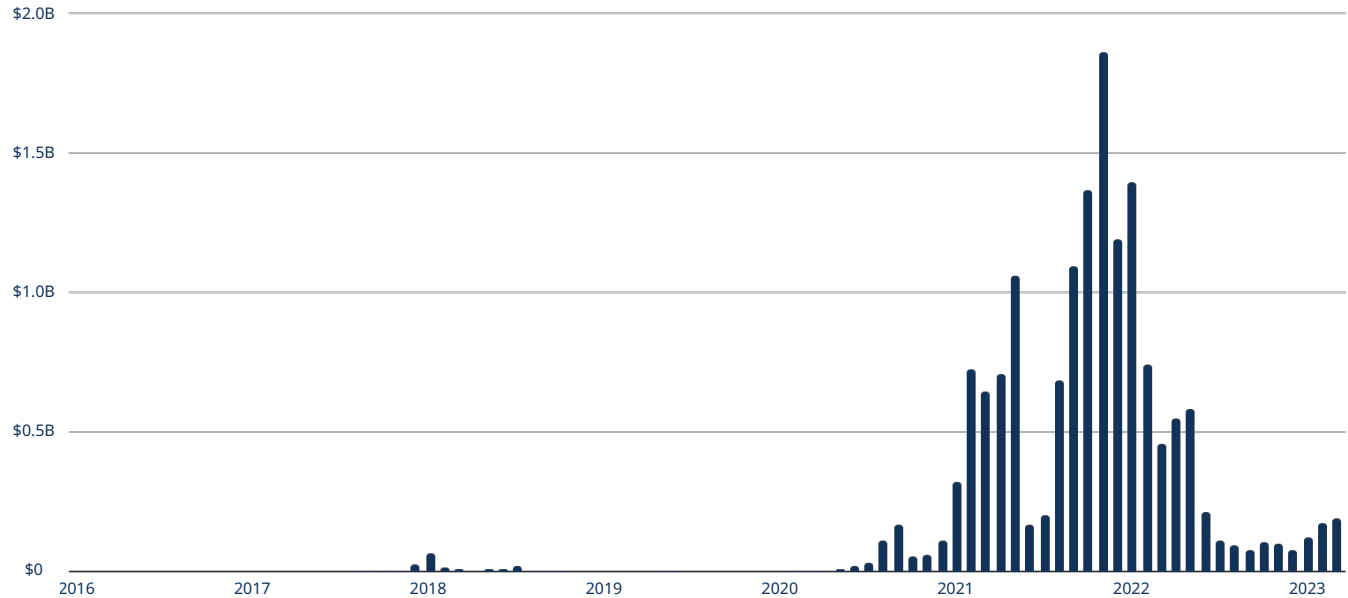


Source: Nansen Query. Tracked blockchains include Ethereum, Polygon, Solana, Avalanche, Fantom, Celo, Optimism, and Arbitrum.

Fees increase as demand rises, but decrease as scaling tech supplies more blockspace

Transaction Fees Paid

Total transaction fees (denominated in USD) paid by users across all tracked blockchains during the month.



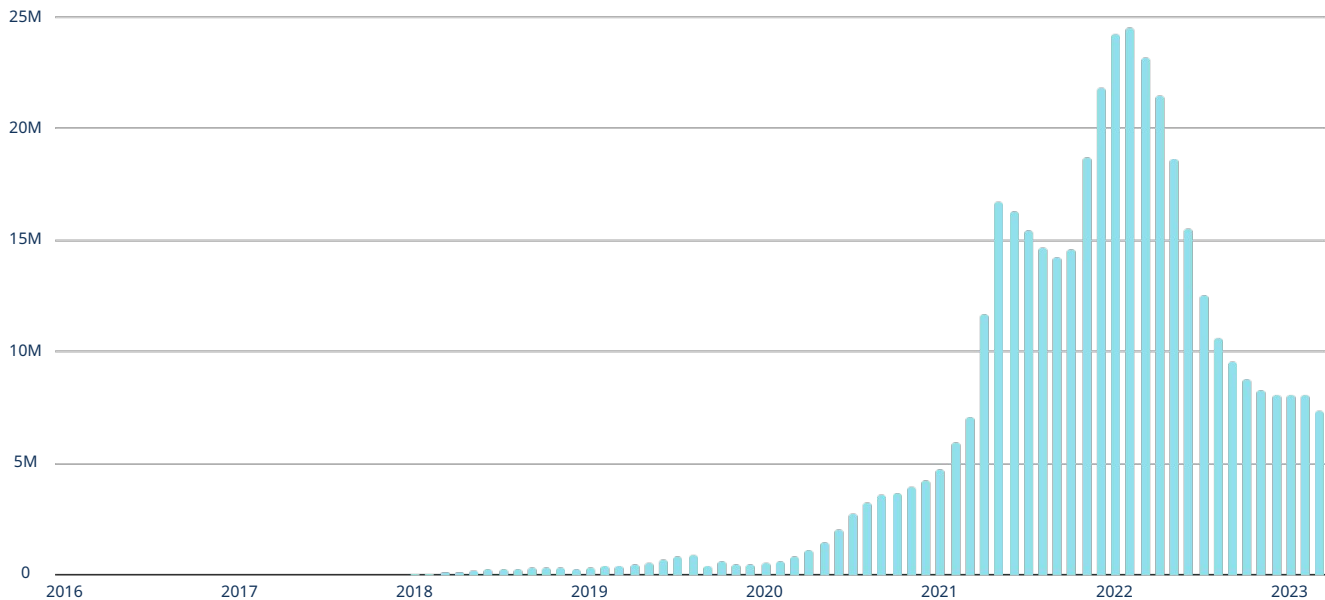
Source: Nansen Query. Tracked blockchains include Ethereum, Polygon, Solana, Avalanche, Fantom, Celo, Optimism, and Arbitrum.



The number of mobile wallet users has declined since early 2022

Mobile Wallet Users

Number of estimated mobile wallet users across all tracked mobile wallets during the month.



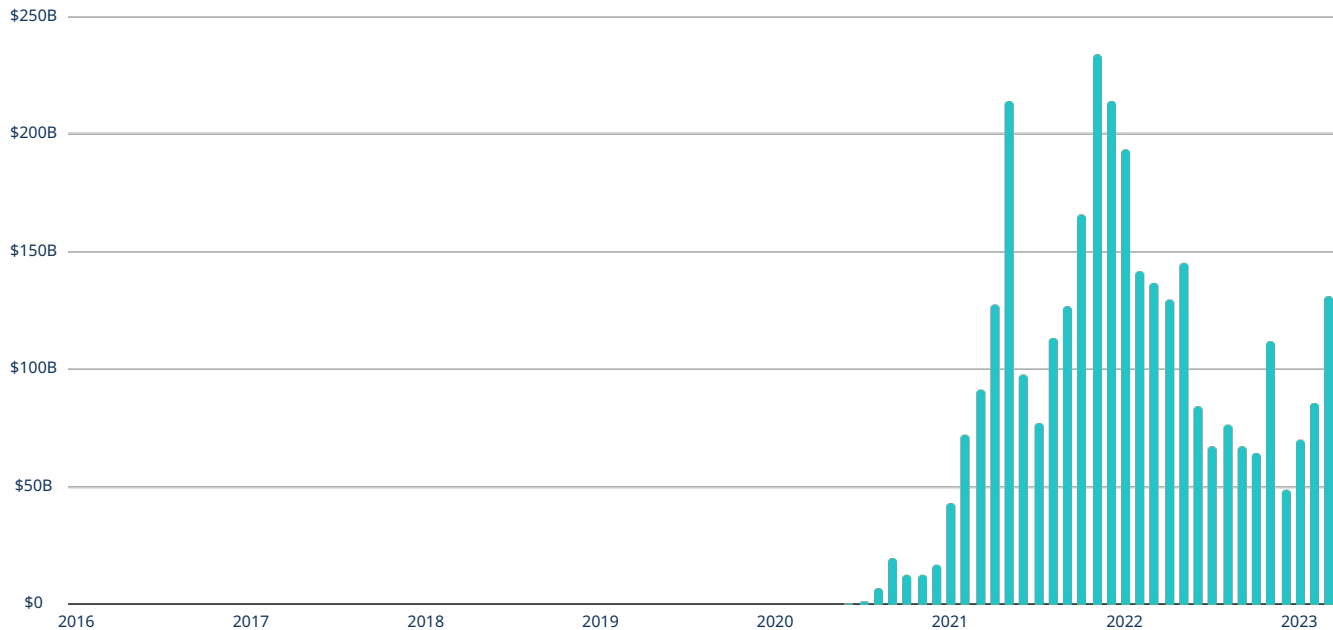
Source: Apptopia. Tracked mobile wallets include Argent, Coinbase Wallet, Crypto.com DeFi Wallet, Exodus, Glow, Ledger Live, MetaMask, MEW Wallet, Phantom, Rainbow, Ronin Wallet, Trust Wallet, Valora, and Zerion.



Decentralized exchanges are trading over \$100B monthly amid market volatility

DEX Volume

Total on-chain volume on decentralized exchanges (denominated in USD) during the month.

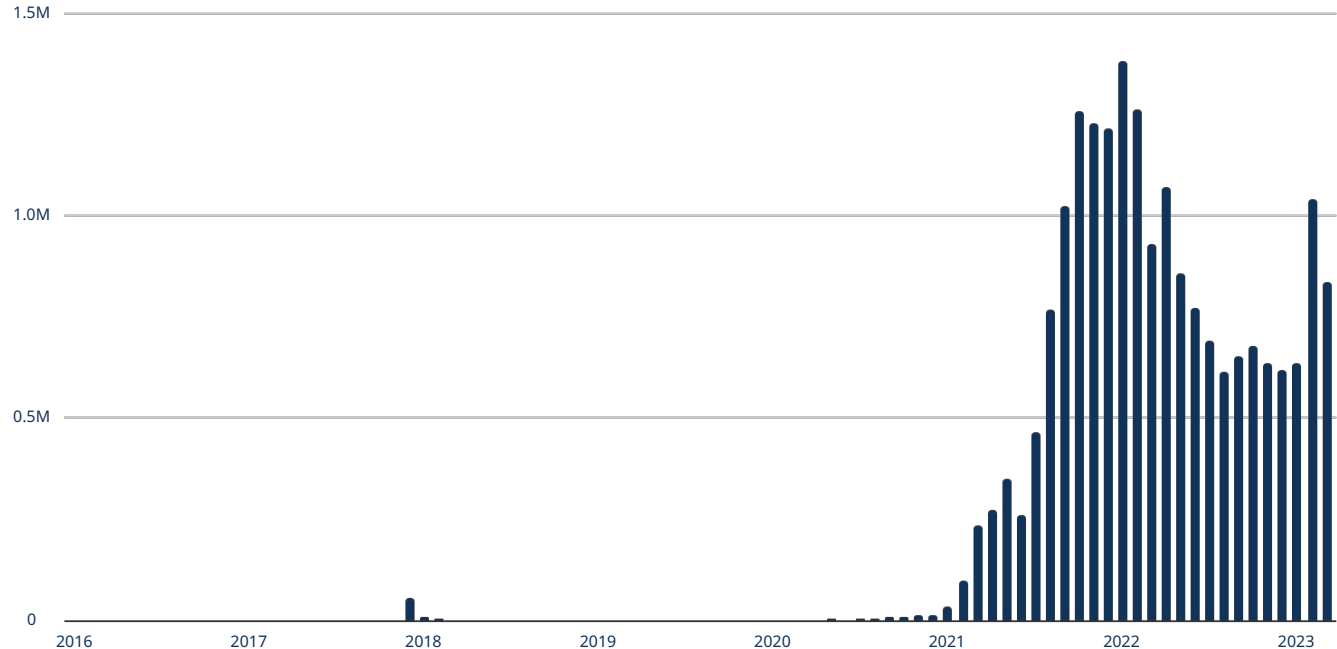


Source: Defi Llama.

After a speculative period, the number of NFT buyers appears to be rising again

NFT Buyers

Number of unique on-chain addresses that made at least 1 NFT purchase during the month.



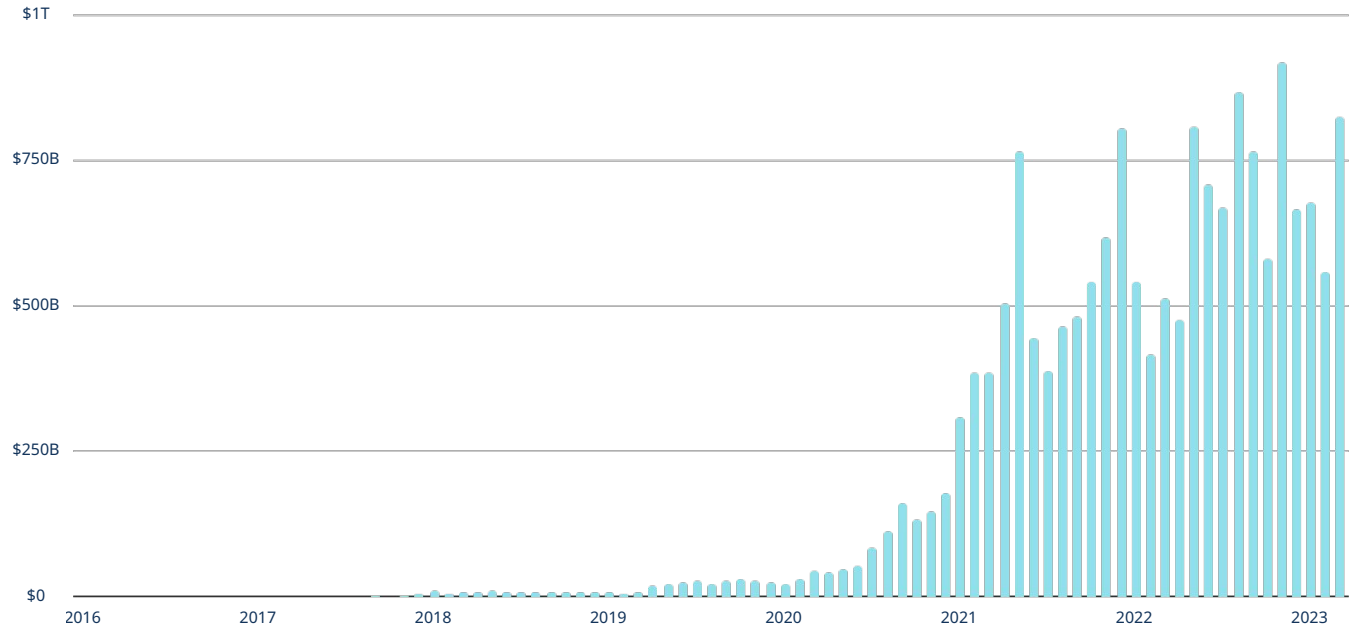
Source: CryptoSlam.



Despite market fluctuations, the demand for stablecoins remains high

Stablecoin Volume

Total on-chain stablecoin transaction volume during the month.



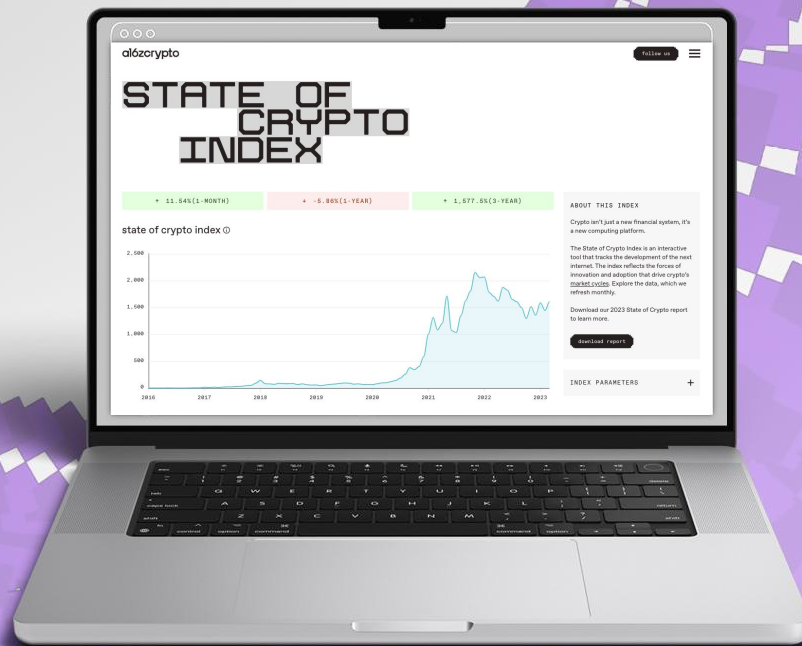
Source: Coin Metrics.



STATE OF CRYPTO INDEX

Introducing the State of Crypto Index

An interactive tool to track the *innovation* and *adoption* of the next internet



The **State of Crypto Index** helps visualize the balance of *supply* and *demand* in the crypto industry.

The State of Crypto Index measures market growth

The underlying metrics track the market's supply (innovation) and demand (adoption)

Active Developers

Interested Developers

Contract Deployers

Verified Smart Contracts

Developer Library Downloads

Academic Publications

Job Search Interest

Innovation
Indicators

Active Addresses

Transactions

Transaction Fees Paid

Mobile Wallet Users

DEX Volume

NFT Buyers

Stablecoin Volume

Adoption
Indicators

The State of Crypto Index is calculated based on the weighted average monthly growth of all included metrics.

The index is expressed as a percentage change since January 2016 under certain assumptions.

The State of Crypto Index is interactive

Our default values represent just one of many views of the market

■ INNOVATION INDICATORS (SUPPLY)

Active developers

[view data >](#)

WEIGHT

15%



THRESHOLD

5,000

Interested developers

[view data >](#)

WEIGHT

10%



THRESHOLD

10,000

Contract deployers

[view data >](#)

WEIGHT

5%



THRESHOLD

1,000

Verified smart contracts

[view data >](#)

WEIGHT

5%



THRESHOLD

10,000

You can manipulate the *weights* and *thresholds* according to your preferences.

Weights determine how much impact each category has on the overall calculation.

Thresholds determine the minimum value for a category to start contributing to the index.

STATE OF CRYPTO INDEX

↑ 11.54% (1-MONTH)

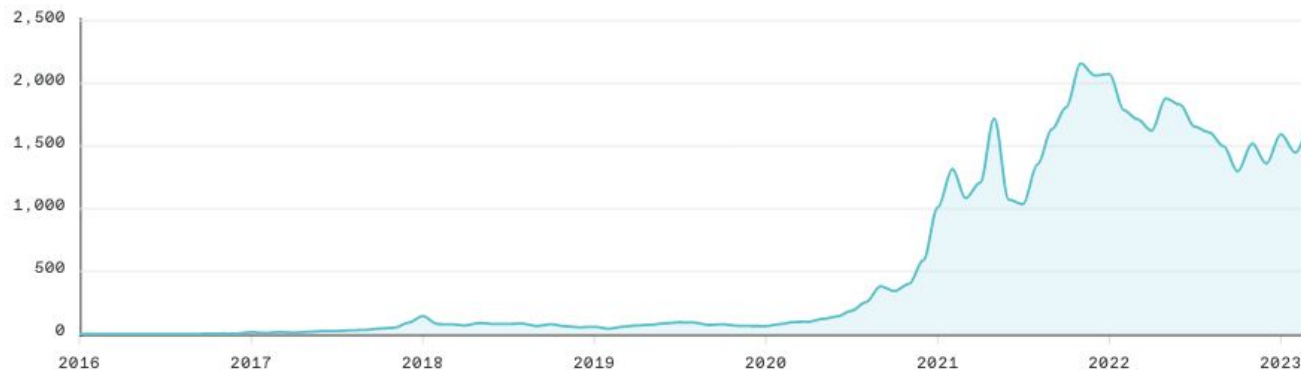
↓ -5.86% (1-YEAR)

↑ 1,577.5% (3-YEAR)

The State of Crypto Index is updated monthly.

Includes the State of Crypto Index, Innovation Indicators, Adoption Indicators, and all underlying metrics.

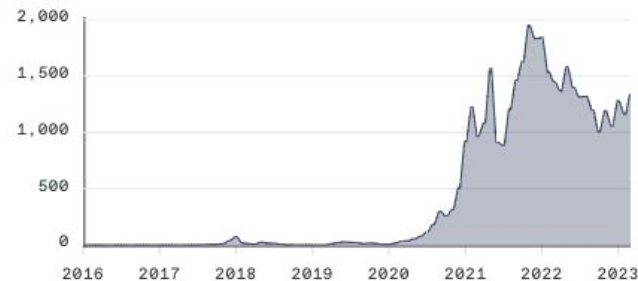
state of crypto index ⓘ



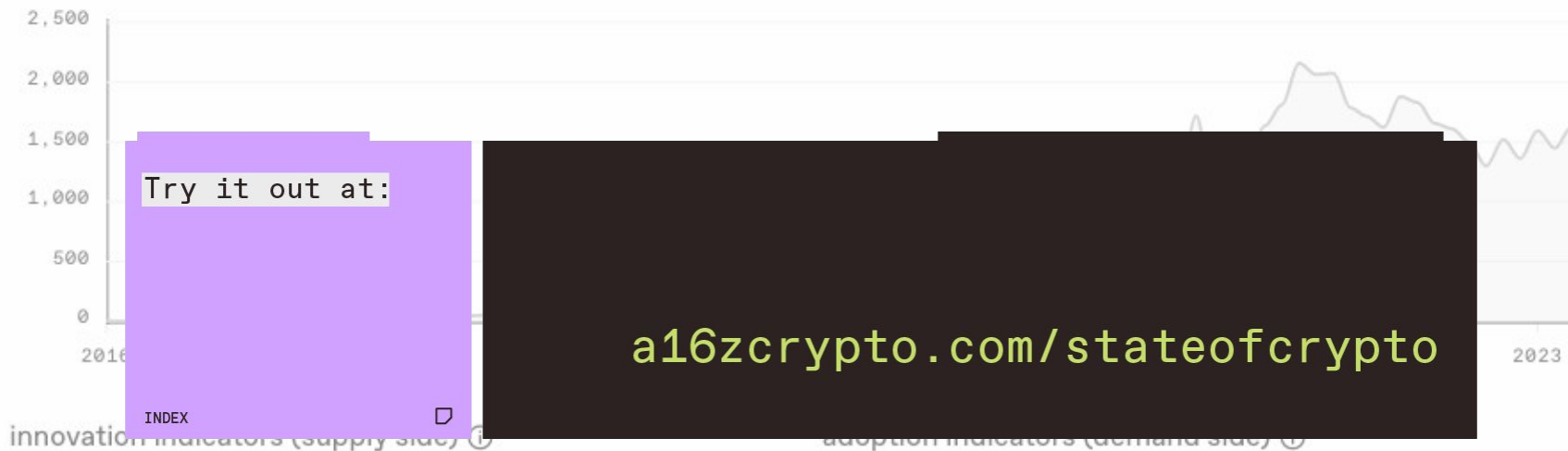
innovation indicators (supply side) ⓘ



adoption indicators (demand side) ⓘ

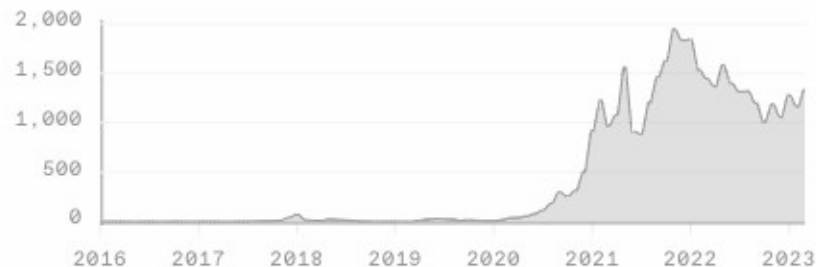
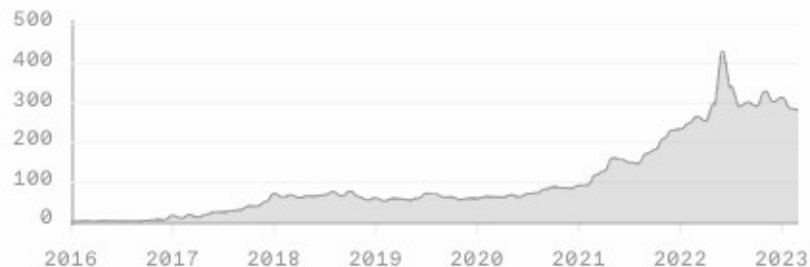


state of crypto index ⓘ



innovation indicators (supply side) ⓘ

adoption indicators (demand side) ⓘ

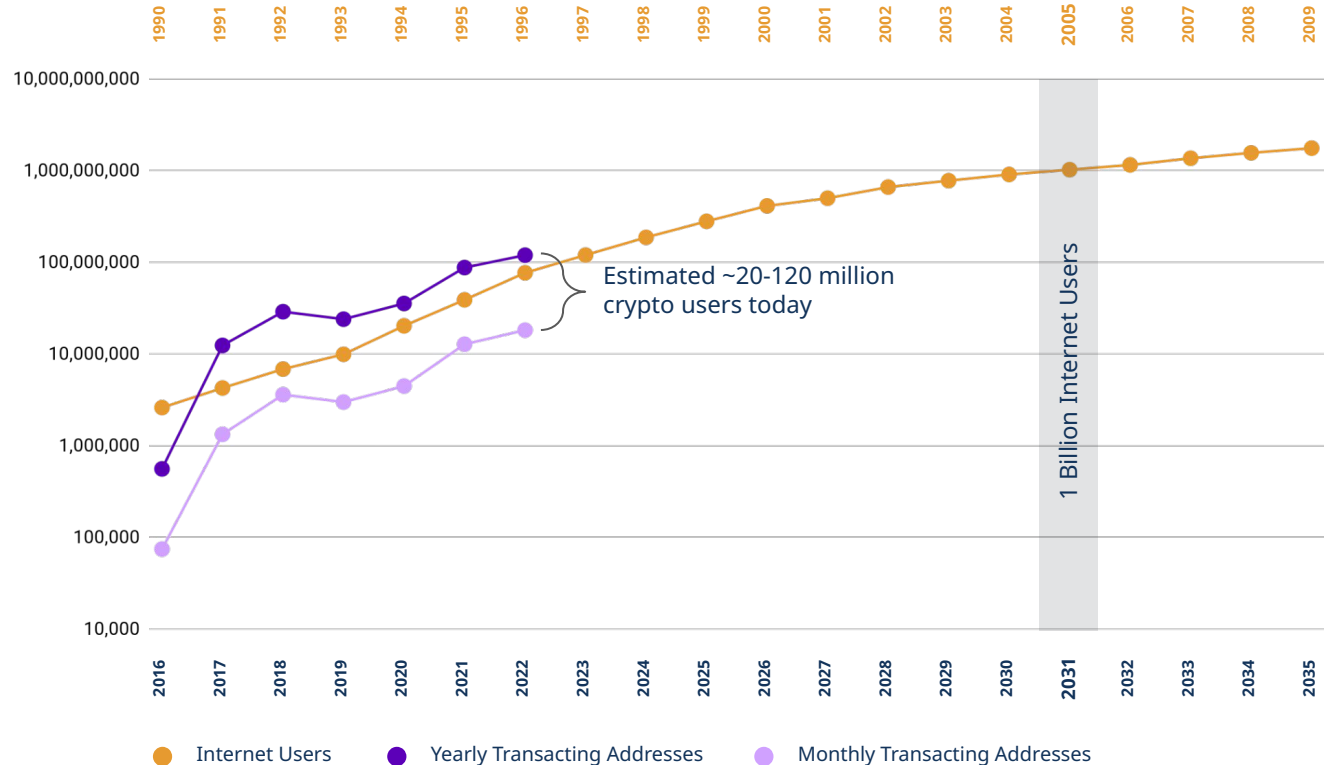


WHAT'S NEXT

It is still early days

Internet users vs. unique active addresses (log scale)

Source: World Bank, Dune Analytics. Includes the set of unique public keys with sending transactions across popular EVM chains, including L2s.



What we're expecting

Some thoughts for 2023 and beyond...



Some of the most **iconic web3 products** will be built during financial downturns in crypto.



Smart contract security will improve as people adopt techniques like **formal verification and symbolic testing**.



Developer adoption of **zero knowledge tech** will accelerate.



The internet will continue **consolidating into Big Tech**, underscoring the importance of web3.



"On-chain" games will rise in popularity.



There will be further advancement in **hardware optimized for zero knowledge proofs**.



Concerns about social media giants will heighten, highlighting the **need for decentralized social networks**.



"Light" clients will accelerate the adoption of **mobile web3 frontends**.



DAOs will run more experiments with **new forms of community governance**.



Governments will pass **bipartisan crypto regulation**.



As blockspace becomes more affordable, **non-speculative uses of tokens** will proliferate.



Hiring, treasury management, and sustainable funding will become a major focus for DAOs.

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