1kx Onchain Revenue Report

H1 2025

From Mania to Maturity

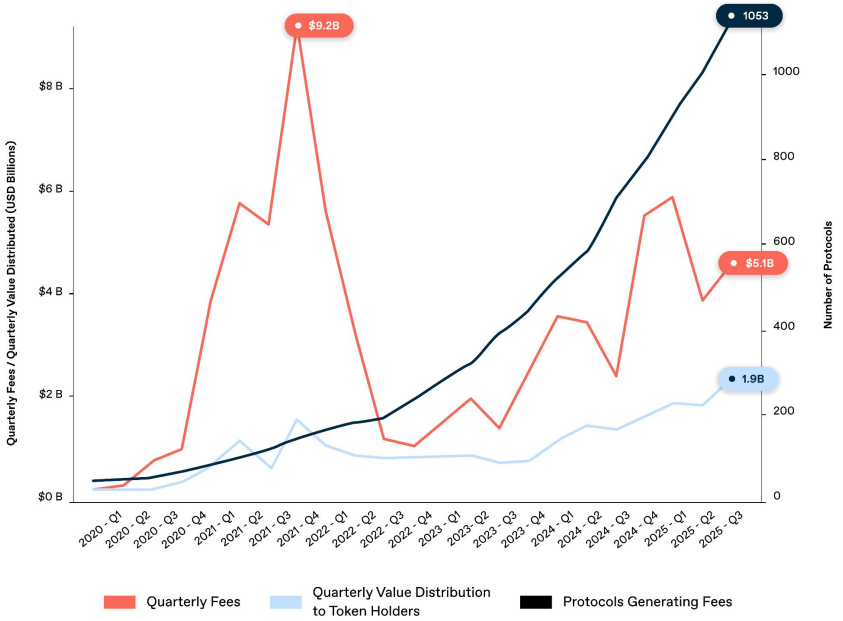
This report - the first to aggregate onchain fee data across 1,000+ protocols - analyzes sector trends, revenue drivers, fee allocations, and valuation implications. User paid fees remain the clearest signal of protocol value creation, though context is key:

At the 2021 bull-market peak, quarterly fees reached $9.2B, dominated by a few proof-of-work blockchains; Ethereum alone generated ~40% of those, as speculation made users insensitive to high transaction costs.

By 2025, transaction costs have fallen about 90% as networks optimized for efficiency, broadening adoption and allowing applications to monetize sustainably on blockchain rails. Regulatory barriers to investor participation are also easing.

Together, these shifts mark a more mature phase of digital asset monetization - one where growth in protocol value creation and investability increasingly converge: As the light blue line indicates: allocations to token holders are at an all time high, showing that the efficiency gains allow for distribution of income. Hence, this is the time for investors to pay attention to the maturing monetization of protocols.

Onchain fees, value distributed and protocols monetizing



Key Takeaways/Trends

1 Onchain Revenue Becomes **$20 Billion** Economic Powerhouse

2 **DeFi Dominates** Onchain Earnings in 2025

3 **Maturing blockchain technology** has led to a reduction in transaction fees, paving the way for **explosive growth in applications** at 126% YoY

4 Asset prices are an obvious revenue driver, but more **cost-efficient infrastructure is now moving the needle as well**

5 While the **top 20 protocols drive 70%** of revenue, innovators can disrupt incumbents with **unprecedented velocity**

6 Though **applications demonstrate greater causality between revenue and valuation** than **blockchains**, the latter still **dominates market cap**

7 **Tokenization, DePIN, Wallets and Consumer** are the high-growth areas to watch

8 With further regulatory tailwinds, **2026 onchain fees are projected to reach 60% YoY growth at $32+ Billion**, all of which is attributable to application growth

Scope: Onchain vs. Offchain

This report primarily focuses on onchain fees[1] directly paid by users for services such as transaction fees or trading fees. Hence, we exclude:

- **Offchain fees** not transparently linked to onchain activity (e.g. CEX trading fees[2], Marketing or consultation fees), and
- **Other income** related to Blockchain ecosystems is not directly paid by end users (e.g., protocol rewards, staking yields, or interest income from reserve assets)

Our focus is on aggregate fee figures, key trends, and underlying drivers across the ecosystem. Topics such as value accrual to token holders or protocol treasuries are only briefly discussed. Profitability and cost structures are outside the scope of this edition and may be addressed in future versions.

1) Please refer to slide 51 in the appendix for the distinction of Fees vs. Revenues used throughout this report
2) Note that some CEX revenues are visible onchain and hence counted as such via buybacks of CEX tokens pledged as share of revenue

Protocol Classification & Definition

Protocol classification draws on taxonomies from DeFiLlama, TokenTerminal, CoinGecko, and Messari, consolidated into six core sectors:

1) **Blockchains** (settlement of transactions, e.g. L1s like Bitcoin, L2s like Base)
2) **Middleware** (infrastructure layers between Blockchains and user-facing applications, e.g. Oracles like Chainlink)
3) **DePIN** (networks providing decentralized infrastructure like storage, compute or 5g coverage, e.g. Helium)
4) **DeFi/Finance** (providing financial services, e.g. DEXs like Uniswap, Lending markets like Aave)
5) **Wallets** (user interfaces to manage digital assets, e.g. Metamask)
6) **Consumer** (consumer oriented applications, e.g. games like Axie-Infinity or NFT-Marketplaces like Opensea)

For the purpose of this report, “Applications” refers to all non-Blockchain categories, inclusive of Middleware, DePIN, DeFi/ Finance, Wallets, and Consumer

Data Sources

Data was sourced from analytics platforms such as Dune, and aggregated data providers like TokenTerminal and DeFiLlama, which track protocol-level financial metrics.
Our dataset covers 1,244 protocols (see appendix for details) for the time between 2020 and including Q3 2025. Protocol valuations were sourced from CoinGecko.

While not the primary focus, we also provide high-level estimates and directional insights into off-chain fees and other revenues, using third-party reports and available data sources where relevant.

We addressed double-counting of fees, e.g. L2 with L1 Blockchains, or Wallets with DEXs, see the appendix for more details on methodology.

Architecting Network Success

General Partners

Lasse Clausen

Christopher Heymann

1kx is a leading global investment firm specializing in blockchain technologies. Founded in 2018 by tech entrepreneurs Lasse Clausen and Chris Heymann, the firm is driven by a mission to support the builders shaping the future of blockchain technology. As one of the top-performing and most institutionalized funds in the blockchain space, 1kx partners with a diverse global investor base, including sovereign wealth funds, pension funds, endowments, foundations, fund of funds, corporations, and family offices. Renowned for its hands-on approach, deep technical expertise, and unwavering long-term commitment to founders, 1kx has empowered over 150 visionary startups to scale transformative projects while delivering outstanding returns for its investors. To explore our historical research & thesis work, visit 1kx.network.

Team

Peter Yuan Pan

Research Partner
Previously Founder of MetaCartel Venture DAO

Wei Dai

Research Partner
PhD from UC San Diego, previously of Bain Capital Crypto

Robert Koschig

Head of Economics
Previously of Datascience Wayfair, and BCG, Entrepreneur

Karim Helmy

Head of Trading
Previously of Thanefield Capital, Galaxy, and Coin Metrics

Henry Brodie

Head of Operations
Previously of Pollen Street Capital and Tikehau Capital

Clare He

Managing Director
Capital Formation
Previously of Genesis Capital and Morgan Stanley

Alexandra Miller

Head of Marketing
Previously of Bacardi Limited, Cartier and Roc Nation

Nichanan Kesonpat

Research Analyst
Previously Co-Founder and Product Lead at Last of Ours

Michael Hua

Research Analyst
Previously of Deloitte, Co-Founder of Block49

Jakub Rusiecki

Research Analyst
Previously Co-Founder of Social Graph Ventures

Valeriy Zamaraiev

Chief Technology Officer
Previously Head of Distributed System Engineering at Zilliqa

Michael Ryan

DevOps Engineer
Previously of Shell and ABN AMRO

Johannes Säuberlich

Data Analyst
Previously OpenBlock Labs

Marco Hauptmann

Financial/Research Engineer
Previously Developer / CTO of Fluid Labs

Alexandros Anthoulias-Topas

Senior Software Engineer
Previously at Omnidotapp

Thomas Kimmins

Operations Associate
Previously of Ares Management and Tikehau Capital

Zachary Jelusic

Operations Associate
CFA, CPA, previously of Rawlinson & Hunter and BDO

Marc Egloff

Operations Analyst
Previously of Chorus One and Bitfinex

Rachel Robbert

Executive Assistant
Previously Chief of Staff at Unit 410, EA at Polychain Capital

Community is everything. We're happy to make any intros across our portfolio.

Note: The investments or portfolio companies mentioned, referred to, or described are not representative of all investments in vehicles managed by 1kx and there can be no assurance that the investments will be profitable or that other investments made in the future will have similar characteristics or results. A complete list of investments is available upon request.

Table of Contents

How Big are Onchain Fees?

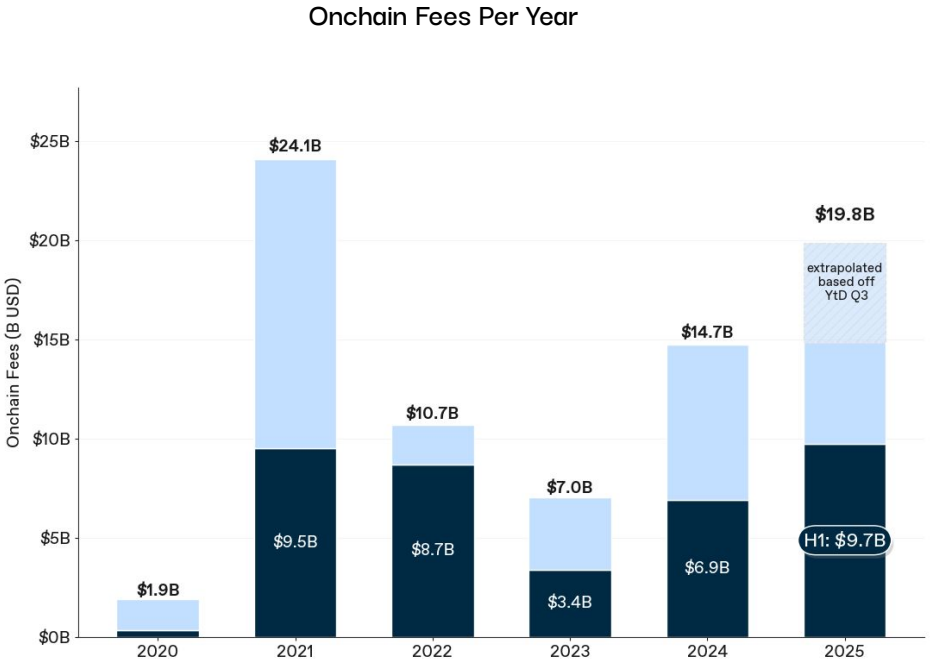
Onchain Fees Become a $20 Billion Economic Powerhouse

How Big

Onchain fees on track to $20B in 2025 - with a record in H1

Based on end of Q3 data, **2025 fees are projected at $19.8B** - up 35% YoY, but still 18% below 2021 levels

- Onchain fees are up over 10 times in 2025 vs. 2020, a CAGR of about 60%
- Users paid $9.7 B in onchain fees in H1 2025, up 41% YoY and the **highest first-half on record.**
- 2021 remains the overall peak, driven by its second half - industry **dynamics have since shifted materially**, hence we are going to revisit H2 2021 throughout this report



Why do onchain user-paid fees matter?

Establishing Protocol Tokens as an investable asset class

Currently, digital tokens are primarily **mis- understood as speculative assets** for retail investors. This report argues they can evolve into an **investable asset class** for a broader, more sophisticated set of market participants, provided networks achieve product-market fit and sustainable business models.

We view fees paid as the best indicator, reflecting repeatable utility that users and firms are willing to pay for. As protocols mature and regulation improves, the ability to generate and distribute consistent fee revenue will separate durable networks from early-stage experiments.

Today, over 80% **of onchain fees** are generated from protocols with a token, offering **global, permissionless investment access**. Exposure to offchain income is largely **limited to mature listed firms** or private vehicles.

Growing relevance of Onchain Activity and Efficiency

Onchain fees, though still a minority of industry income, **offer clear signals of adoption** and long-term value creation: 2025 YtD has close to 400 protocols with $1M+ ARR, and 20 passing over $ 10M in value to their token holders.

This is enabled by blockchain's global reach and rising efficiency, which allow applications to scale rapidly and profitably (all shown in later sections of this report).

This has driven market share gains from off-chain competitors, e.g. DEXs now facilitate **25% of total crypto trading** volume (see slide 66 in appendix), while many high-growth business models, such as DePIN, require onchain infrastructure.

Advantage of Onchain Fee Transparency

Transparency is a core principle of blockchains - **"don't trust, verify".** Unlike traditional finance with delayed disclosures, onchain financials provide real-time, verifiable data.

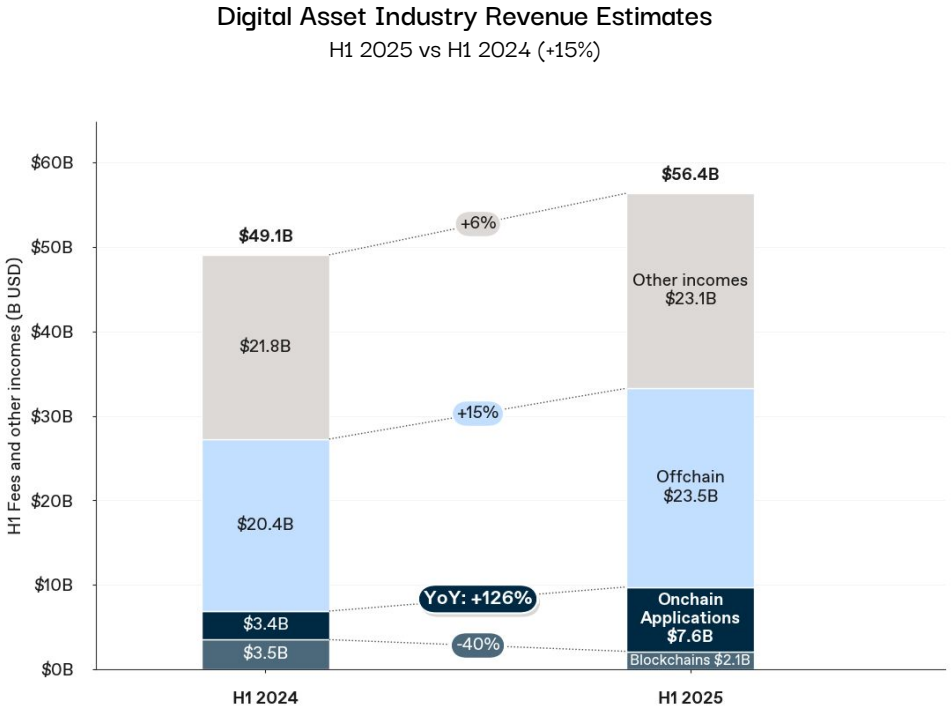
For protocols issuing tokens to attract global investors, this visibility is critical: investors expect verifiable business metrics. An increasing number of protocols now disclose income or use onchain mechanisms to reflect performance, even where part of revenues remain off-chain.

How Big

Total industry estimated $56B in H1 ‘25 - Onchain Applications +126% YoY

Digital asset revenues extend beyond onchain fees[1], though these grow the fastest enabled by maturing Blockchain technology:

- **Onchain fees $ 9.7B:** 41% YoY growth has two diverging parts:
  - **Blockchains** moved past their high-cost, low-volume phase and are becoming **commoditized infrastructure,** with fees steadily declining through efficiency gains[2]
  - **Applications** benefit from this shift, scaling rapidly on cheaper, more efficient rails, growing 126% YoY
- **Offchain fees** $ 23.5B:
  - CEX revenues with the largest share, estimated $ 19B
  - The remainder is largely other finance infrastructure (market makers, funds AUM fees) and crypto casinos[3]
- **Other income** $ 23.1B splits mainly in two parts:
  - **Block rewards** for miners and stakers operating the Blockchains. They earn the most with Bitcoin ($ 8B), Solana ($ 2B) and Ethereum ($ 1B)
  - **Stablecoin issuance:** Circle and Tether generated $ 4.5B in yield on assets backing their emitted stablecoins (e.g. T-Bills)



1) See slides 64,65 in Appendix for a breakdown; 2) See slides 18 and 26 for details
3) Stake alone reported 4.7B in gross gaming revenues for 2024

What is onchain revenue?

= scope of the report

Sector	User Paid, Received Onchain	User Paid, Completely Offchain	Other Income
Blockchains	Chains Tx fees MEV	Validator operating fees	PoW/PoS rewards Slashing penalties
Middleware	Developer tooling and DAO infrastructure fees Domain registration fees	Onboarding fees RaaS, Developer tooling fees, Grants, Oracles offchain fees Security/audit service and consultation fees	Slashing penalties
DePIN	Service/subscription fees	Hardware sales Offchain/undisclosed fees	Node operator staking income / slashing penalties Token incentives
DeFi/Finance	Stablecoin/RWA issuance fees Payment fees Lending fees (Re)staking fees DEX, Perp & other derivatives trading fees	CEX trading fees, listing fees MM liquidity fees, ETF/Trust fees, Mgmt fees, CeFi fees Offchain/undisclosed staking/node operation fees	RWA/Stablecoin issuer yield from underlyings MM Prop-Trading profits Spread/rebate capture Token incentives, (Re)staking rewards
Wallets	Wallet front end swap fees	<Included in CEX fees> Ad-revenues, Affiliate commissions	
Consumer	Gaming fees, Gross gaming revenues InfoFi data access fees	PR & Marketing fees, Gaming fees, Gross gaming revenues Data/Research subscriptions Merch sales, Ads, Affiliate commissions	KOL round proceeds Token incentives

Where are Onchain Fees Generated?

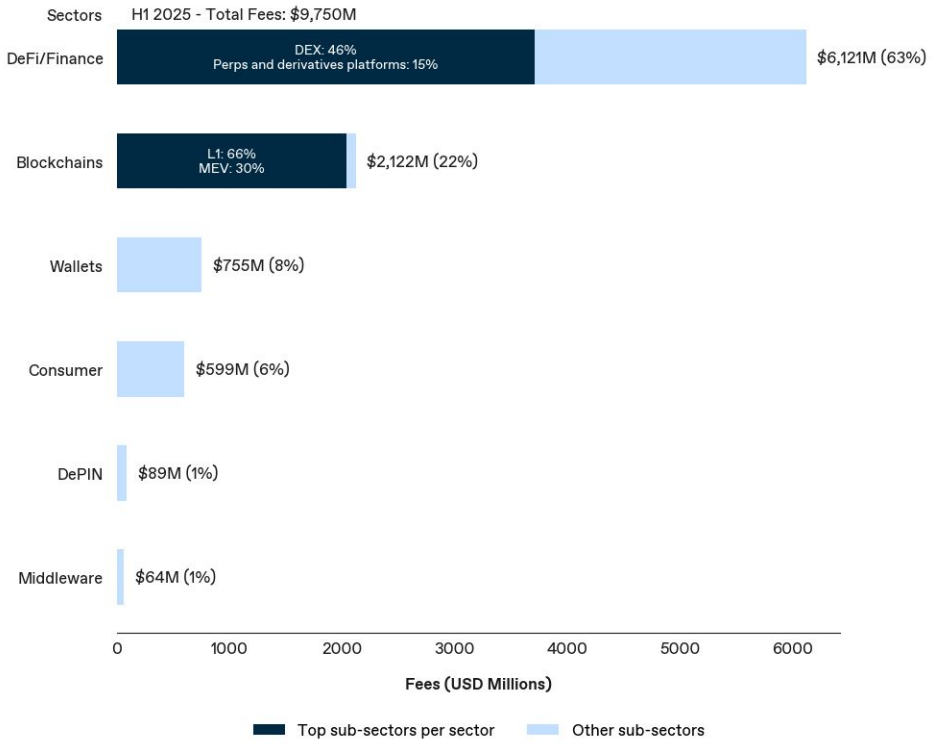
DeFi Dominates Onchain Earnings in 2025

Where

Finance related activities dominate onchain fees

$ 9.7B was paid to protocols in H1 2025, dominated by DeFi:

- **63% DeFi/Finance:** led by trading fees from DEXs and Perps and derivatives platforms
- **22% Blockchains:** mainly L1 transaction fees and MEV capture; L2/L3 fees remain marginal.
- **8% Wallets:** meaningful fees since Q4 '24 from swap activity, driven by Phantom (30% of all Wallet fees).
- **6% Consumer:** >80% launchpads (Pump.fun ~60% of sector), 8% casinos, 4% Creator economy and social.
- **1% DePINs:** small, but fastest growing sector (>400% YoY)
- **1% Middleware:** 55% Bridges (lead by Li.fi), 15% identity and reputation, 15% Developer tooling

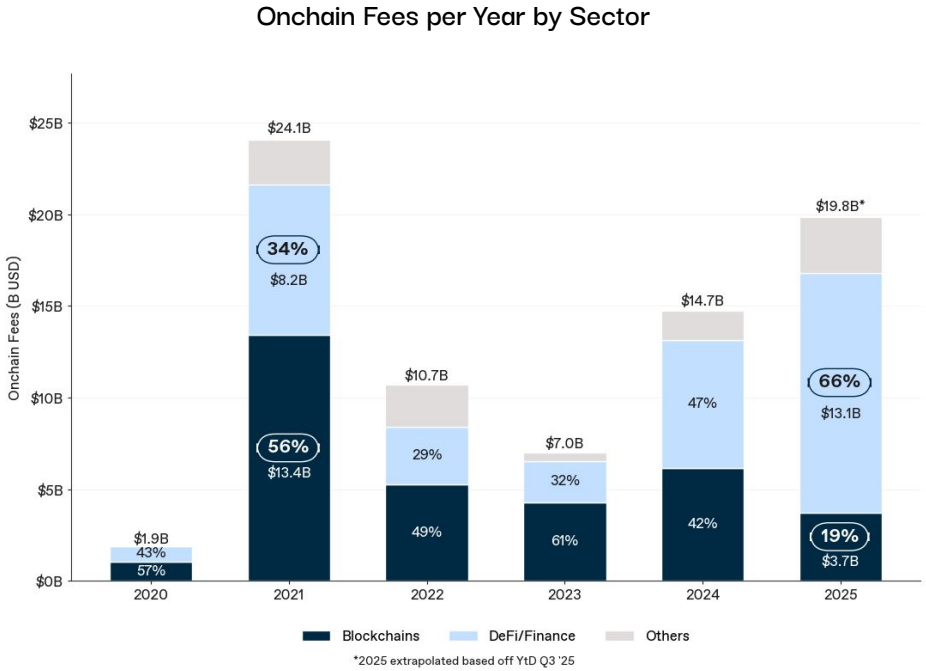


Where

DeFi/Finance apps took Blockchains' lead in fee generation

Blockchains projected to have <20% share in fees 2025:

- 2021 users paid $ 13.4B for Blockchain transactions, 56% of total
- When overall onchain fees resurged in 2024, Blockchains lost that lead position to DeFi/Finance Applications, which is on track for $ 13.1B / 66% of total in 2025
- DeFi/Finance continuing strong growth, 113% YoY in H1 '25, setting an all-time high in onchain fees - see drivers next



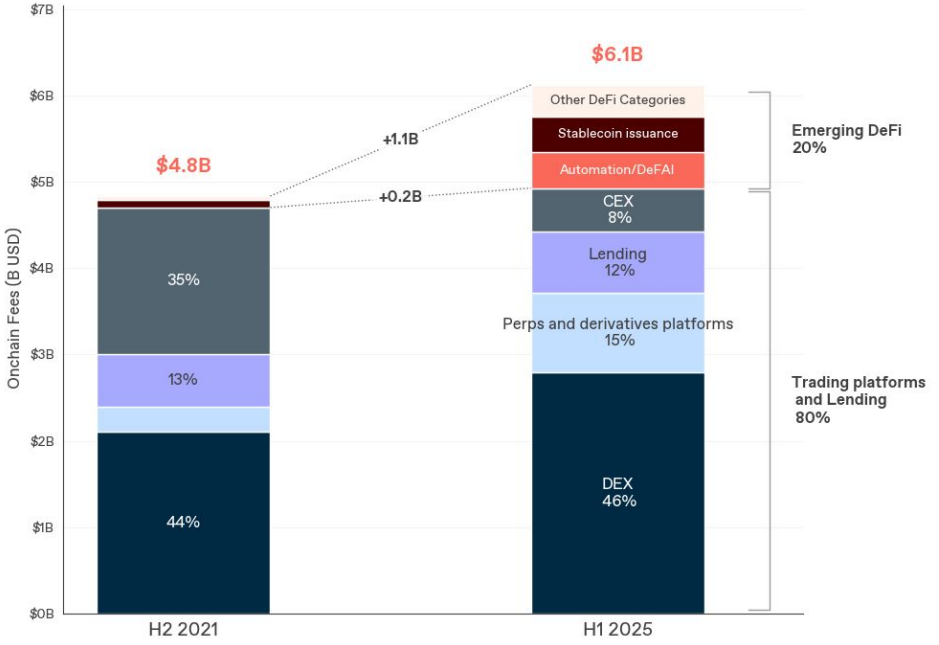
Where

DeFi/Finance fees at all time highs - driven by emerging categories

New all-time high: H1 2025 fees surpassed the H2 2021 peak, driven by new use cases and stablecoin growth.

- **Established categories grew fees ~4%**
  - DeFi DEX, perps, and derivatives gained share from CEXs[1)]
  - Perps 3x'd fees as volumes grew 6x YoY, led by Hyperliquid
  - Lending held steady at ~$ 700M, with new entrants like Morpho improving efficiency
- **Stablecoins:** Not a new category, but onchain fees hit records as market cap[2)] reached new highs and monetization on off-chain collateral yields improved
- Other **Emerging use cases added $1.1B in fees:**
  - Automation/DeFAI (bots and AI agents), Risk Curation and Vaults, RWAs, and Liquid (Re-)Staking - each generating fees as a share on yields leveraging user deposits

DeFi/Finance Fees: H2 2021 vs H1 2025



1) CEX revenues via token buybacks are opaque: buybacks are pledged to reflect revenue/profits, but verification is limited. Binance and Bitget no longer link buybacks to income, and OKX likely has not executed stated amounts in the market; hence they are excluded here

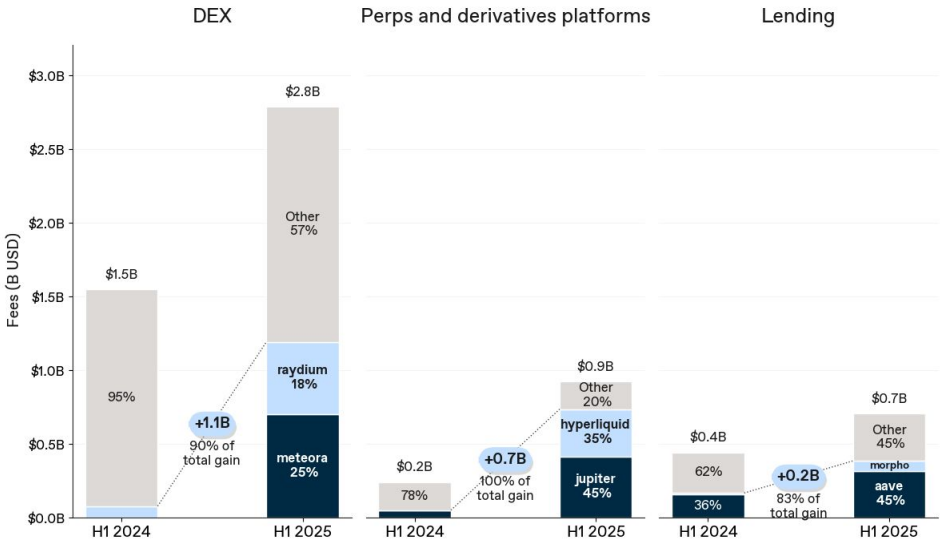
2) Stablecoin market cap close to $ 300B per end of Q3 2025

Where

DeFi fees mainly driven by emerging protocols

DeFi/Finance fees rose to $ 6.1B (+113% YoY) in H1 2025, reaching $ 4.4B across its core categories: DEXs, Perps and derivatives platforms, and lending. Most gains here are driven by new entrants who previously generating little revenue.

- **DEXs:** Growth led by Raydium and Meteora, benefiting from Solana's surge; Uniswap (#3) lagged, and consequently lost share from 44% to 16% (see slide 31).
- **Perps/Derivatives:** Jupiter grew its fee share from 5% to 45%; Hyperliquid, launched less than a year ago, now contributes 35% of sub-sector fees
- **Lending:** Aave remains dominant, though Morpho, a lending aggregator built on top of Aave, increased its fee share to 10% coming from basically 0% in H1 2024



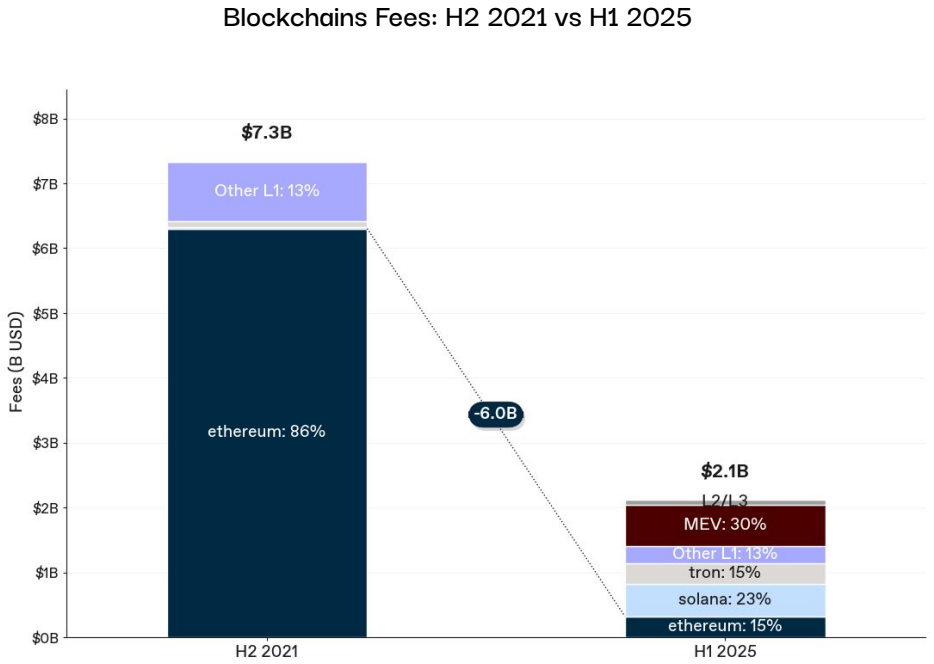
Where

Blockchain fees muted vs. their peak as scaling efforts materialize

Four significant trends for Blockchain fees:

- **Efficiency gains:** See slide 26. how esp. Ethereum reduced transaction costs and hence lowering overall fee income
- **MEV:** Flashbots protocol started facilitating the coordination for so-called MEV-transactions on Ethereum. Jito does the same on Solana. The fees paid here relate to Arbitrage opportunities, hence revenues spike during speculative periods, e.g. on Memecoins in H2 '24/Q1 '25.
- **Concentration:** The top 5 protocols (Tron, Ethereum, Solana, Jito, Flashbots) captured ~80% of blockchain fees in H1 '25. While still high, this marks an improvement from 2021, when Ethereum alone made up 86% of Blockchain fees.
- **Rollups (L2/L3):** Emerged in 2022 as well.They charge far lower fees than L1s. Volumes remain insufficient for meaningful fee share[1)]

1) Leading L2 is Base: ~39M in onchain fees H1 2025



Fees vs. Value - Are we creating real economic value?

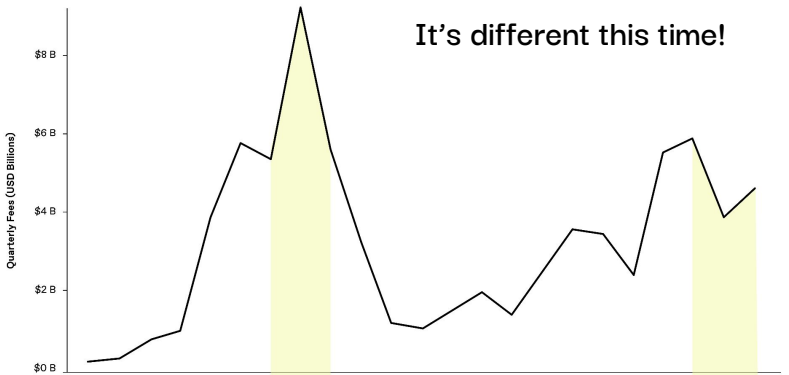
Asset prices are an obvious revenue driver, but more cost-efficient infrastructure is now moving the needle as well

Is it real?

More efficiency
More monetization
More value to token holders

H1 2025 user paid fees are -34% vs all time high of H2 2021, but

- **Blockchains became efficient, sparking activity:**
  - Ethereum alone did >40% of all onchain fees in 2021, YTD ‘25 <3% - their scaling efforts are a major driver of the 86% decrease of average blockchain transaction fees
  - Daily transactions on Blockchain L1s and L2s increased about 2.7 times to 169M
- **More protocols monetize than ever:** In 2021, 125 protocols generated fees, almost all by 20 protocols[1]. In contrast, in H1 ‘25, 969 protocols generated fees: 8x growth in 4 years
- **Value distributed to token holders increased:**
  - Despite lower fees vs. ‘21, protocols distribute 50% more value back to token holders now - an all time high
  - This development is accompanied by a friendlier regulatory environment for digital assets and value distribution, setting in end of 2024



	H2 2021		H1 2025
Onchain Fees	$14.6B		$9.7B
Avg Tx Fees Blockchains	$0.63	-86%	$0.09
Avg Daily Transactions	64M	+2.7x	169M
Protocols Monetizing	125	+7.8x	969
Value Distributed to Token Holders	$2.0B	+50%	$3.0B

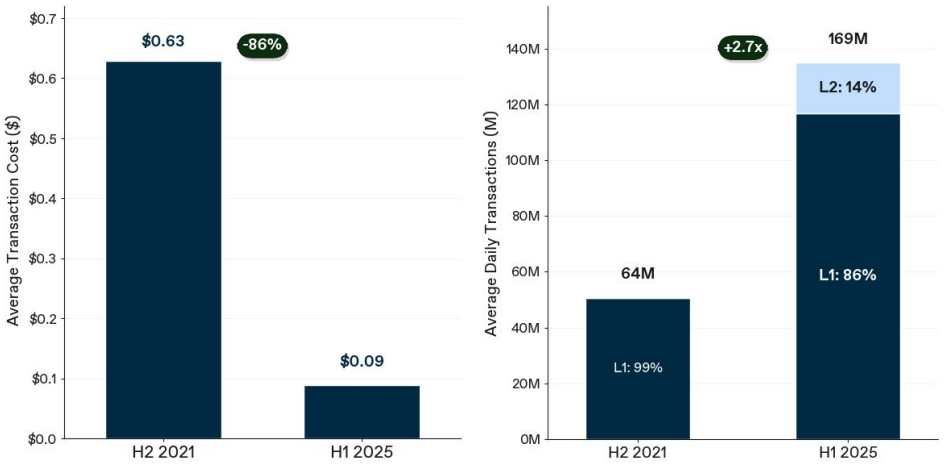
1) Share of Top 20 Protocols in fees 94% in H2 2021 vs. 69% in H1 2025

Less cost and more activity on Blockchains

Blockchain efficiency has surged, enabling higher throughput at lower cost:

- Average transaction fees fell 86%, driven largely by Ethereum (accounting for over 90% of the decline), due to Ethereum's new fee mechanism (EIP-1550) and increasing L2 adoption
- Lower costs broadened participation:
  - Average daily transactions grew 2.7x vs. H2 2021, with L2s gaining share
  - Similarly, the number of wallets transacting monthly rose 5.3 times to 273M in H1 2025

Transaction costs and Daily Transaction Count

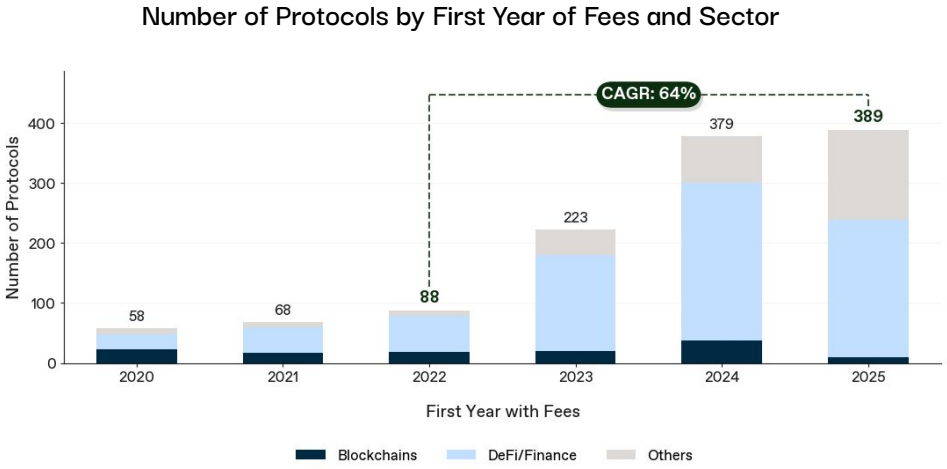


Source: TokenTerminal

More protocols monetize: 64% CAGR past 3 years

1,124 protocols of our dataset generated fees onchain in 2025[1)]

- 389 of those started generating fees in 2025[2)], and already account for 13% of all fees 2025 YtD, and 17% of Q3 fees[3)]
- Prominent examples of this cohort are
  - Meteora (#1 by overall fees H1 25)
  - Axiom
  - Bullx
  - Trojan
- 2025 is the first year with a significant share of new protocols monetizing outside DeFi/Finance: Of those 150 “Others” in ‘25, DePIN and Consumer protocols are the majority
- 1,205 protocols generated fee income over the full timeline since 2020



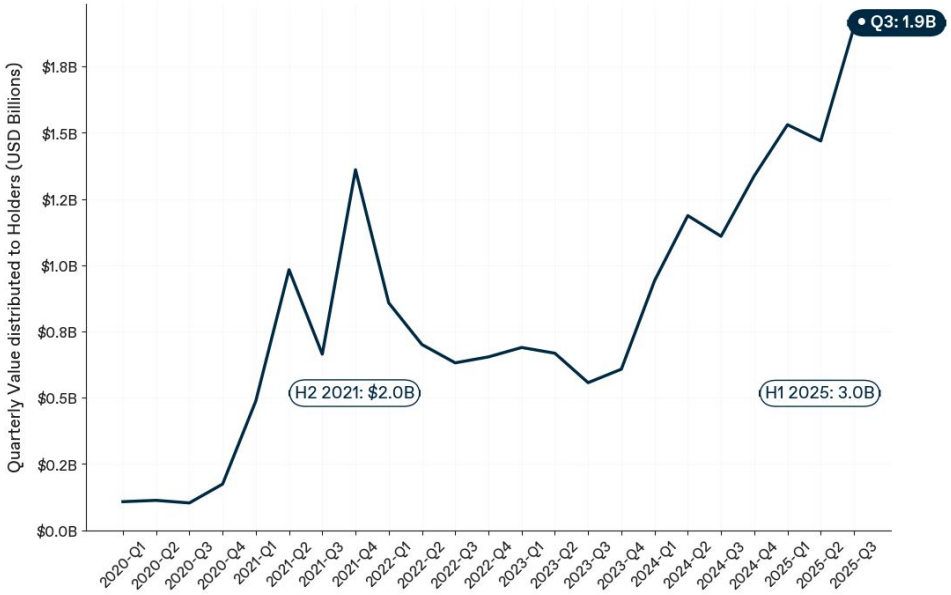
1) Per Q3 2025, in Q3 ‘25 alone it was 1053
2) Specifically, fee data was available for the first time
3) See slide 66 in the appendix

Is it real?

All time high of value distributed to token holders

Value distributed to token holders - the net of buybacks, burns, and other accruals minus emissions - reached record levels for the past three quarters:

- $1.9B was distributed in Q3 2025, basically matching the total from H2 2021, when fees peaked
- For many protocols, however, distributions remain zero, as newer networks still emit more incentives than they return to holders - a common pattern e.g. amongst Blockchain L1s
- Applications drive most of the distributed value, driven by incentive reductions: top apps[1)] cut token incentives from $2.8B (90% of their fees) in H2 2021 to < $0.1B in H1 2025, boosting net returns to holders
- Profit-based metrics such as value distribution carry caveats, especially regarding which holders benefit (active vs. passive). See slides 49 ff. for methodology and metrics used in the industry.



1) Specifically, the applications amongst the top 20 fee generating protocols

What drives fees?

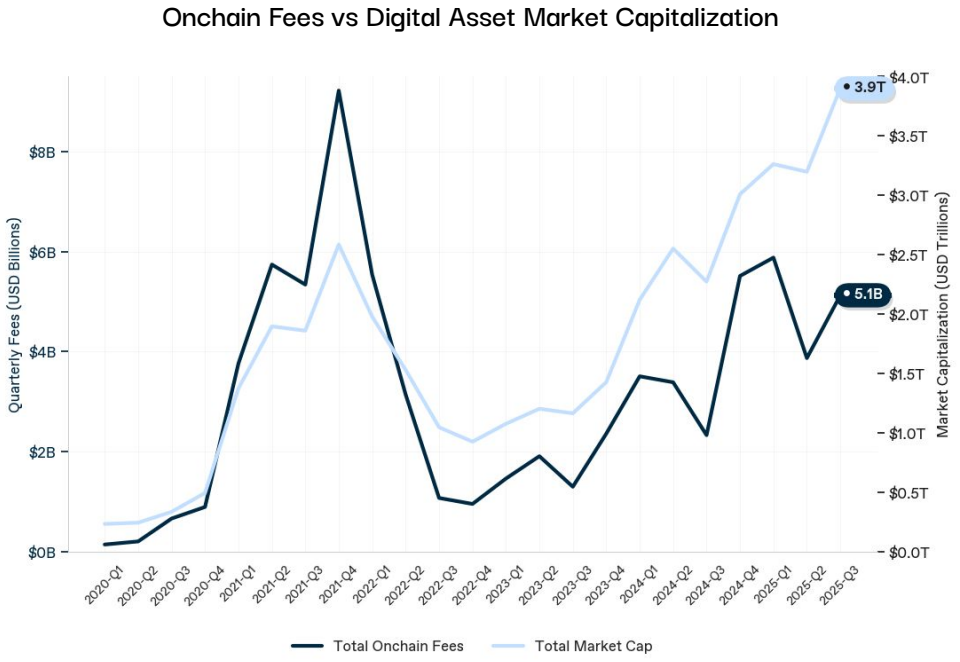
Asset prices are an obvious driver of fees, but more cost-efficient infrastructure is now moving the needle as well

Correlation of fees and asset prices is obvious, causation depends

Asset prices are an input to dollar-denominated fees for most sectors, creating an expected correlation, but there is more:

- **Seasonality:** Shifts in market risk appetite drive periodic swings in token prices and, in turn, fee levels
- **Causation**[1]**:** The relationship varies by time and sector. **Fee changes lead valuations** in DeFi/Finance (stronger since 2022) and in Blockchains (post-2021, only for 1-month lag though)
- **Sector dynamics:**
  - **Blockchain L1s:** Once price-driven (2021), now more impacted by transaction costs given increased efficiency
  - **Trading platforms (DEX, Perps, etc):** Remain driven by asset prices, yet take rates decreased as competition intensifies on both supply and demand sides.
  - **Lending:** Fees driven by utilization of supplied assets, positively correlated with prices but governed by rate mechanics.
  - **DePIN:** Fees track the dollar value of delivered services, with limited sensitivity to asset price fluctuations.

1) Granger causality of fee- and market cap changes for at least 2 major test statistics with $p<0.05$



Drivers

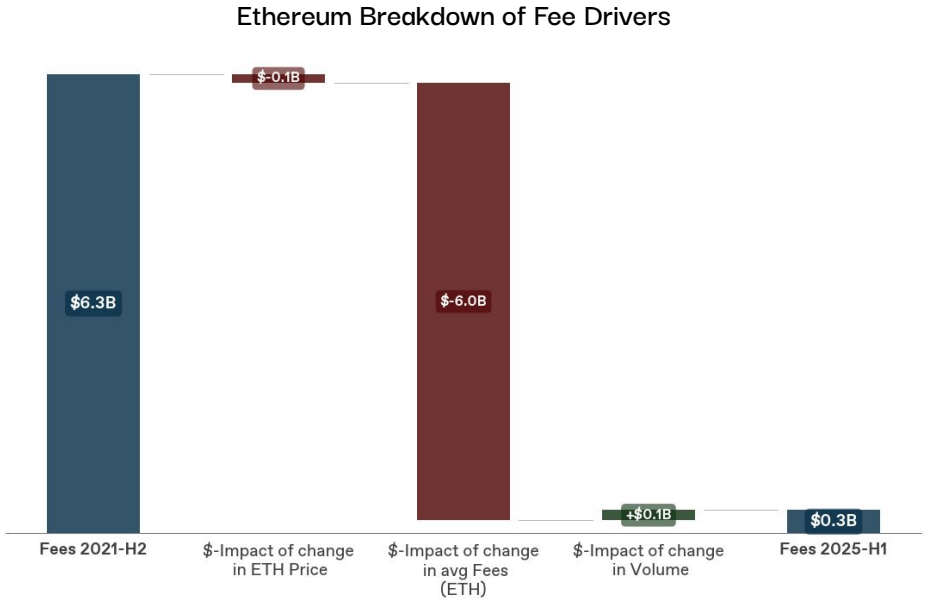
ETH's scaling drove -95% fee decline - positive for activity and inflation

Ethereum's fee dynamics have changed sharply since 2021:

- The $6.3B record in H2 2021 was driven by high ETH prices and speculative demand, with users absorbing extreme fees
- By H1 2025, ETH prices and volumes were similar, but scaling efforts[1)] cut average fees ~95%, leading to a large drop in dollar-based fee revenue.

With positive effects for activity and inflation:

- This allowed to reduce validator incentives in tandem - from $9.4B in H2 2021 to $1.2B in H1 2025 (-90%), hence ETH token supply flat since end of 2022
- While Ethereum's own transaction count rose only modestly, Layer 2s now process 18x its volume, totaling ~22.9M daily transactions in H1 2025.



See a Breakdown for Solana in the Appendix.

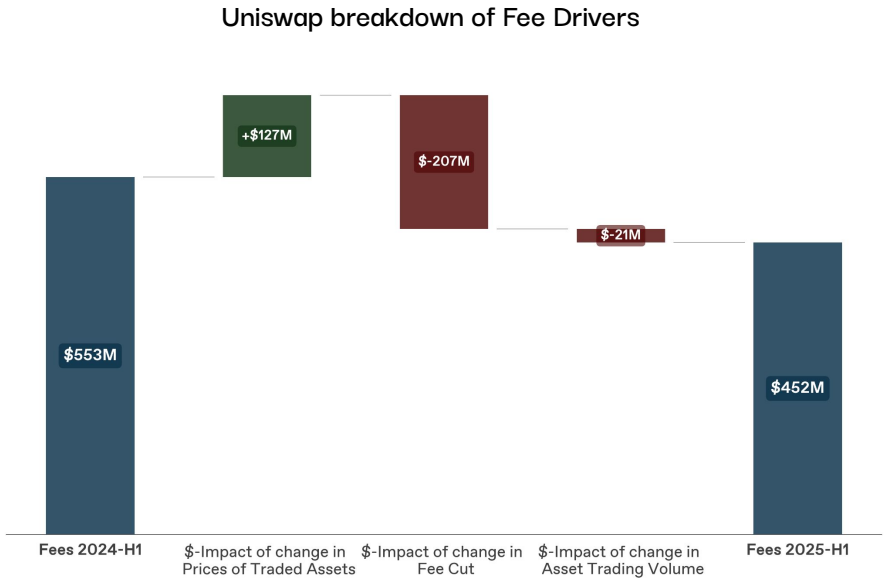
1) E.g. move to proof-of-stake, rollups, dynamic fees, capacity improvements, transaction-bundling
Source: https://dune.com/queries/6079590 and TokenTerminal

Drivers

Uniswap fee decline YoY driven by decreasing take rate on swaps

Uniswap, the first major DEX and long-term leader in volume and fee capture, saw fees decline 18% YoY H1 '25 in dollar terms, driven by a lower average fee rate:

- **Prices of traded assets** in average increased[1)], driving a positive impact to fees
- **Swap fees** range from 5–100 bps, but volumes have shifted to lower-fee pools, reducing the average take rate by >30%.
- **Trading volume** rose 20% YoY to ~$230B in Q2 2025, but this was largely price-driven as crypto asset prices climbed even more , hence the Asset Trading Volume normalized for prices actually slightly declined
- The same compression in fee rates affects other DEXs. PancakeSwap, however, offset it with higher volumes, achieving ~150% YoY fee growth (see Appendix).



1) Whilst ETH decreased 22%, BTC increased 60% in the period
Source: DeFiLlama (transaction volume), https://dune.com/skye_cai/uniswap-v3-pool-tutorial (shares of assets in Volume) Tokenterminal (fees)

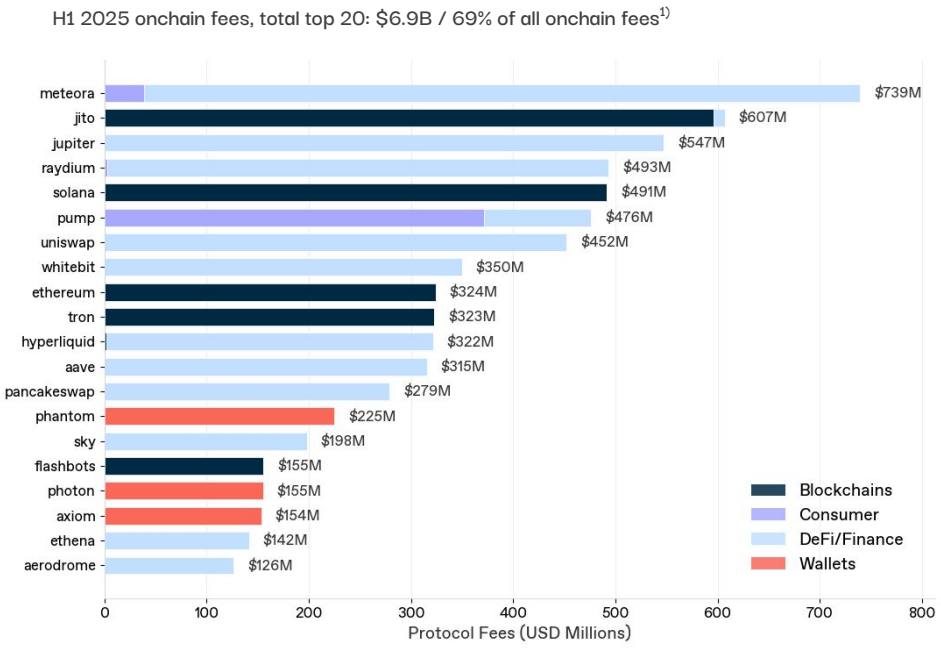
Who is winning? The top fee generating protocols

While the top 20 protocols drive about 70% of fees, innovators can disrupt incumbents with unprecedented velocity

Winners take most: top 20 generate 69% of all onchain fees

In line with sector shares, the top protocols are mainly DeFi/Finance, and Blockchains

- Exceptions are Pump (Consumer) and Phantom (Wallets), though some protocols accrue fees across different sectors (e.g. Meteora has also a token launchpad (Consumer))
- Top 20 (2% of all) protocols account for 69%, showing concentration that is typical for metrics in digital asset markets
- Whilst some protocols like Uniswap, Aave and all Blockchain protocols have been live for multiple years, some protocols like Pump, Photon, and Axiom are less than 2 years old[2].
- Rotation is common as shown with the Q3 leaderboard (appendix) and the next slide



1) Not considering double-counting of fees between protocols here, see slide 58 in Appendix for details
2) See slide 31 how the crypto-infrastructure enables quick ramp-ups in gaining multi-million in fees

Winners take most, yet leadership rotates

Fee generation is highly concentrated:

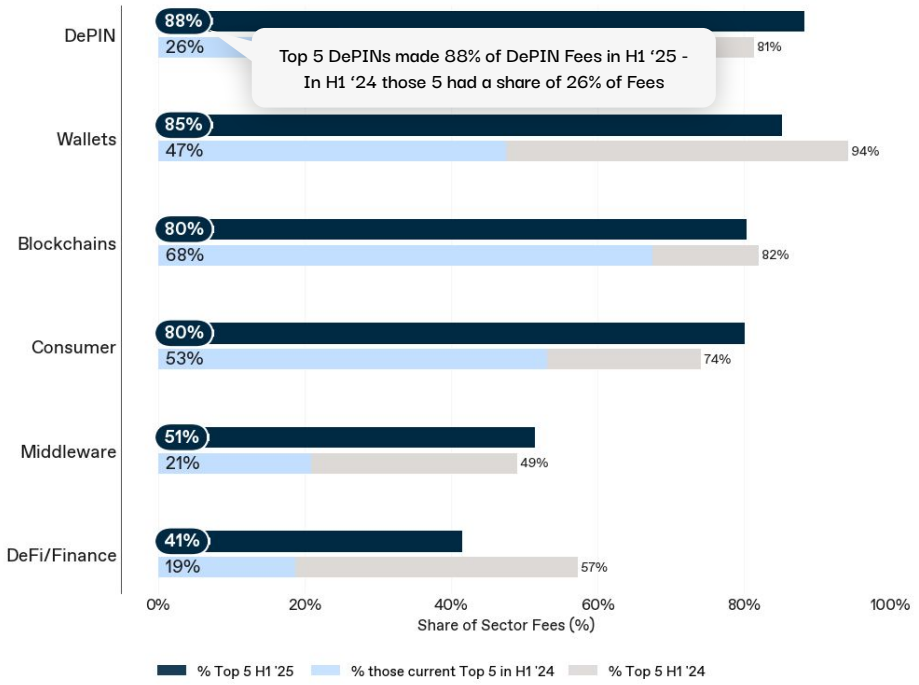
- In most sectors, the top 5 protocols capture 80%+ of fees (even higher in DePIN and Wallets) - dark blue bars
- DeFi/Finance more fragmented: top 5 at 41%

Yet leadership rotates:

- Up to 25% of the top 20 by Fees change each quarter
- The Top 5 of '25 captured a lot less a year ago (light blue bars), see DePIN example in the chart

Protocol Concentration by Sector

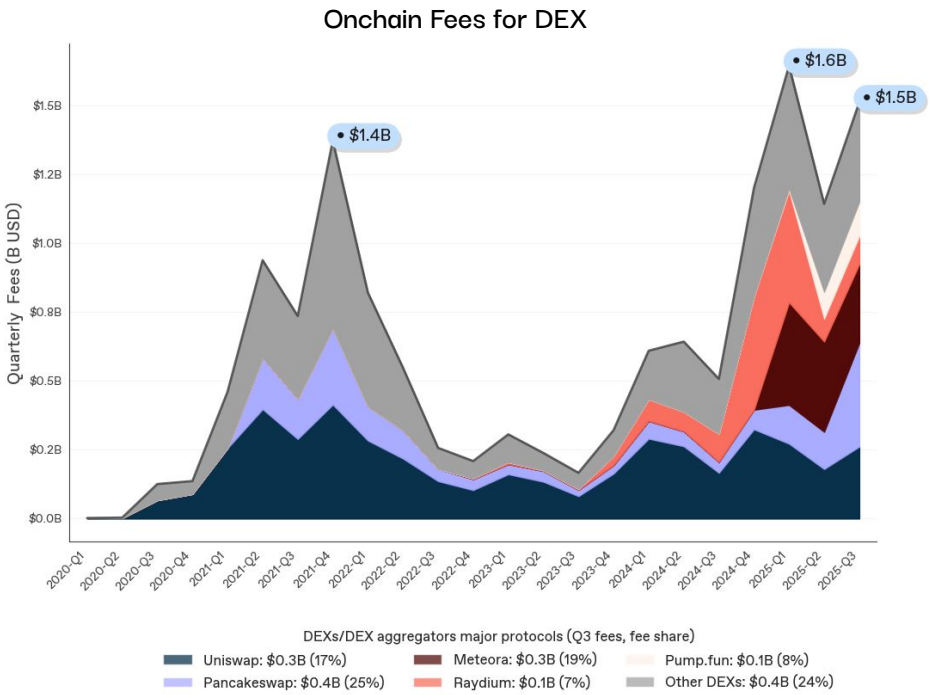
H1 2025 and H1 2024 | Fee share of top 5 protocols



DEXs as recent example of how incumbents can lose market share quickly

DEX overall fees are increasing with new quarterly all time high in Q4 2024. Most of the recent gain driven by DEXs on Solana, e.g. Meteora and Raydium

- These DEXs didn't have meaningful fees a year ago - Solana DEXs are both expanding market share and enlarging the overall onchain fee pool
- Other protocols like Pump.fun launch new DEXs as well and reach high fee income quickly
- Uniswap as established DEX leader in the past, remains their absolute levels, but loses market share as not present on Solana
- Pancakeswap on the other hand grew fews with extended activity on BNB Chain, taking the lead in Q3 2025 in terms of fees



Unprecedented speed to large amounts of fees

Of 1,000+ protocols analyzed, 71 have exceeded $ 100M in onchain ARR, and 32 reached that within a year of launch, a pace comparable only to top AI breakouts like Cursor[2]. Examples include

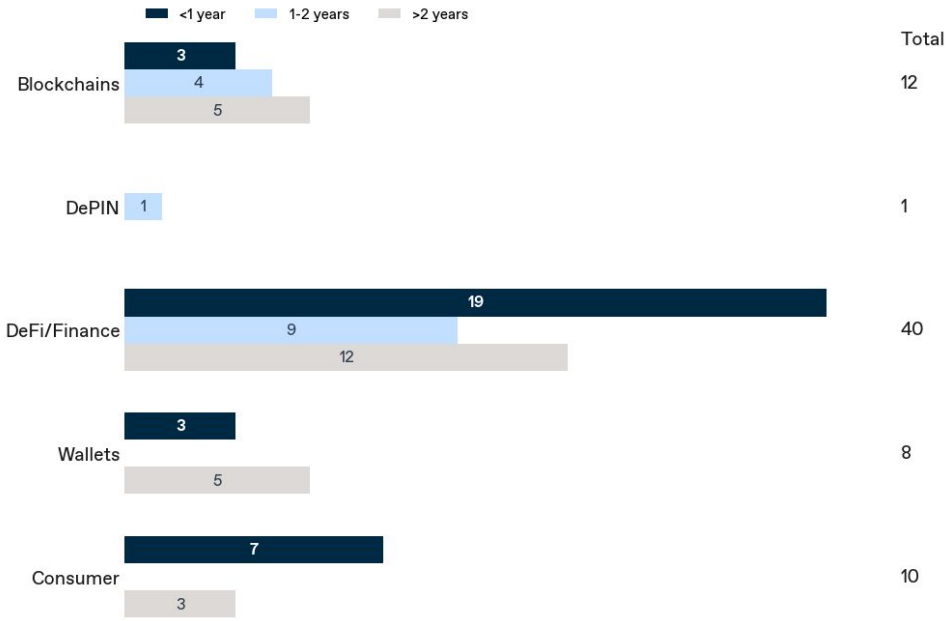
- Blockchains: Base, Filecoin, Linea
- DePIN: Aethir
- DeFi/Finance: Ethena, GMX, Virtuals, Sushiswap
- Wallets/Interfaces: Axiom, Moonshot, Photon
- Consumer: Friend.tech, LooksRare, Pump.fun

Many early surges were incentive-driven, e.g., LooksRare generated $ 500M in fees in its first three months but emitted an equal amount in rewards[3].

Notably, 16 of the 71 launched their platform after June 2023, all but Base as application, underscoring both the concentration of fee generation and the accelerating pace of incumbent disruption enabled by maturing infrastructure.

Speed to $100M Annual Onchain Fees

Protocols that reached $100M ARR[1] by sector

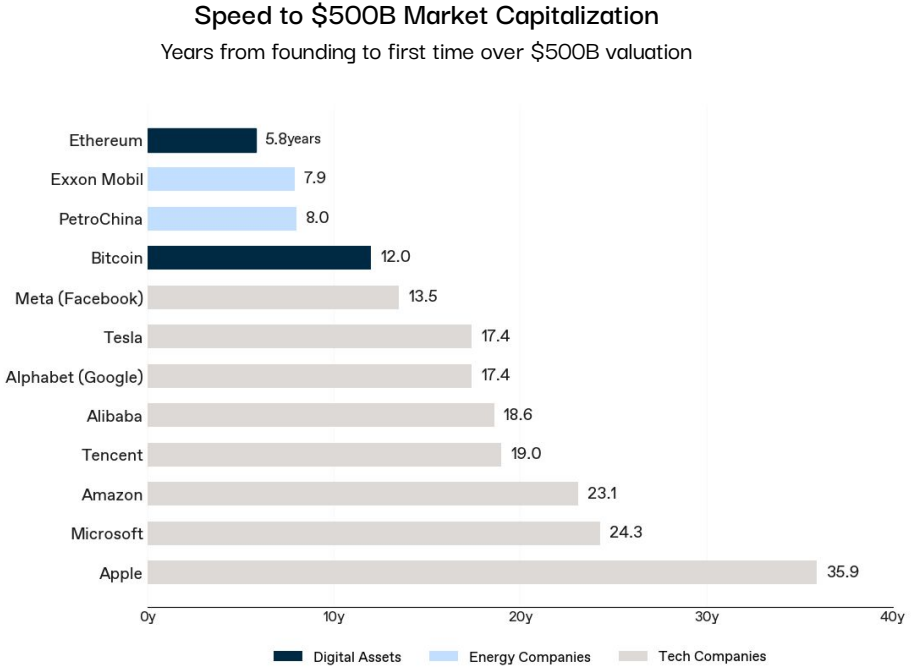


1) Based on Quarterly Onchain Fees
2) Meta/Facebook as fastest Web2 business in that regard took 3-4 years to achieve $100M ARR
3) LooksRare's volumes collapsed when those incentives declined

Speed also reflected in time to high valuations

Ethereum is the first publicly investable asset to reach a $500B+ market cap within six years (2021 bull run):

- Alongside Bitcoin, it is unique in being globally accessible from inception.
- Just before that valuation, Ethereum surpassed $1B in annualized fees, having taken only 2.5 years to reach $100M ARR
- Ethereum's fee income has since declined (see slide 26), but at its peak in Q4 2021 annualized fees approached $15B
- Only energy companies with comparable speed to 500B valuations as BTC and ETH - Meta as fastest Tech company took 13.5 years



Source: Milk Road Research Hub

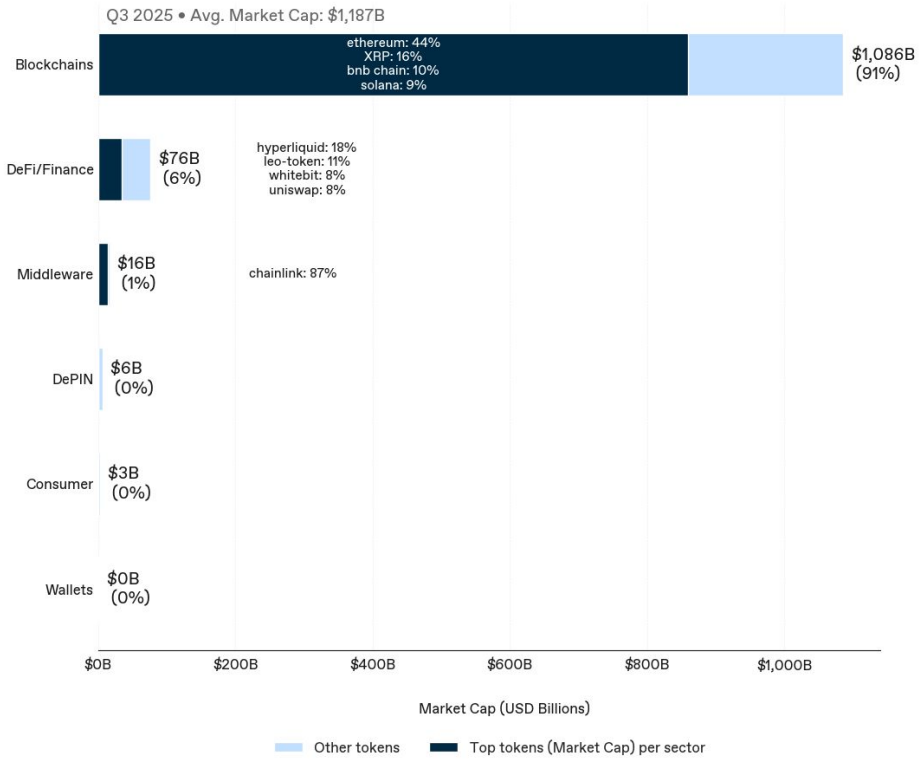
Is the market missing something? Onchain Fees vs Valuations

Though applications demonstrate greater causality between fees and valuation than blockchains, the latter still dominates market cap

Blockchains cover over 90% of analysed crypto market cap

Blockchains dominate the valuations of fee generating protocols as they make 91% of the 1.2T market capitalization under consideration (which excludes Bitcoin)

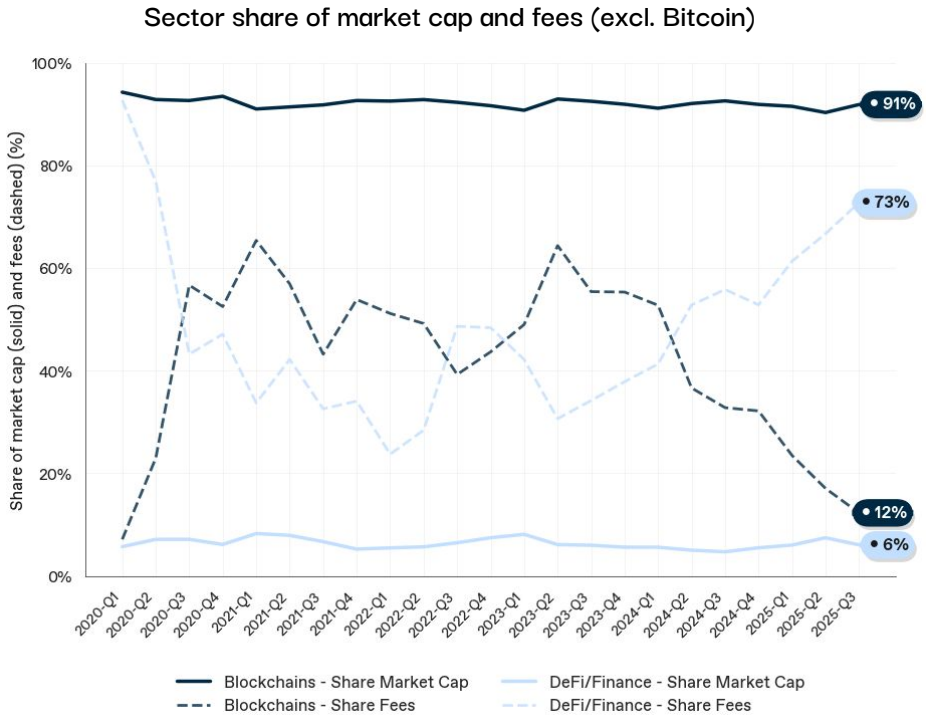
- Ethereum, XRP, Solana and BSC alone take ~80% of the market cap of Blockchains
- DeFi/Finance 6%: Hyperliquid's Perp DEX launched less than a year ago, yet quickly took the lead in valuation and fees
- All other sectors combined have <2% of market cap
- Consequently of these stark contrasts of fee- and market-cap shares, the Price to Fee ratios (Market cap over annualized fees) are above the 1000s for L1s vs. 10-100s for the other sectors (see slide 37).
- This reflects the valuation premium that market participants put on to L1s (e.g. similar to Bitcoin there is value beyond fee generation)



This is despite DeFi apps overtaking the lead in fees in the past year

Divergence of shares of valuations and fees:

- Blockchain valuations continue to aggregate north of 90% of the total market cap of fee generating protocols, despite their share in fees declined from over 60% in 2023 to 12% in Q3 ‘25.
- Conversely, DeFi/Finance protocols accounting for 73% of all fees, though in aggregate their market cap share remains well below 10%

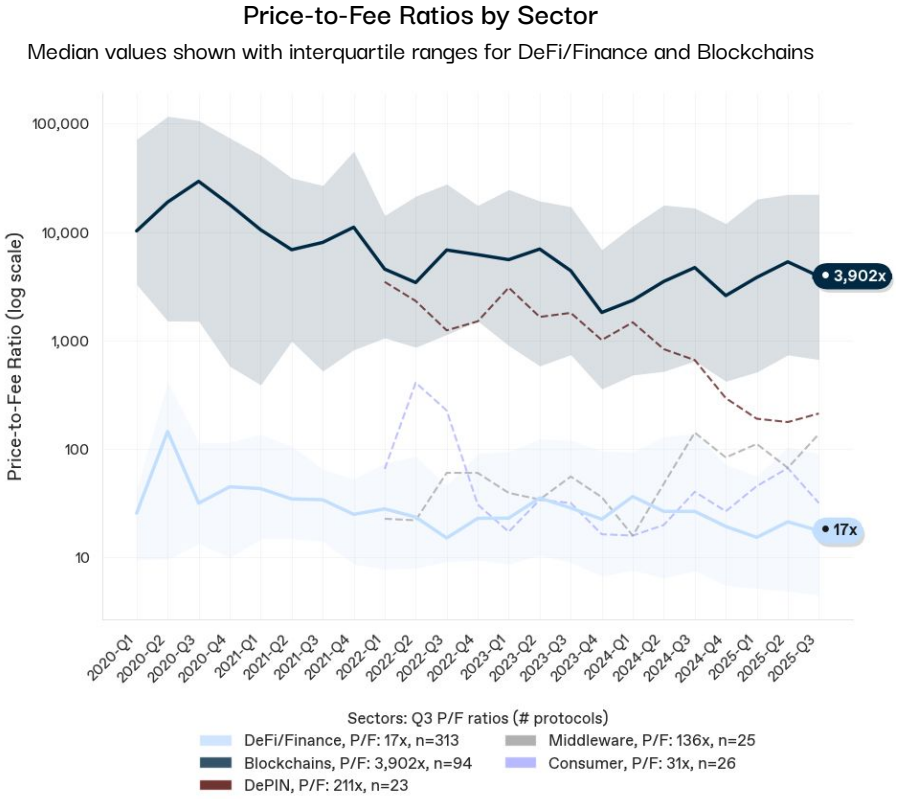


Hence: Price to Fee ratios a different game Block-chains vs. Applications

Price-to-fee (P/F) ratios, defined as fully diluted market cap over annualized fees, remain far higher for blockchains than for applications, reflecting the earlier divergence between valuations and fee generation:

- **Blockchains:** The median P/F ratio in Q3 2025 is 3,902x (L1s at ~7,300x)
- **DeFi/Finance:** The median P/F ratio is 17x (DEX at 14x, lending at 8x)
- Sector ranges are broad, e.g., Blockchains span 1k–12k (Interquartile-range Q3 '25), but stable within those broad bands over the past three years
- **DePINs as one exception:** Median came down to 211x from levels around 1,000x one year ago

Note: P/F ratios for DePIN, Middleware and Consumer only shown after 2021 because of thin data, Wallets not included for same reason



34% of Crypto Market Cap is related to Fee Generation

Not all tokens represent fee-generating protocols and are excluded from fee-to-valuation comparisons. These exclusions account for 66% of the Q3 2025 average market cap:

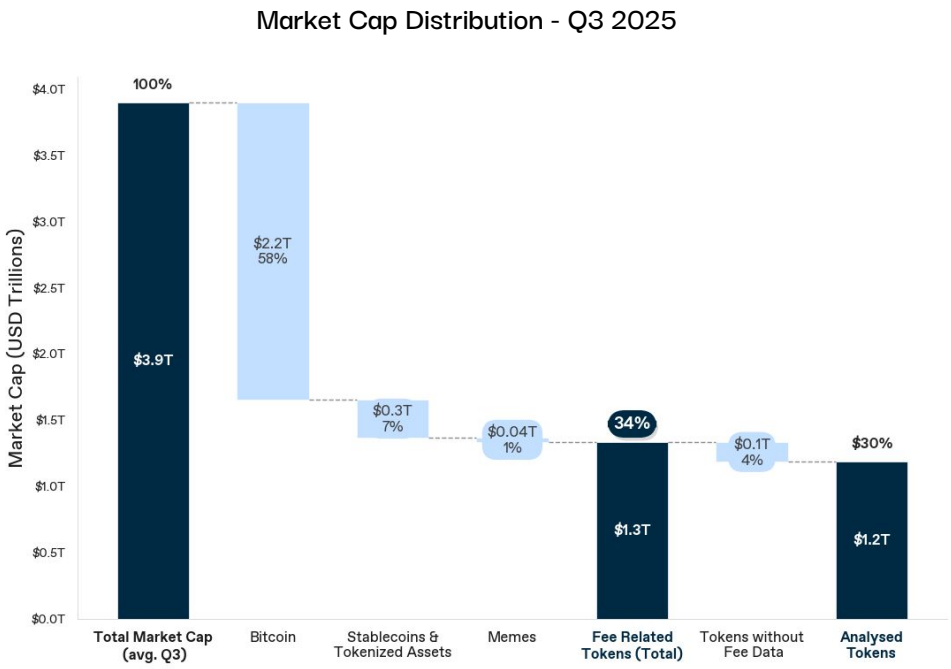
- **58% Bitcoin:** valued as "digital gold." While the Bitcoin blockchain generates fees, they are immaterial to its value[1)]
- **7% Stablecoins/tokenized assets:** primarily stablecoins; yield on reserves is not user-paid and does not accrue to holders of these tokens
- **1% Memecoins**[2)]: driven by speculative trading, with no cash-flow.

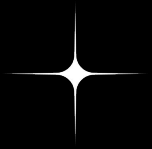
An additional 4% of market cap is excluded due to lack of fees or data

The resulting $1.2T / 30% of total market cap is the foundation of our analysis contrasting fees and valuations

Note: some fee-generating protocols lack tokens, hence don't have a valuation. These represented 24% of total H1 '25 fees, ~60% of that by Meteora, Phantom, Axiom, Photon, and Flashbots.

1) Fees as income source for miners guaranteeing Bitcoin's security might become relevant for Bitcoin given the main source of income, the mining rewards, decrease exponentially over time
2) Memecoins that are the native token of Blockchains like Dogecoin are included in the analysis as their protocols generate transaction fees





Where is the next wave of growth emerging?

Tokenization, DePIN, Wallets and Consumer are the high-growth areas to watch

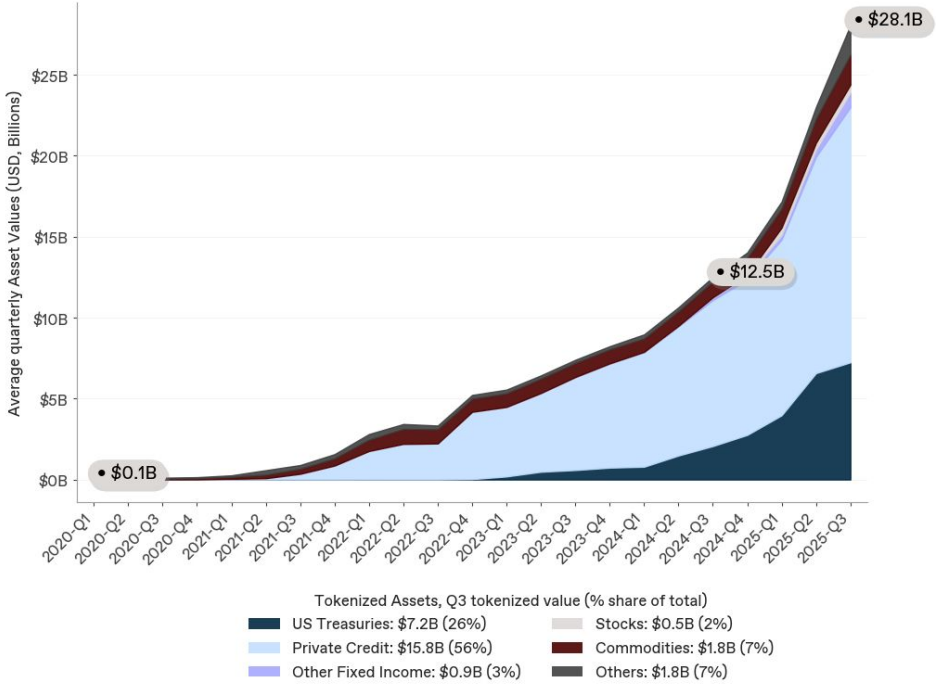
Growth drivers

Tokenized assets starting to unleash their potential

Tokenized Real World Assets (RWAs) are the smallest fee sub-sector in DeFi yet, but

- RWA asset value onchain more than doubled YoY in line with a CAGR of 235% over the past four years
- Onchain fees even outpaced this growth: Q3 saw 50x YoY, though on small scale ($ 15M).
- These fees are earned as cut on AUM, transaction- or management fees
- This growth in fees is expected to continue given regulatory tailwinds (more asset classes), increasing RWA AUM[2], and more offchain value flows “coming onchain”
- Note that some of the largest RWA-protocols like Blackrocks BUIDL are not included in the onchain fee figure[3]

Total Real World Asset Value Onchain[1]



1) Source: RWA.xyz
2) McKinsey forecasts continuing 200%+ CAGR for RWA asset value onchain until 2030, an even more conservative forecast amongst various predictions
3) As their fees are not onchain / not available

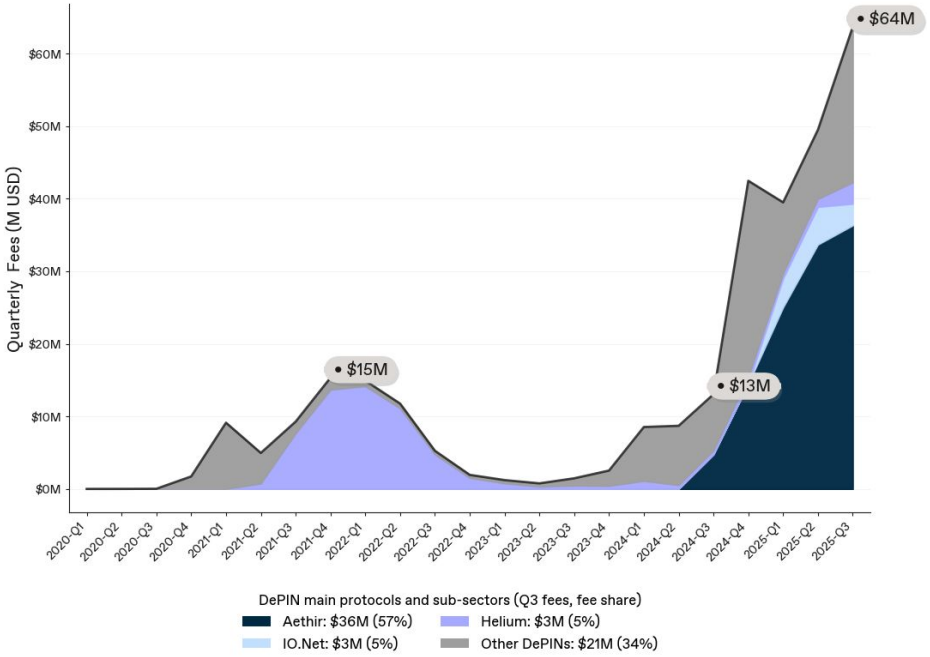
Growth drivers

DePINs small in fees, yet fastest growing sector and all time highs

DePIN is a relative young sector besides some of the first-movers like Helium, Akash and Arweave. More significant monetization started in the last year:

- YoY fees did ~5x, with continued growth driven by Aethier and IO.Net
- Aethir offering GPU-compute has a large share here, though these fees are based on buy-backs
- Whilst the growth of Aethir and IO.net slowed in Q3, further sector growth is visible[1)] and more revenue expected to come onchain in the coming quarters[2)]
- The World Economic Forum projects the valuation of the DePIN sector to $3.5 T by 2028 (~90x vs. 2025), indicating that the recent fast growth is going to continue

Onchain Fees for DePIN



1) E.g. Bittensor started to report income for their increasing number of subnets
2) E.g. Helium announced to use the monthly mobile subscriptions of $ 2-3M (currently off chain) to burn HNT

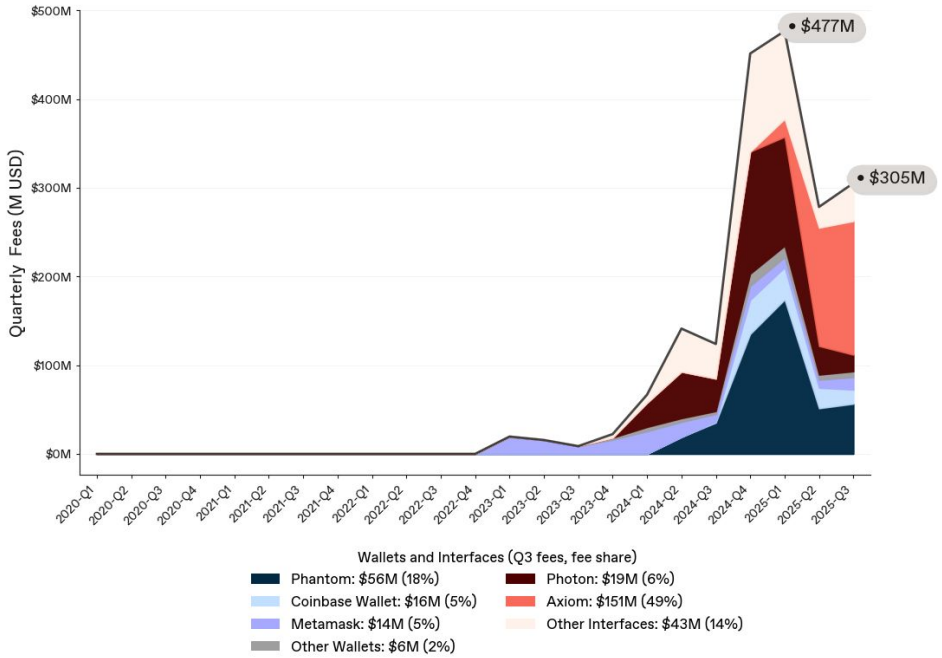
Growth drivers

Wallets' monetization on swaps surged heavily in the past year

Wallets and trading interfaces/apps own the direct user interaction and monetize onchain mainly via additional fees on swaps

- Phantom added significant amounts here since Q4 24 in line with the activity surge on Solana
- Coinbase wallet gaining fee share with monthly fee income of $ 5-15M since 12/24
- Metamask lost share since Phantom and Coinbase entered fee generation
- Interfaces like Photon emerged in 2024 providing trader friendly UX
- As markets declined in Q2, so did fee income for wallets, though recovering in Q3 vs. its peak in Q1 '25 (down 35%)

Onchain Fees for Wallets



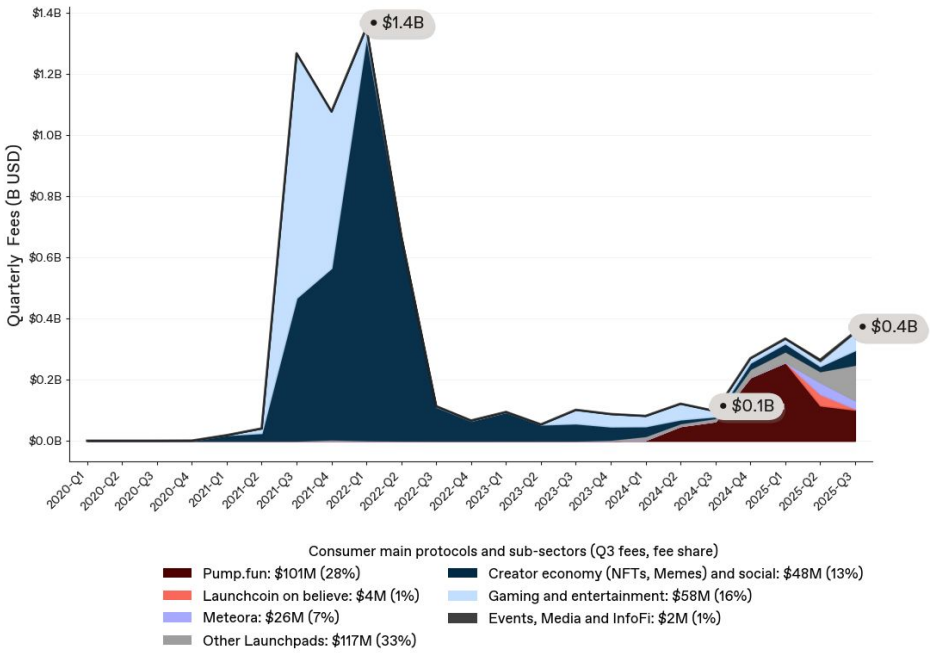
Growth drivers

Token Launchpads revived the fees in the consumer sector

Launchpads surged in H2 ’24, with Pump.fun leading at about $250M onchain fees in Q1 ’25

- Other platforms (e.g., Launchcoin on Believe, Meteora) began monetizing in Q2 ’25 capturing marketshare - see the appendix on how competition heated up lately
- Launchpads illustrate how quickly fees can scale - though history cautions: the even sharper rise in gaming (Axie, Sandbox), and creator economy (Opensea, LooksRare) fees in 2021/early 2022 was followed by an equally steep decline

Onchain Fees for Consumer



Where are Onchain Fees headed?

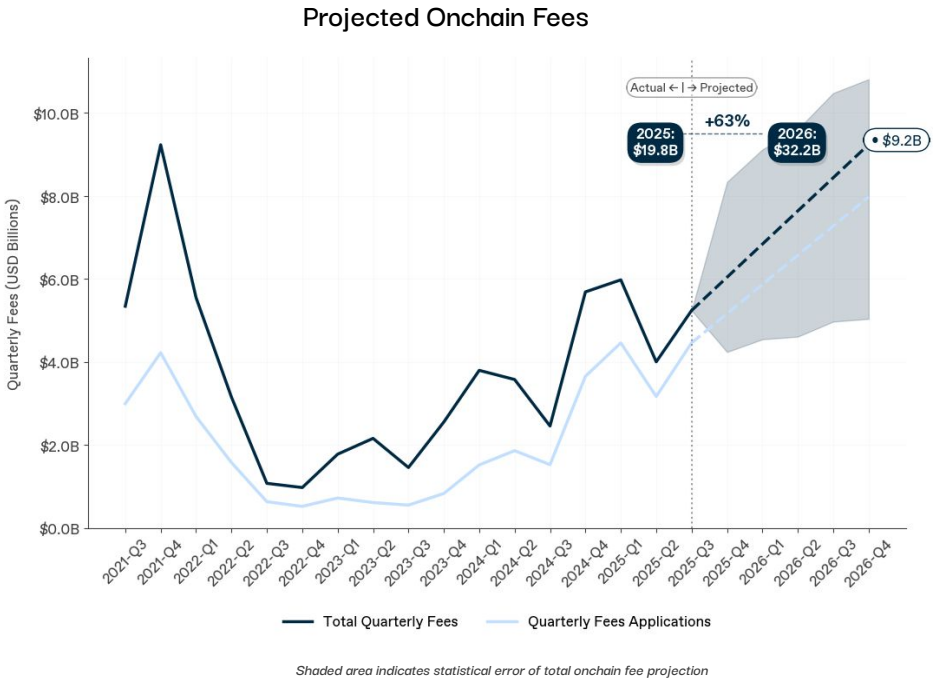
With further regulatory tailwinds, 2026 onchain fees are projected to reach 60% YoY growth at $32+ Billion, all of which is attributable to application growth

Looking ahead

Base case projection for 2026: $ 32B+, 63% YoY in onchain fees

The base-case forecast projects $32+B in onchain fees for 2026, 63% YoY, **continuing the Application driven growth trajectory:**

- **Blockchains:** Little growth; continuation of efficiency gains largely offsetting higher activity; deviations remain market-driven (e.g., '24/25 "Memecoin Mania")
- **DeFi/Finance:** Continued expansion (>50% YoY), though sensitive to asset price movements, yet supported by new sub-sectors.
- **Emerging sectors:**
  - RWAs: $500M onchain fees (est. 10x YoY) in '26 on rising AUM projections
  - DePIN: >$450M, sustaining triple-digit growth
  - Wallets: Growth slightly higher than DeFi (50%)
  - Consumer: ~70% YoY increase, though with error margins on both directions
- Middleware growing 50% as many protocols on the cusp to start or increase monetization (e.g. Wallet Connect)



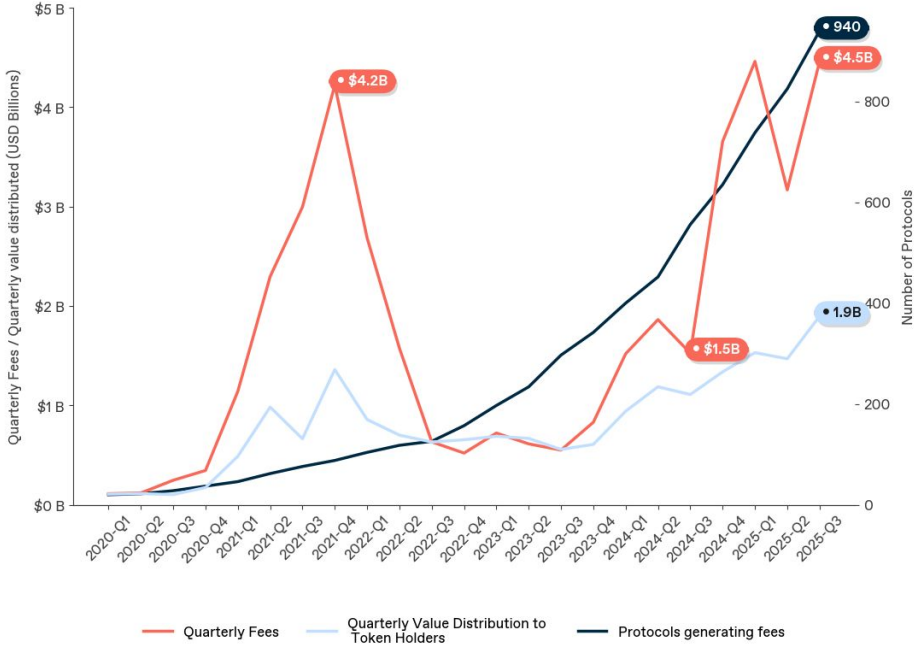
Looking ahead

Optimistic outlook based on continuation of Application growth

Application fees mirrored the 2021 spike of Blockchain fees, but the recent growth in onchain fees is entirely application-driven, a trend expected to continue:

- Emerging sectors like RWAs, DePIN, Wallets, and Consumer grew at triple digits in H1 2025 fees (red line) and are projected to expand another ~70% YoY in 2026.
- Consumer and DePIN protocols already saw an uptick in the number of protocols monetizing in 2025 (dark line in the chart). This trend will continue across all Application sectors
- Nearly all value distributed to token holders by protocols originates from applications (light blue line). Regulatory tailwinds are poised to reinforce this trend

Applications: Onchain fees, value distributed and protocols monetizing



Regulatory environment turned 180

Regulators changed approach and signal permissive environment for digital assets

- More clarity for DeFi applications: MiCA, Genius Act
- Evolving frameworks (Clarity Act, SEC moving to rulemaking-first vs. enforcement-first)
- As regulators and elected officials become more familiar with blockchain technology, laws and regulations should become more fit-for-purpose. The new SEC Chair has called crypto and tokenization a top priority.

This environment in the US already shows that mainstream adoption is ready

- Tokenized funds (BlackRock's BUIDL fund, tokenized via Securitize)
- Tokenized stocks (e.g. Galaxy's stock $GLXY, tokenized via Superstate)
- Robinhood announced its own L2 for RWAs
- Depository Trust & Clearing Corporation (DTCC) announced it wants to tokenize its clearing activities
- Digital Asset Treasury companies (DATs) have surged in popularity

Though, tax laws remain a blocker for more onchain flows

Onchain value flows and fee-generation still impacted by missing clarity of US tax treatment. Examples of open questions:

- Is (un)wrapping a token taxable?
- Are there differences in tax treatment between rebasing LSTs (stETH) and accruing LSTs (wstETH)?
- When is revenue recognized on staking rewards, at accrual or claim?

Conclusion and outlook

Users paid $9.7B in onchain fees in H1 2025, the second-highest level on record since H2 2021. Back then fee generation was driven by billions of dollars in user-rewards, incentive-related speculation and a few costly PoW blockchains.

Today fees are generated primarily by applications, led by financial use cases but expanding rapidly into DePINs, Wallets, and consumer apps (each with >200% YoY growth).

Despite higher throughput, blockchain fees have remained flat as efficiency gains lowered unit costs - a trend extending to DEXs and other established protocols. This dynamic enables applications to scale quickly and profitably.
Consequently, we saw all-time highs in value distributed to token holders (e.g. via buybacks, token burns) for the past three quarters.

The regulatory environment has also shifted, with recent legislation (e.g., the Genius Act) enabling institutional participation in DeFi and expected to further legitimize value distribution to token holders.

Outlook: The 2025 data and the projected $ 32B+ / 63% YoY growth in fees for 2026 confirm an continuing uptrend in onchain monetization. Applications are scaling faster and larger than ever with increasing value distribution, while regulatory clarity supports broader investor participation. As the relationship of fees and valuations for applications show, onchain economics have entered a more mature phase where fundamental fee metrics warrant close attention from investors.

This report is not an offer to sell securities of any investment fund or a solicitation of offers to buy any such securities. Securities of 1kx LP, a Cayman Islands exempted limited partnership, and 1kx Ltd., a Cayman Islands exempted company (collectively, "1kx" or the "Fund"), managed by 1kx Management Ltd., a BVI business company (the "Investment Manager"), are offered to selected investors only by means of a complete offering memorandum and related subscription materials which contain significant additional information about the terms of an investment in the Fund (such documents, the "Offering Documents"). Any decision to invest must be based solely upon the information set forth in the Offering documents, regardless of any information investors may have been otherwise furnished, including this report.
An investment in any strategy, including the strategy described herein, involves a high degree of risk. There is no guarantee that the investment objective will be achieved. Past performance of these strategies is not necessarily indicative of future results. There is the possibility of loss and all investment involves risk including the loss of principal. Securities of the Fund are not registered with any regulatory authority, are offered pursuant to exemptions from such registration, and are subject to significant restrictions.

The information in this report was prepared by the Investment Manager and is believed by the Investment Manager to be reliable and has been obtained from public sources believed to be reliable. The Investment Manager makes no representation as to the accuracy or completeness of such information. Opinions, estimates and projections in this report constitute the current judgment of Investment Manager and are subject to change without notice. Any projections, forecasts and estimates contained in this report are necessarily speculative in nature and are based upon certain assumptions. It can be expected that some or all of such assumptions will not materialize or will vary significantly from actual results. Accordingly, any projections are only estimates and actual results will differ and may vary substantially from the projections or estimates shown. This report is not intended as a recommendation to purchase or sell any digital currency, digital asset, commodity or security. The Investment Manager has no obligation to update, modify or amend this report or to otherwise notify a reader thereof in the event that any matter stated herein, or any opinion, projection, forecast or estimate set forth herein, changes or subsequently becomes inaccurate.
The graphs, charts and other visual aids in this report are provided for informational purposes only. None of these graphs, charts or visual aids can and of themselves be used to make investment decisions. No representation is made that these will assist any person in making investment decisions and no graph, chart or other visual aid can capture all factors and variables required in making such decisions.
This report is strictly confidential and may not be reproduced or redistributed in whole or in part nor may its contents be disclosed to any other person without the express consent of the Investment Manager.

Appendix A: Detailed Methodology

Methodology

Fees vs. Revenues - What's the Difference?

Data providers in the decentralized ecosystem use "fees" and "revenues" differently from conventional financial reporting:

- **Fees:** Fees represent the total user payments to protocols - analogous to net sales or top-line revenue in traditional P&Ls. These are typically transaction costs, such as swap fees (DEX) or gas fees (Blockchains), which is why they are called "Fees"
- **(Protocol) Revenues:** reflect the portion of fees retained after compensating contributors (the "supply-side fee share"), comparable to gross profit in corporate terms

Decentralized protocols need assets to offer their services, e.g. DEXs: liquidity to facilitate swaps. These assets are provided by protocol contributors: anyone can allocate any amount to the liquidity of Uniswap and gets their share of the paid fees users pay when swapping on Uniswap. Note though, that this cut taken from fees mustn't be directly, but can take several forms and leads to the profitability / capital distributed parts of the P&L statement - see slide 53ff. on that.
To align with industry terminology, we use "fees" as defined above. However, for readers less familiar with crypto-specific nomenclature, these correspond conceptually to "revenue" in corporate finance. Given our primary audience, this report is hence titled "The Revenue Report".

Econ 101	Decentralized Protocols
Net sales/Revenues ● COGS	**Fees** ● COGS/Supply side revenue shares
= Gross Profit ● SG&A ● Marketing ● R&D ● Other Opex	**= (Protocol) Revenue** ● Protocol/ foundation expenses ● Token rewards
= Operating income ● Interest income/expense	**= Operating income**
= Earnings before taxes ● Income taxes	
= Net earnings	
...	...
Capital distributed (Dividends, Buybacks)	Value distributed to token holders

Where are fees generated?

Onchain vs offchain fees: Please refer to slide 4 or the Glossary for the distinction.

B2B vs. B2C: We don't intend to segment customer types in this report, though it's worth noting that unlike traditional firms, protocols cannot easily distinguish between retail and institutional users; any wallet can interact directly. More useful is to analyze whether fees stem from direct wallet interactions ("C-type") or protocol-to-protocol activity ("B-type"). Example: Swapping token A on Ethereum for token B on Solana may involve multiple separate protocols and fees (Ethereum gas, Solana gas, bridge, DEX). A frontend aggregator can bundle these into one user fee and pay underlying costs itself, becoming a B2B partner for the underlying protocols.
Similarly, Ethereum L2s aggregate many user transactions, paying settlement fees to Ethereum. This creates potential double counting in industry fee totals, since both L2 fees and the portion remitted to Ethereum appear in reported figures (see slide 58 on how we handled those cases).

How are fees generated?

The foundational use case for digital assets is blockchain-based transaction settlement - users pay fees to record transactions (e.g., transferring 1 BTC) on immutable ledgers. Transaction fees remain the core business model for blockchains, while additional sectors have emerged, leveraging decentralized, permissionless infrastructure:

- **Blockchains:** Transaction and settlement fees on L1s, L2s, and MEV protocols.
- **Middleware:** Connective infrastructure such as developer tooling, oracles, identity, and bridges. Bridges, for instance, charge fees to facilitate cross-chain transfers.
- **DePIN (Decentralized Physical Infrastructure Networks):** Real-world services—compute, storage, connectivity, or data—monetized via user fees.
- DeFi/Finance: DEXs, derivatives platforms, lending, staking, vaults, payments, and stablecoin/RWA issuance. Protocols capture a share of user-paid fees or interest.
- **Wallets:** Interfaces like Phantom or Metamask that charge additional swap or transaction fees on top of integrated DeFi services.
- **Consumer:** Gaming, gambling, social, digital art (NFTs), and content platforms that monetize through transaction or access fees.

Who is getting the protocol fees?

Four groups benefit from protocol fee flows:

1. **Contributors** (validators, liquidity providers)
2. **The Protocol** (treasury/foundations)
3. **Active Token Holders** (e.g. stakers or governance participants)
4. **Passive Token Holders**

Fees first cover contributor costs (e.g., Bitcoin miners capture all transaction fees). The remainder is protocol "revenue" – comparable to gross profit in corporate finance terms (see Appendix B: Net sales and P&L in decentralized protocols).

Value Accrual Mechanisms

Because direct fee distributions to token holders face regulatory hurdles, protocols use alternative mechanisms[1]:

- **Fee Sharing:** A portion of fees kept by the protocol or distributed to staker. Staking often serves both as a signal of long-term commitment or is used as requirement for governance participation and reward eligibility.
- **Buybacks:** Fees in non-native assets used to repurchase native tokens, then redistributed (e.g., Aerodrome converts swap fees into AERO for lockers).
- **Burn Mechanisms:** Tokens acquired via fees destroyed ("burned"[2]) to reduce supply (e.g., Ethereum's fee burn alongside validator rewards)

Many protocols blend these methods, e.g. Ethereum distributes priority fees to validators and burns the base fees[3]. Additional channels such as governance rights monetization (bribes), tax tokens[4], or service access exist but are beyond scope. A comprehensive classification is offered by Valueverse.

This report centers on fees as protocol net sales: fees directly shaped by operational activity and less constrained by regulation. However, we provide a contrast of those fees with value flows to tokens and treasuries, noting current distributions are often driven more by compliance than by business motives.

1) There are exceptions: XYO protocol is the first protocol that went the route of officially registering as security, and corresponding semi-annual reports;
2) Tokens are burnt by sending them to a non-accessible address, called zero-address, see glossary
3) Priority fees are paid by users to get their transaction 'in front of the queue' of transactions lined up for inclusion in the next block
4) Tax tokens charge a transaction fee each time they are transferred, hence monetizing on the velocity of tokens, see glossary

Measuring cash flows / profits is easier said than done for protocols

Bottom line metrics rich in caveats - two metrics considered

User fees do not directly accrue to protocols or their token holders. This reflects regulatory considerations (e.g., avoiding security classification), reinvestment priorities, and the need to fund contributors. Consequently, fee-based top-line analysis cannot be directly translated into bottom-line metrics for cross-protocol comparison.

Nevertheless, we share at two metrics inspired by commonly provided metrics on Data Provider Platforms that aim to provide similarity profitability metrics of traditional finance when assessing value accrual to tokens.

Metric 1: Protocol revenue / Gross Profit

This covers the fees retained by the protocol and token holders (after contributor payouts). This comes close to a gross profit number, yet depends heavily on protocol design and business decisions, e.g.

- Bitcoin: All fees accrue to miners, so gross profit for BTC holders is always zero
- Uniswap: Swap fees accrue to liquidity providers, so gross profit is zero unless token holders vote to redirect a portion.

See Slide 56 on further nuances when considering this metric

Metric 2: Value Distributed to Token Holders

This metric reflects the **net value accruing to token holders**, analogous to dividends or buybacks in traditional finance[1)]. It aligns with Holder Revenue (per DeFiLlama), representing the share of protocol income distributed to holders - typically through buybacks, burns, or rewards (often limited to active holders; slide previous slide).

It also adjusts for dilution, as some holder revenue coincide with new token emissions, potentially resulting in negative net value. Since such dynamics are common in Blockchains[2)], early-stage protocols or part of the design[3)] we report only positive net distributions when aggregating across protocols,, consistent with how aggregated numbers of capital returns are treated in corporate finance.

1) This metric captures only immediate economic value and excludes additional benefits such as governance rights, which allow token holders to influence treasury allocation, parameters, and strategic decisions
2) E.g. in Q3 $ 56M worth of ETH was burned (Holder revenue), yet $ 934M worth of ETH was emitted for stakers
3) E.g. Burn-Mint-Equilibrium

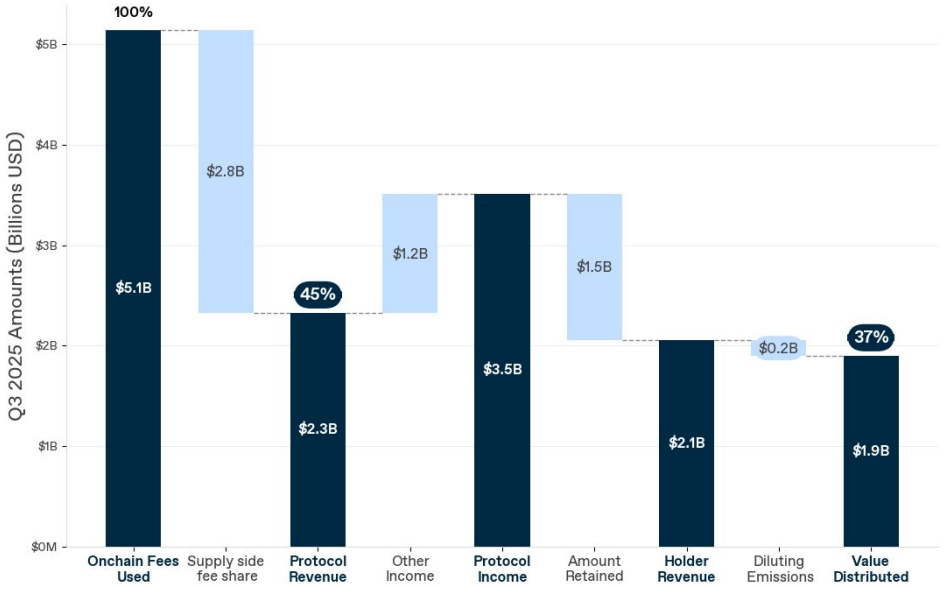
Methodology

From Onchain Fees to Value distributed to Token Holders (Q3 2025)

Q3 2025 onchain fees were $ 5.1B. The related profit metrics have caveats when put in contrast:

- **(Protocol) Revenue:** $ 2.3B / 45% of fees, meaning 55% was paid out to contributors - the largest part here are DEXs (42%) typically paying out liquidity providers
- **Protocol Income:** Some protocols have additional income related to 'Other Incomes' shown on slide 10[1)]
- **Holder Revenue:** $ 1.5B / 43% of Protocol Income is retained by the protocol, the remaining value directly or indirectly (e.g. via token burns) passed to token holders, resulting in $ 2.1B Holder Revenue for Q3
- **Value distributed to token holders:** Those protocols, where additional token emissions did not exceed the Holder Revenue had about $ 150M dilutive emissions, resulting in $ 1.9B / 30% as share of fees plus other income[2)]. This is a similar ratio to what Apple had in Q2 '25.

Onchain Fees, Protocol- and Holder Revenue, and Value distributed to Token Holders



1) E.g. the Auto-burn of BnB, or Penalties of Filecoin Storage Providers that are burned as well
2) E.g. Hyperliquid passed $ 278M to token Holders via fee burns, though also emitted $ 105M in staking rewards to validators of their L1 Blockchain

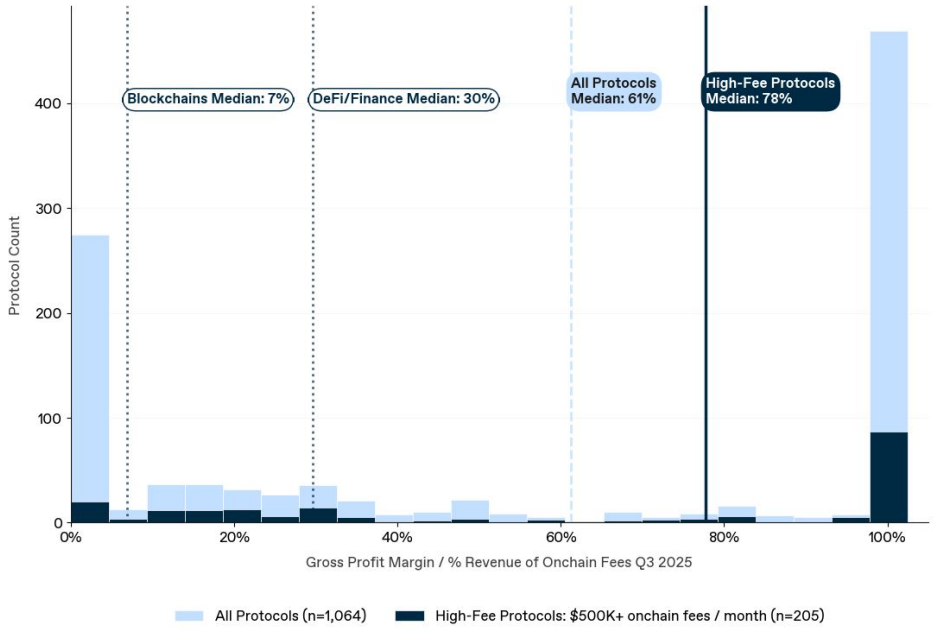
Methodology

Distribution of gross profit margins emphasizes differences in business models

Gross profit margins (share of protocol revenue at fees) among protocols are bi-modal - most either retain 0% or 100% of fees, meaning they fully share or retain all income from contributors such as validators or liquidity providers.

- As a result, aggregate figures (e.g., the **61% median** or **45% aggregate** share of protocol revenue shown on slide 54) offer limited insight
- The pattern persists even among high-fee protocols (>$500k/month, median 78%) and within sectors:
  - Blockchains: median ~7%, as most fees go to validators and hence not retained by the protocol
  - DeFi/Finance: median ~30%, reflecting better value capture compared to Blockchains
  - Consumer, Wallets, DePIN: medians near 100% (not shown)
- The bi-modal distribution is consistent over time, indicating drivers are more structural (and less protocol maturity), e.g.
  - Protocol design (Bitcoin)
  - Tokenomics (Burn-Mint-Equilibrium, e.g. DePINs)
  - Business decisions (Uniswap), or
  - Sector structure (Launchpads, Wallets).

Distribution of % Revenue on Onchain Fees / Gross Profit Margin Q3 2025



Methodology

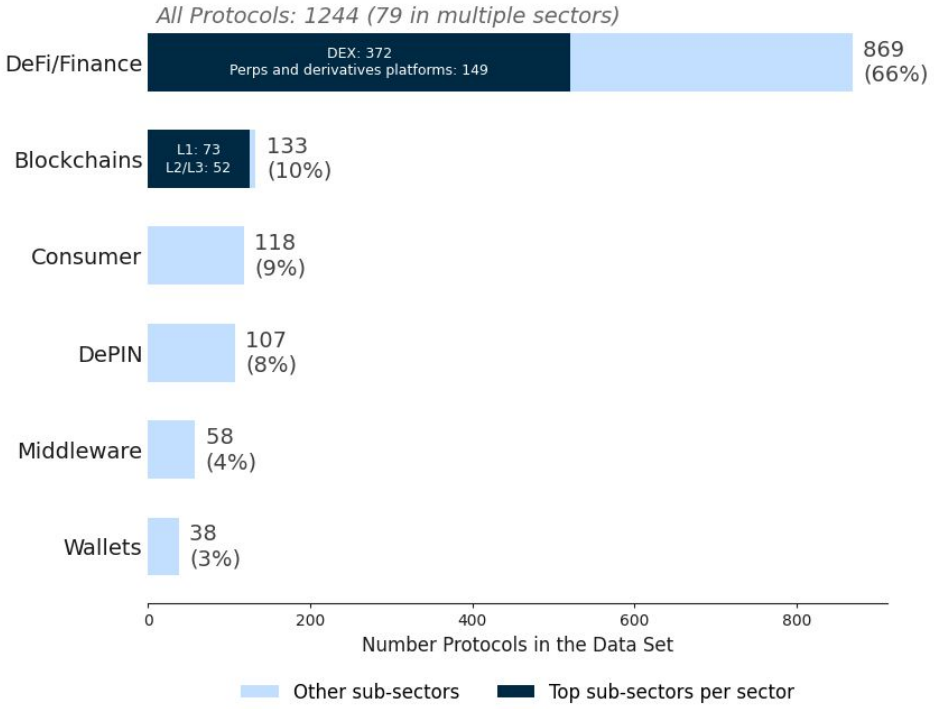
Underlying data and protocol categorization

Protocol data was sourced from analytics platforms such as Dune and aggregated providers including TokenTerminal and DeFiLlama (see here for details per protocol). While this dataset is the most comprehensive to date, it remains incomplete – for instance, it covers 73 L1 blockchains out of more than 350[1].

Verifications/adjustments of source data were made to align source data with our definitions of on-chain fees and (sub-)sector classifications.

We built on existing categorizations from DeFiLlama, TokenTerminal, and Messari (see mapping reference), with two key modifications:

- **Sector aggregation:** These sources do not group categories into broader sectors, so we created six overarching sectors shown on slide 4: Blockchains, Middleware, DePIN, DeFi/Finance, Wallets, and Consumer.
- **Multi-sector attribution:** Many protocols span multiple categories (e.g., Hyperliquid operates both as an L1 blockchain and a trading platform). We allocated fee income by source, resulting in 79 of 1,244 protocols being assigned to multiple sectors
- Protocols/Businesses spanning across multiple sectors also applies for the industry overview on slide 11 (e.g. Coinbase)



1) Per Coingecko. It is fair to assume that many of those do not generate meaningful fees if data is not available
2) E.g. Hyperliquid earned $ 320M in trading fees in H1 2025 and $ 1.6M in transaction fees on its Blockchain - we split those fees accordingly to the sectors and sub-sectors (also visible on slide 28, where we showed the fee-shares of different sectors per protocol for the top 20)

Accounting for “double-counting”

In onchain Fees

User-paid fees are sometimes passed through to other protocols when underlying infrastructure is used. To avoid double-counting in our aggregation, we made the following adjustments:

- Blockchains: L2s settle user transactions on L1s (e.g., Base → Ethereum). We used growthepie.com data to separate these flows.
- MEV protocols: Some MEV fees overlap with blockchain priority fees (e.g., Flashbots on Ethereum); overlaps were adjusted using eigenphi.io data.
- DEXs / Aggregators / Wallets: Wallets and aggregators route swaps via DEXs, but fees reported for wallets already exclude DEX-related shares.
- Offchain fees: Roughly $2.5B in CEX token buybacks (onchain) tied to offchain income were deducted from aggregated offchain fee totals.

These overlaps accounted for ~2% of H1 2025 onchain fees and will be refined as more granular data becomes available.

In estimates for offchain fees and other income

When estimating total industry revenues (slides 11, 63, 64), we adjusted for double-counting of user payments as follows:

- CEX Wallets: Revenues from exchange-operated wallets are included under DeFi/Finance, not Wallets. Exceptions are Coinbase Wallet and Trust Wallet, which are classified under Wallets as onchain fees.
- Market Makers & CEXs: Offchain market-maker spreads (> $1B estimated, based on ~$10T CEX trading volume in H1 ’25) overlap with CEX revenues and were deducted accordingly.
- Blockchains: Validator and infrastructure operator income was excluded to prevent overlap with onchain transaction fees and rewards.
- Liquid Staking: Staking rewards (Blockchains) and Liquid Staking income (DeFi/Finance) are shown separately, including the share retained by Liquid Staking protocols (e.g., Lido).

Appendix B: Glossary

Glossary

Burn-Mint-Equilibrium: The Burn-Mint Equilibrium is a self-balancing token model where tokens are continually issued to reward contributors and destroyed through user payments—economically comparable to a company that funds operations through equity issuance while offsetting dilution via share buybacks.

CEX: Centralized exchange (e.g. Binance, Upbit) - Centralized businesses generating off-chain revenue, often with balance sheets, management, and regulatory obligations - more akin to listed financial institutions and traditional brokerage or exchange

DePIN (Decentralized Physical Infrastructure Network): These are real-economy networks that use blockchain coordination to deploy and manage physical or digital infrastructure provided by individuals or businesses rather than a single corporate operator.Examples include: Helium (decentralized wireless and IoT networks), Render (distributed GPU compute), Filecoin (decentralized data storage), Aethir (cloud and edge compute infrastructure)

DEX: Decentralized exchange (e.g. Uniswap) - Software-based marketplaces that monetize through onchain transaction fees. Whilst a CEX is like a traditional stock exchange that holds client assets and runs a business; a DEX is the open-source code version - no company, no custody, just software that earns fees every time traders use it

Governance: is how decentralized networks make and enforce decisions: A shareholder-style system where token holders, not executives, vote on the rules, fees, and resource allocation of the protocol.

Memecoin Launchpads: such as Pump.fun automate the creation, listing, and initial liquidity of new, highly speculative community tokens. Functioning as fully onchain, turnkey issuance platforms - akin to retail IPO or crowdfunding engines - they earn fees per launch and trade rather than holding inventory or underwriting risk.
By monetizing retail speculation, similar to brokerages capturing order-flow revenue, launchpads have made token creation a high-volume, low-margin business, processing thousands of launches daily. Despite the fleeting nature of the tokens, platforms like Pump.fun are highly cash-generative, with annualized onchain fees in the hundreds of millions, supported by strong volume and network effects.

Glossary

Memecoin Mania: Starting in mid-2024 and extending into early 2025, the crypto market experienced a dramatic surge in Meme-based tokens launched as jokes or cultural memes without fundamental utility. Platforms like pump.fun enabled anyone to create and list a Memecoin within minutes, leading to an explosion of new issuances, particularly on Solana.

MEV (Maximum Extractable Value): In blockchain networks, MEV refers to the additional profit a validator (or block producer) can earn by reordering, inserting, or excluding transactions within a block before it is finalized. It's essentially value extracted from controlling the order of trades - not from changing the trades themselves, but from deciding when and in what sequence they happen. The closest parallels in traditional finance are:

- High-Frequency Trading (HFT) latency arbitrage: traders profit from seeing orders milliseconds before the market does.
- Broker-dealer internalization: a market maker executes client orders in-house, potentially reordering them for profit.
- Specialist's book control on a stock exchange: historically, specialists could match orders in ways that benefited them.

The difference: In blockchains, the validator has full discretion over transaction ordering inside their block, making these opportunities transparent (onchain) and enforceable by code.

Node sale: is how esp. DePINs finance and distribute their capacity – investors purchase and operate nodes, earning network fees or tokens much like owning productive assets in a digital utility

Onchain fees: are fully recorded on the blockchain, with both payer and recipient identifiable via wallets (e.g., user payments to validators). See under "offchain fees" how we extend this to buybacks.

Offchain fees: occur outside the blockchain—for example, credit card payments for DePIN services or in-game purchases. Some are later "brought onchain" when protocols transfer fiat proceeds or conduct token buybacks, which are typically non-verifiable since it is unclear whether tokens were repurchased on the market or sourced internally. We include such income in onchain fee figures unless clearly not market-sourced. Many businesses, esp. CEXs and market makers, retain most income offchain with limited disclosure. Even if parts are held in blockchain wallets, the lack of transparency renders them effectively offchain. Some exchanges (e.g., Binance, Gate, Bitget) link offchain profitability to onchain token economics through buyback programs, but since only token movements, not their funding sources, are visible, these mechanisms remain opaque and unverifiable.

Glossary

Staking: Staking is the process of committing ("locking up") a certain amount of a cryptocurrency to support the operations of a blockchain network, often in a proof-of-stake (PoS) system. In return, one earns periodic rewards, similar to earning interest or a dividend, paid in the same cryptocurrency. One can think of staking as a hybrid between a dividend-paying stock and a performance bond:

- Like owning stock and receiving dividends, you hold tokens and get paid rewards for contributing to the system.
- Like posting collateral or a surety bond, your stake can be forfeited if you or your validator fail to meet obligations.

In some ways, it also resembles a term deposit in banking—your capital is locked for a certain period, and you're compensated with yield.

Tax token: A blockchain-based token whose smart contract is programmed to automatically collect a fee ("tax") on every transaction involving that token. This fee is deducted directly onchain at the moment of transfer and routed to a predefined wallet or set of wallets. One can think of it as a security with an embedded, automated transaction levy – except in crypto, there's no clearinghouse or transfer agent doing the deduction; it's built into the token's code itself.

Token Burn: is the permanent removal of tokens from circulation, typically by sending them to an inaccessible ("burn") address. Economically, it functions similarly to a share buy-back followed by retirement in traditional finance, reducing the total supply and potentially increasing the value of remaining tokens, assuming demand remains constant or grows.

Token rewards/Incentives: Are units of a blockchain's native cryptocurrency (or another digital token) that are granted to participants for contributing to the network or engaging with a protocol. They are a form of incentive compensation, paid not in cash but in the protocol's own asset. Token rewards are typically issued to: Validators / Miners, for securing the network (e.g., adding blocks, validating transactions), Liquidity Providers, for supplying assets to decentralized exchanges or lending pools, Users / Community Members – for adopting or promoting the platform (e.g., airdrops for early users). The goals are to: Bootstrap activity in a new network (similar to offering equity options in a startup), reward ongoing contributions that sustain operations, and align incentives between the protocol and its stakeholders. One can think of token rewards as a hybrid between: Stock options or equity grants (they give you a stake in the growth of the network), In-kind dividends (instead of paying in cash, the company/protocol issues more of its own shares/tokens, or Loyalty program points (earned by participating, redeemable within the ecosystem (though here, the "points" are often tradable on open markets)).

Appendix C:
Additional charts and notes

Industry revenue: >90% in DeFi/Finance and Blockchains

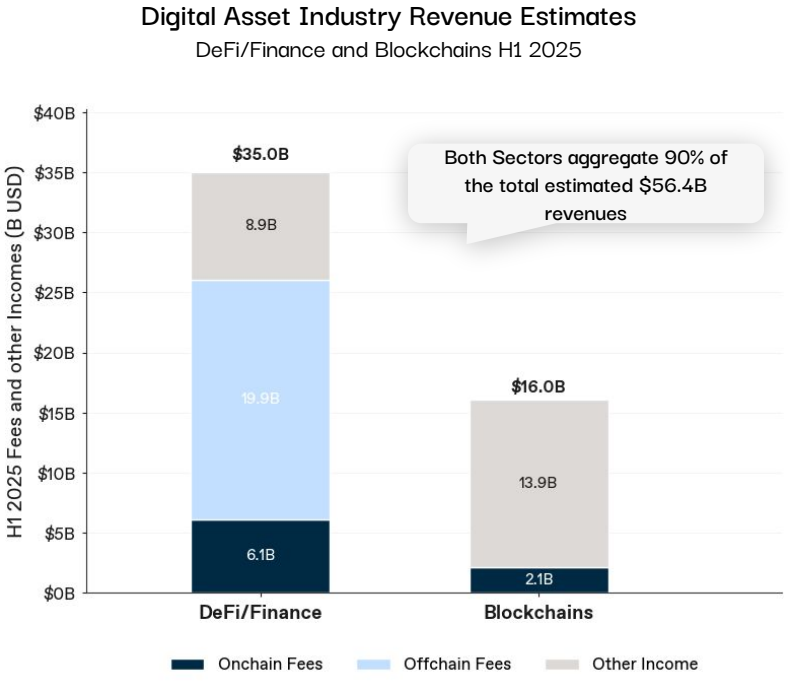
DeFi/Finance sector 62% of total ($ 35B, 21% YoY), the dominant sector on all income:

- $ 20B offchain user paid fees:
  - CEX (offchain) revenues: ~$ 19B. The largest share is Binance, which had about 40% of CEX spot trading volume in H1 '25. Binance total revenues for 2025 are projected to be $ 17.5B.
  - ~$ 4B[1)] fees are Market Maker fees and spread incomes, mgmt., advisory and custody fees for ETFs/ETPs and funds, also include income from CeFi offerings (lending, staking)
- $ 8.9B other incomes:
  - $4.5B stablecoin issuers: Per Q3 '25 close to $ 300B in stablecoins have been in circulation. Most of those are backed by assets (e.g. cash equivalents like T-Bills). Companies issuing these (Circle, Tether) generate income via the yield on those assets
  - $2B are the value of BNB token burns (see slide 15)
  - Included are yields generated from liquid staking protocols, other yield incomes (e.g. from DeFi asset managers / vaults), token incentives and estimated prop trading income (market makers)
- $ 6.1B onchain DeFi fees: Contain DEX/DEX aggregator fees (50%), Perps and derivative platform trading fees (15%), lending fees (15%) and six other categories, as detailed in Slide 15

Blockchains generated 28% of total / $ 16B / -11% YoY:

- $ 13.9 B (87%) other income: earned by miners and stakers as rewards for operating the Layer 1 blockchains: BTC miners ~$ 8B in block rewards. Solana-, Tron- and Ethereum (each $ 1-2B) most of the remaining rewards.
- $ 2.1 B (13%) onchain user paid fees: $ 1.4 B for L1 Blockchain transactions (>80% Ethereum, Solana and Tron)

1) See also notes on overlaps on slide 58 as the totals exclude overlaps, e.g. from market makers and CEXs, or Liquid staking providers and Blockchain staking rewards.



Industry revenue: Other sectors small, but growing fast

Consumer 7% of total / 3.8B / +173% YoY

- $ 2.7B estimated offchain fees of crypto casinos: similar to CEXs, some casino income is visible onchain e.g. via buybacks of Shuffle and Rollbit, but largest part is offchain. Stake est. $ 4.7B gross gaming revenue '24
- Remaining entails estimates for revenues of media and publication businesses (e.g. Messari, Nansen, Blockworks, Bankless), consumer goods revenues related to crypto protocols, e.g. Pudgy Penguins toys and Web3 gaming fees (e.g. Sandbox, Axie)

Wallets and Interfaces 2% / 0.9B / 158% YoY

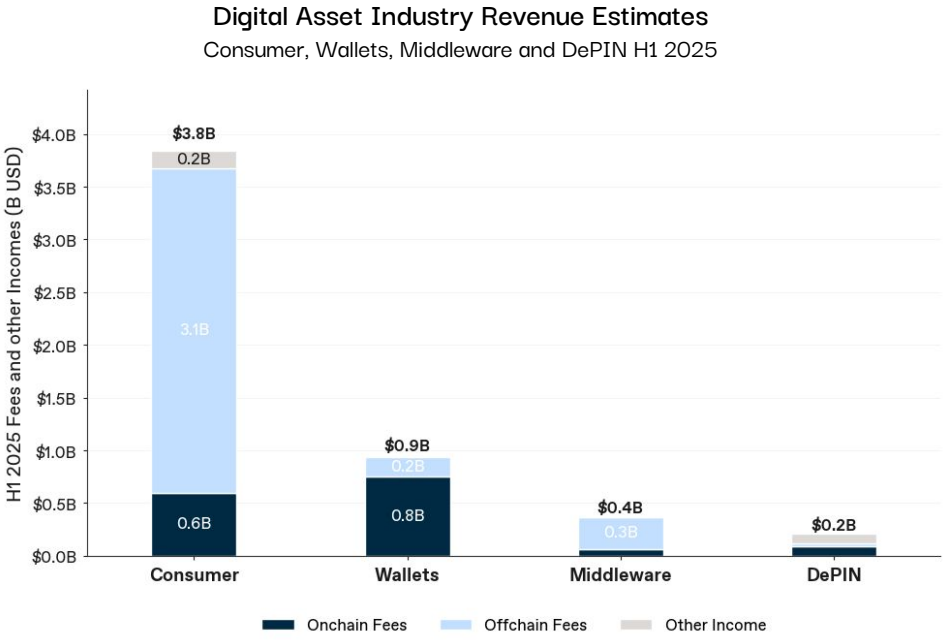
- Includes estimates on affiliate and advertising fees paid to Wallets, though the largest share are Onchain fees

Middleware <1% / 0.4B / 43% YoY

- Includes fees for developer tooling and security, large part here are estimated for offchain revenues of Alchemy, Infura and Helius. Also includes security audits fees and rollup as a service fees, DAO infrastructure (incl. grants), and income (fees, ads) of block explorers

DePIN <1% / 0.2B / 40% YoY

- Offchain fees: Whilst many DePINs generate a large amount of their fees offchain, they increasingly make those visible via buybacks on chain. However, proceeds from selling hardware devices are often not included in those. Examples are e.g. the Cudis ring (>20k sold) or the Dimo On-Board Diagnostics devices for cars (over 180k connected cars). Not included in our estimates are the proceeds of those so called "node sales" that focus purley in serving the network supply.
- Whilst onchain fees grew 416% YoY, other incomes actually decreased. Those are mainly token incentives for operators, common in early stages of DePINs to subsidize the operations of network contributors

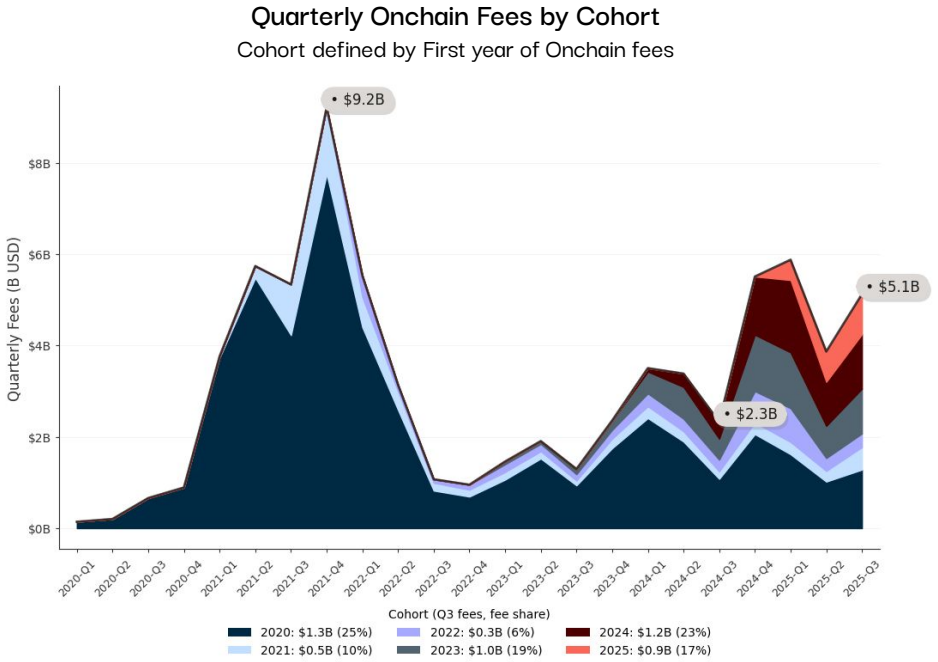


Is it real?

Cohorts of 2023 - 25 generate 60% of onchain fees

Protocols that started generating fees in 2020 and before have dominated onchain fees until late 2024, despite being the smallest cohort in number of protocols (see slide 22):

- In Q3 2024 the share of the 2020 cohort was still 44%
- Over the past year the cohorts of 2023, ‘24 and ‘25 drove most of the additional onchain fees and increased their share to 60%
- Those cohorts are also the largest in terms of numbers: 82% of protocols started to monetize after 2022, however the majority



Market structure

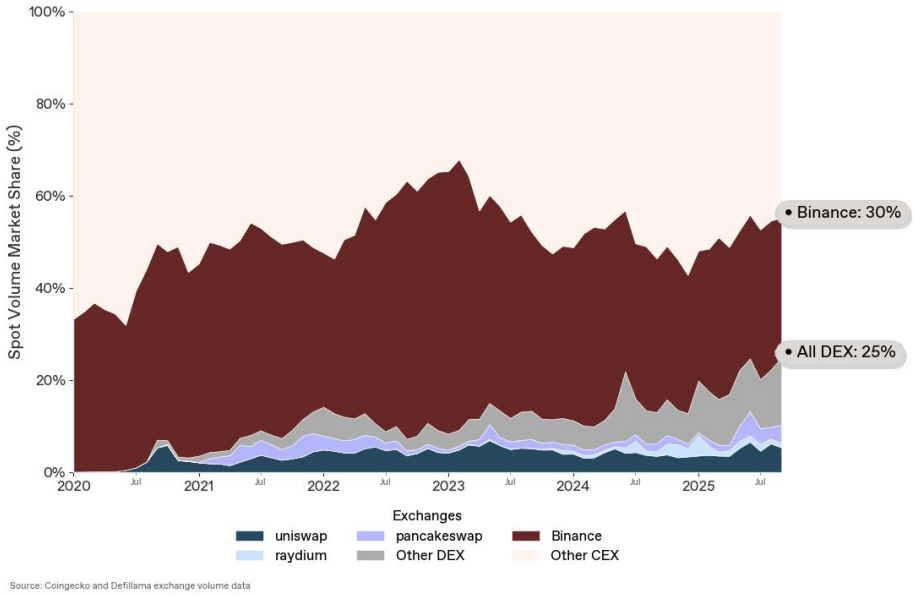
DEXs continuously gain share of trading volume

Crypto trading volumes[1)] have been dominated by centralized exchanges, though DEXs continuously increase their share:

- Most CEX spot volume is on Binance, which accounted for over >50% in the peak and still does 30% currently
- However, DEX take an increasing share of transaction volume as part of an undisrupted year-long upwards trend. The latest share was 25% in September 2025.

Exchange Spot Trading Volume Market Share

DEX vs CEX Evolution (2020 - 09/2025)



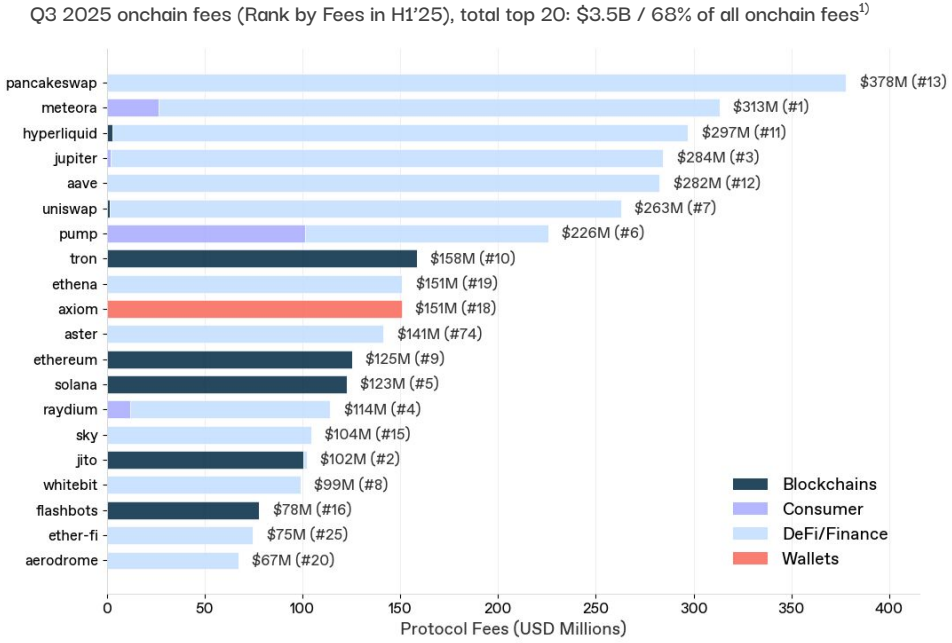
Source: Coingecko and Defillama exchange volume data

1) Exchange trading volumes are always subject to wash-trading activities, hence the exchanges and volumes selected here are in line with theblock.co and coingecko trustscores.
Source: Coingecko (Trading Volumes), DefiLlama (DEX trading Volumes)

Top 20 in Q3 68% of all onchain fees, rotation within leaders

Leadership in protocols generating onchain fees changes frequently, though concentration rather slowly declines:

- Whilst top 20 protocols made 94% of all onchain fees in H2 2024, this is declining over time, 68% in Q3 2025
- Aster and Ether-Fi joined the top 20 vs. H1 2025 (slide 29), though the rankings of the remaining protocols change a lot as well, as the brackets in the chart indicate
- E.g. Meteora lost it's #1 spot to Pancakeswap[2] took the lead in Fees, Hyperliquid made a big jump to third place
- These movements are in line with the described rotation of fee leaders on slide 30



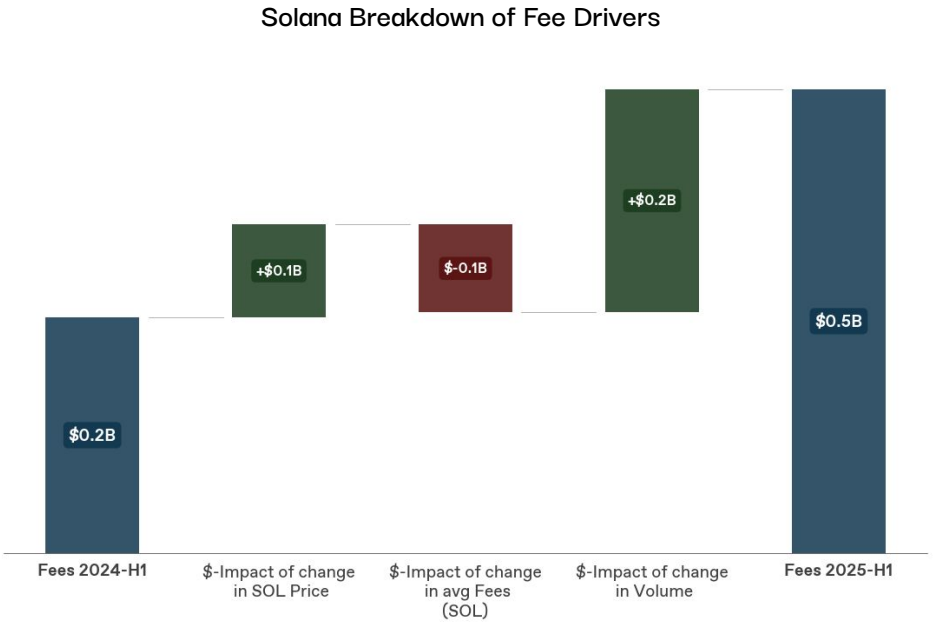
1) Not considering double-counting of fees between protocols here, see slide 58
2) It's worth noting that data provider differ in the volume and fee numbers, e.g. shown is Tokenterminal's fees for Q3, DefiLlama: $ 180M, Pancakeswaps Dune Dashboard (not incl. all versions/chains): $ 84M

Drivers

Solana's fees more than doubled driven by volume and price

Solana roughly doubled onchain fees YoY, driven by Volume:

- Solana saw a roughly 2x in Non-vote Transactions H1 2025 YoY[1)]
- Whilst the average Fees in SOL-terms declined, an increase in the SOL price of over 20% YoY, caused the overall onchain fees to increase by 97%



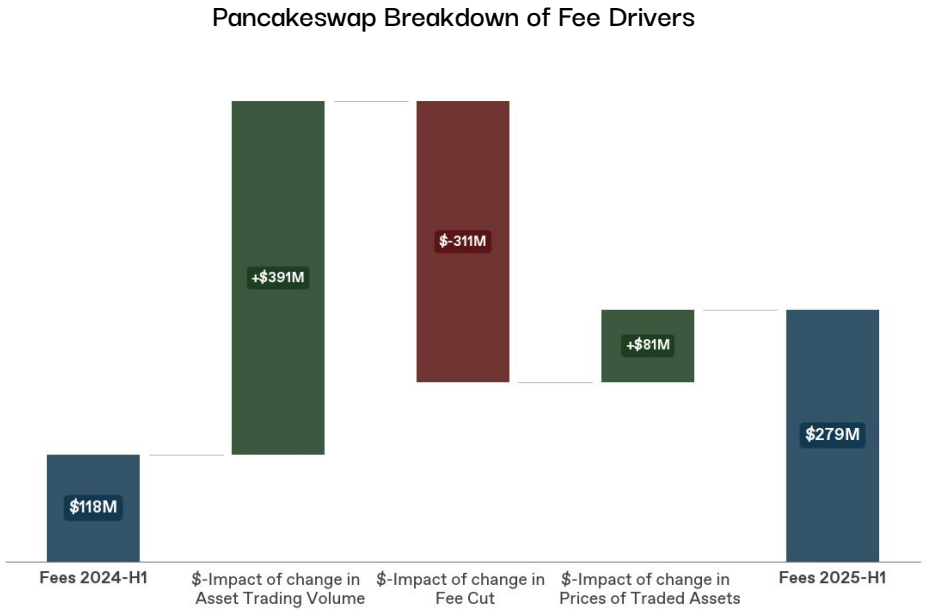
1) The majority of Transactions on Solana are validator-to-validator messages used for the consensus mechanisms, which don't represent end-user demand and hence are not considered.
Source: https://dune.com/queries/3897235

Drivers

Pancakeswap's fee increase YoY driven by volume despite decrea-sing take rate

PancakeSwap, another established DEX like Uniswap, grew trading volumes over 200% in recent quarters, now leading peers by Spot trading volume (see also slide 63)

- Similar to Uniswap, its fee take rate declined in the past year
- However, the surge in Volume together with the asset price increase of traded assets[2] lead to overall increasing fees generated by Pancakeswap YoY



1) The majority of Transactions on Solana are validator-to-validator messages used for the consensus mechanisms, which don't represent end-user demand and hence are not considered.
2) Assumed a similar asset mix to Uniswap, which is largely driven by stablecoins, Ethereum and Bitcoin
Source: DefiLlama (Transaction Volume), Tokenterminal (trading fees)

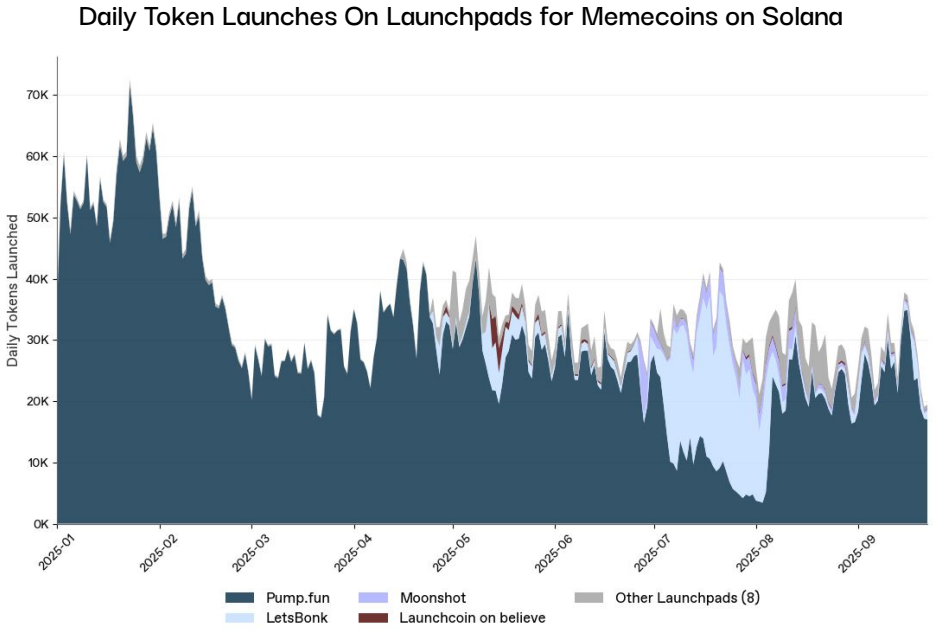
Growth drivers

Launchpads for Memecoins as example for quick disruption

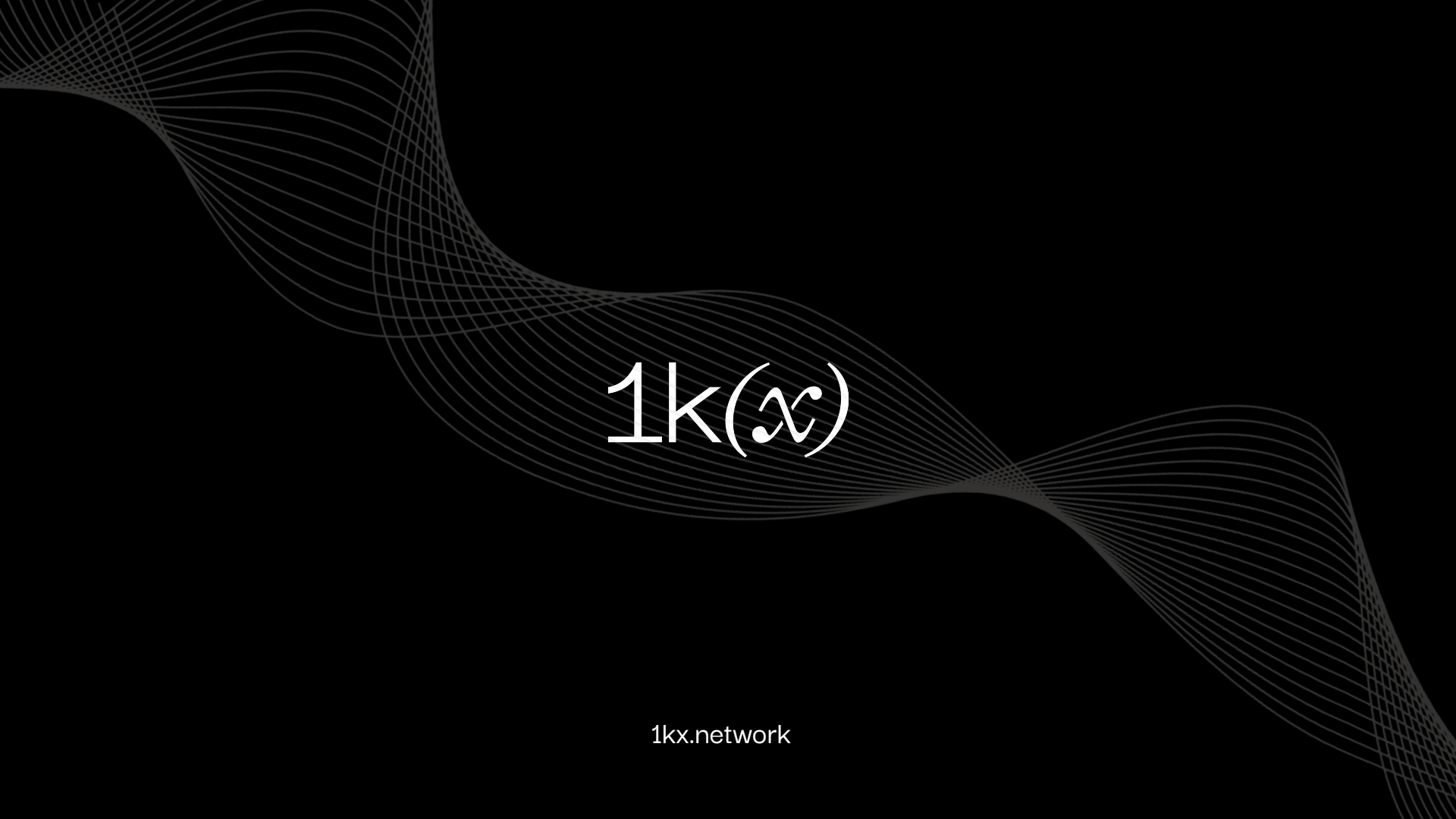
Launchpads for Memecoins are one of the more recent examples how the scaling of the underlying infrastructure (e.g. cheap transaction fees) allows fast growth of protocol services:

- Pump.Fun established Memecoin launches in Q4 '24 on Solana, quickly scaling to 70k Memecoins launched by users in the peak of Q1 25
- Others followed quickly and in July LetsBonk was able to grab the majority of token launch volumes
- By Mid-August however, this reversed completely as Pump.Fun regain its leading position

Note that these figures are just for Launchpads on Solana. An overview including Base and BnB Chain is here



Source: https://dune.com/queries/4010816



1kx.network