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Ricardo Mastrangelo

Blockchain Chains Money Flow Analysis: Who Gets Paid *what* in the Ecosystem

An Analysis of Where User Money Goes in Blockchain Networks *Based on Comprehensive Case Studies of 25+ Chains and L2 Solutions, 20 top protocols and 14 oracles –*

Note: Crypto Market Cap as of writing: $4.3T

Executive Summary

This analysis examines the distribution of economic value generated when users interact with blockchain networks. For every $1 in transaction fees, value fragments are distributed across multiple recipients—on-chain among validators, miners, foundations, token holders, oracle networks and MEV searchers, and off-chain among venture investors, infrastructure operators, oracle networks and other service providers.

A key observation concerns oracle networks, which constitute critical Web3 infrastructure yet seem to monetize primarily through non-public commercial contracts rather than transparent on-chain fee mechanisms.

We mapped end-to-end cash flows across 25+ major networks and the 20 leading protocols and dApps as well as meta-research, to draft this report, using a composite framework that integrates quantitative data with expert assessment where public information is unavailable. It also extends the analysis to off-chain financial flows—notably across 14 oracle providers, major infrastructure entities, and venture capital and foundation ecosystems—which together represent the largest hidden cost layer of the blockchain economy. These costs, though largely opaque, are ultimately borne by end users, underscoring the extent to which blockchain remains a subsidized and externally supported financial experiment rather than a fully self-sustaining system.

The analysis identifies a $120–170 billion annual subsidy economy underpinning the blockchain industry. Cross-network fee data indicates approximately $3.1 billion in annualized blockchain fee revenue and $10.6 billion in protocol-level fee revenues, implying a subsidy gap of $106–156 billion—roughly 90% of total ecosystem costs. This gap is financed primarily through token unlocks ($20–40B annually across major chains), mining subsidies ($18.1B for Bitcoin alone), staking inflation ($4–5B on Ethereum and $4.5–5B on Solana), and corporate balance sheet support (e.g., $3.9B in BNB quarterly burns).

These estimates are directional rather than exact, as the blockchain sector continually generates new projects with inflated notional valuations. However, due to limited liquidity and thin secondary-market depth, the realizable economic value of many of these assets is substantially lower than reported market capitalizations—suggesting that the apparent

scale of blockchain wealth creation is largely sustained by subsidized issuance rather than organic cash flows.

Preliminary findings indicate that the ≈90% subsidy share observed across the blockchain sector reflects both the structural costs of frontier infrastructure and the inherent fragility of token-based economics. Most of the value generation continues to stem from inflationary or non-recurring sources—notably programmatic token unlocks (Arbitrum $1-1.5B annually through 2027 and/or $1–2B annually for Avalanche through 2030+), MEV extraction ($2–5B on Ethereum; $0.8–1.2B on Solana), and foundation expenditures, rather than organic, fee-based revenues.

Only a limited subset of ecosystems approaches self-sustaining models. Hyperliquid, for instance, generates an estimated $0.5–1.35B in annualized trading-fee profits, while Base extracts all revenue and is profitable and Optimism operate near breakeven through sequencer margins on superchain fee capture. Yet even these exceptions face material long-term risks: Hyperliquid's $12B in team token unlocks scheduled for 2026 may significantly test the stability of its business model and reinforce the broader conclusion that most blockchain economies remain heavily reliant on subsidized capital flows rather than sustainable user-derived income.

Bitcoin requires $54-72B annually to secure $115M annually in fees. Ethereum, shifted from deflationary to 0.8% inflation post-Dencun, and Solana depends on $4.5-5B in annual subsidies versus $55M annually in daily fees. Most networks are therefore expected to continue relying on elaborate highly inflationary token redistribution mechanisms, with user fees representing at best 5-10% of total economic flows even for major established networks.

Caution remains warranted, as blockchain markets exhibit persistent structural opacity. Sophisticated actors continue to extract disproportionate value through non-transparent mechanisms: exchanges charge $1–5 million listing fees while engaging in wash and proprietary trading, and market makers demand 10–15% token loans with options allocations, manufacturing liquidity that obscures true price discovery. Venture funds frequently coordinate distribution cycles via private communication channels and algorithmic social-media amplification.

The emerging "Digital Asset Treasuries (DAT)" narrative appears primarily designed to repackage illiquid tokens for secondary distribution, coinciding with a 70–90% collapse in retail participation since 2021. With the market now dominated by professional liquidity extractors, new thematic cycles increasingly function as exit strategies rather than vehicles of genuine adoption.

To complement this report, we suggest the "Blockchain Survivability Report" which would map long-term network resilience and the "Institutional Alpha Playbook" which would outline positioning strategies around predictable high conviction strategies.

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Money Flow Categories (to table of contents)

Direct Recipients of User Fees

When users pay transaction fees, the money immediately flows to:

1. **Validators/Miners**: Network security providers receiving fee revenue
2. **Token Burn Mechanisms**: Reducing supply to benefit all token holders
3. **Protocol Treasuries**: DAOs and foundations receiving fee shares
4. **Layer 1 Settlement**: L2s paying for Ethereum security
5. **MEV Extractors**: Searchers and validators capturing MEV value

Indirect Ecosystem Funding

Beyond direct fees, ecosystem participant indirectly fund the ecosystem through:

1. **Token Inflation**: New token issuance diluting existing holders
2. **Foundation Grants**: Ecosystem development funding
3. **VC Investments**: Private funding flowing to protocols and infrastructure
4. **Airdrop Programs**: Token distributions for user acquisition
5. **Infrastructure Services**: Oracle and RPC provider fees

Hidden Value Extraction

Additional parties extract value without direct user payment:

1. **MEV Infrastructure**: Searchers, builders, and relay operators
2. **Exchange/Market Maker Partnerships**: Revenue sharing with protocols
3. **Institutional Services**: Custody, staking, and compliance providers
4. **Indexing Services**: $30-80M annually (The Graph, Dune Analytics)

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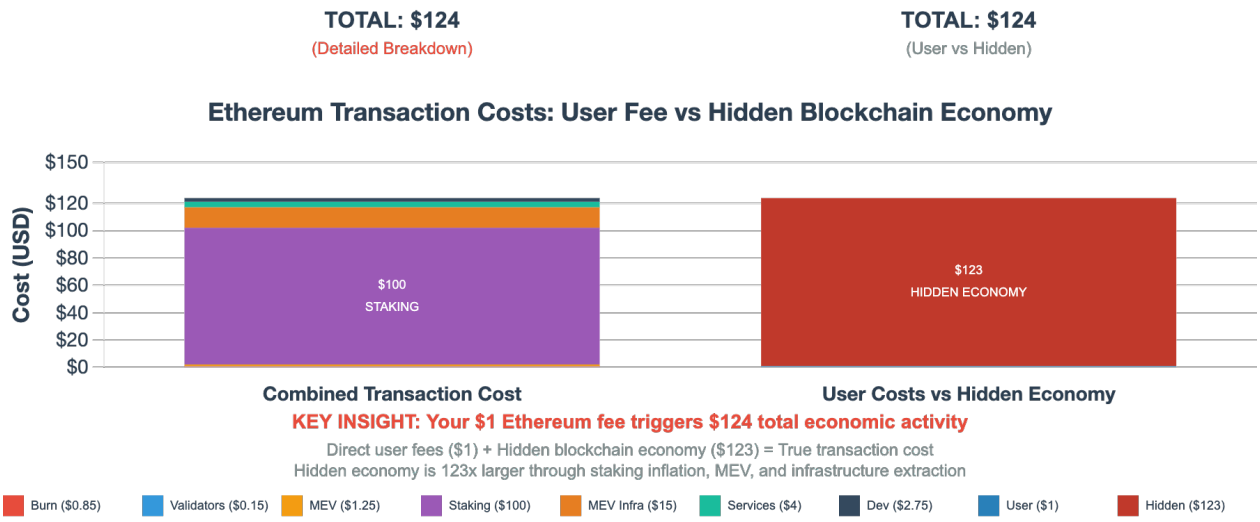
Major L1 Networks: Money Allocation Analysis (to table of contents)

Ethereum - Decentralized Value Distribution

Ethereum burns 100% of the base fee under EIP-1559 (≈$0.75–$0.90 per transaction), while validators capture priority fees (≈$0.10–$0.25 per transaction) and MEV rewards, depending on network congestion and block composition. Following the Dencun upgrade, the network transitioned from deflationary conditions to an estimated 0.7–0.8% trailing annual inflation. Aggregate ecosystem value flows total $6–10 billion annually, comprising approximately $65 million in chain fee revenue, $1–2 billion in MEV extraction, $120–130 million in Ethereum Foundation expenditures, and $50–150 million each across RPC, infrastructure, and oracle services. Post-Dencun, only ≈40,000 ETH are burned annually, while ≈960,000 ETH are newly issued to stakers, resulting in net issuance of roughly 920,000 ETH per year.

Ethereum payment flow[1]



When a user pays $1 in Ethereum fees:

Direct Fee Recipients

- **Token Burn (EIP-1559)**: $0.80-0.90 (100% of base fees destroyed)
- **Validators**: $0.10-0.20 (priority fees + MEV share)
- **MEV Extractors**: $0.50-2.00 additional value captured per transaction (a user spending $1 for his blockchain transaction may spend an additional $2 for MEV!)

[1] $8B(annual ecosystem flow)/$65M(annual fee generation)

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Latest Inflationary pressure

- **Deflationary Pressure**: 40K ETH burned annually
- **Staking Rewards**: 960,000 ETH issued annually to stakers
- **Net Effect**: Inflation of 920K ETH annually

Ecosystem Funding Recipients

- **Client Development**: $35M annually for all L1 R&D
- **Research Grants**: $30-60M annually for protocol research
- **Ecosystem Grants**: $44-61M annually for applications, tools and bd

Infrastructure Value Extraction

- **Oracle Providers**: $10-70M annually from Ethereum DeFi (opaque market)
- **MEV Infrastructure**: $1-2B annually total MEV value
- **RPC Providers**: $50-150M annually (Infura, Alchemy, QuickNode)
- **Indexing Services**: $30-80M annually (The Graph, Dune Analytics)
- **Ethereum Foundation**: $120-140M annually (average) for core development

Total Ecosystem Value Flow: $5-8B annually beyond $65M chain revenue

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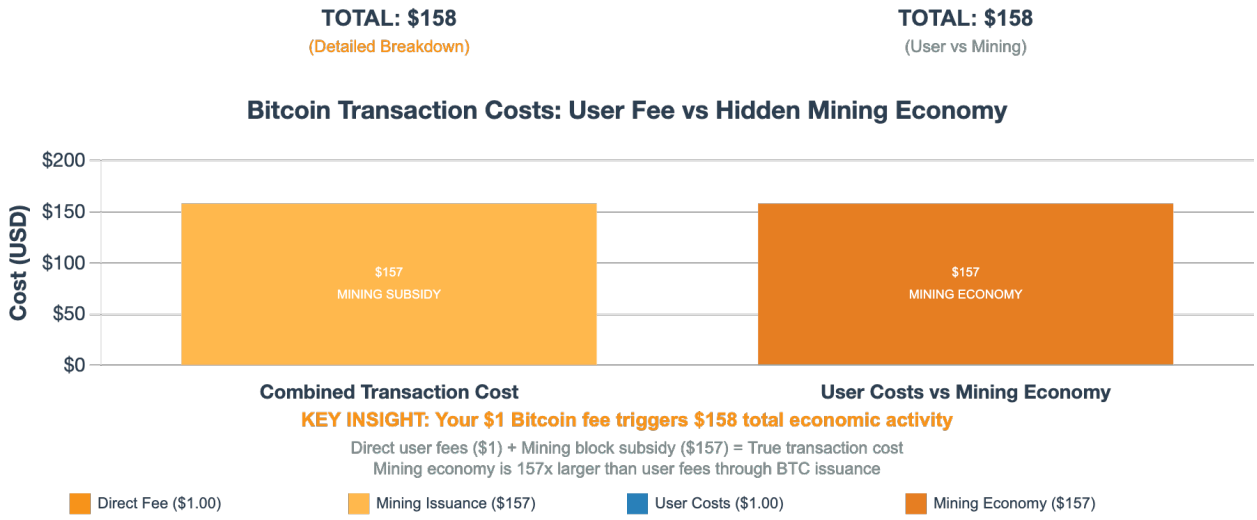
Bitcoin - Mining-Centric Distribution

Bitcoin's monetary flow exhibits near-total dependence on inflationary block rewards rather than user-generated fees. The mining economy totals $44–60 billion annually, funded almost entirely through new token issuance instead of transaction revenue. The network issues approximately 164,500 BTC per year (≈$18.2 billion) while collecting only ≈$115 million in user fees, resulting in a substantial subsidy gap where less than 1% of miner compensation originates from transaction activity. This dynamic effectively transfers value from all Bitcoin holders to miners via monetary issuance, underscoring that Bitcoin functions as an inflation-funded rather than fee-sustained network.

Bitcoin payment flow[2]



When a user pays $1 in Bitcoin fees:

Direct Fee Recipients

- **Miners**: $1.00 (100% of transaction fees)
- **Mining BTC Issuance**: Additional $157 per $1 of fees

Bitcoin Issuance Economics

- **Yearly Bitcoin Issuance**: 450 BTC × 365 × $111,000 = $18.2B

Ecosystem Funding Recipients

- **Bitcoin Core Development**: $5-15M annually
- **Lightning Development**: $20-50M annually

[2] $18.2B annual BTC issuance/$115M annual fee generation

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- **Mining Infrastructure**: $28-42B annually (hardware, energy, facilities)

Hidden Value Flows

- **ASIC Manufacturers**: $8-12B annually (Bitmain, MicroBT, others)
- **Mining Pool Operators**: $500M-1B annually in fees
- **Custodial Services**: $1-3B annually for institutional Bitcoin services
- **Lightning Service Providers**: $50-200M annually in routing fees

Total Mining Economy: $44-60B annually beyond user fees

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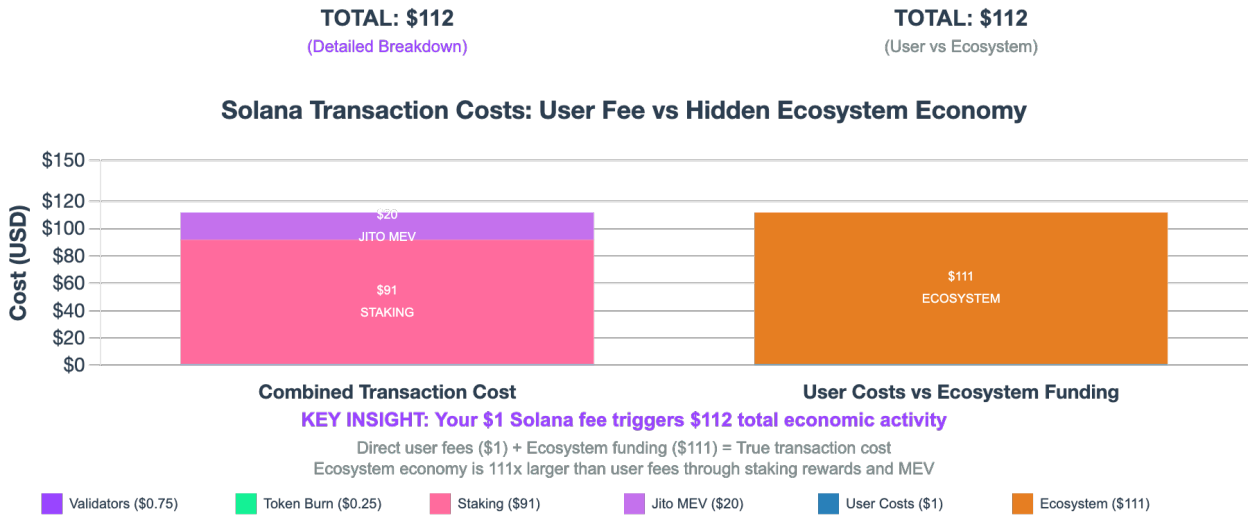
Solana - Validator-MEV Distribution

Solana's monetary flow demonstrates a structural reliance on inflationary rewards and programmed token unlocks, with validators earning approximately $4.5–5.0 billion annually from new token issuance versus only $55 million in user fees. The network's 4.3% annual inflation rate steadily dilutes non-staking holders while financing validator rewards, MEV infrastructure, and network security. This mechanism transfers value from passive SOL holders to validators and stakers through inflationary issuance. Transaction fees represent roughly 1% of total ecosystem funding when issuance and unlock flows are considered, confirming that Solana operates under a dual-subsidy model—combining inflation financing and unlock-driven liquidity—distinct from both fee-based and purely issuance-funded systems.

Solana payment flow[3]



When a user pays $1 in Solana fees:

Direct Fee Recipients

- **Validators**: $0.50-1.00 (50% of base fees, 100% of priority fees post-SIMD-0096[i])
- **Token Burn**: $0.00-0.50 (50% of base fees only)

Token Holder Impact

- **Daily SOL Issuance**: 51,000 SOL ($10.2M)
- **Inflation Rate**: 4.26% annually diluting non-stakers

[3] $6.1B (average token issuance + MEV)/$55M (yearly income)

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Ecosystem Funding Recipients

- **Solana Foundation**: $50-100M annually for ecosystem development
- **Validators**: $4.5-5B annually in staking rewards (8% yield on 297M SOL staked)
- **RPC Providers**: $20-50M annually (estimated - Solana Labs, Helius, Triton)
- **Jito MEV**: $800M-1.2B annually in MEV tips and infrastructure

Developer and VC Flows

- **Hackathon Programs**: $5-10M annually
- **Ecosystem Grants**: $50-100M annually
- **VC Investments**: $400-500M annually in Solana ecosystem projects

Token Unlock Schedule

- **Annual Token Unlocks**: Finished

Total Ecosystem Funding: $5-6B annually beyond $55M user fees (staking rewards $4.5-5B, Jito MEV $800M-1.2B, token unlocks $8-12B, Solana Foundation $50-150M, RPC providers $20-50M, ecosystem grants $50-100M, VC investments $400-500M, hackathons $5-10M)

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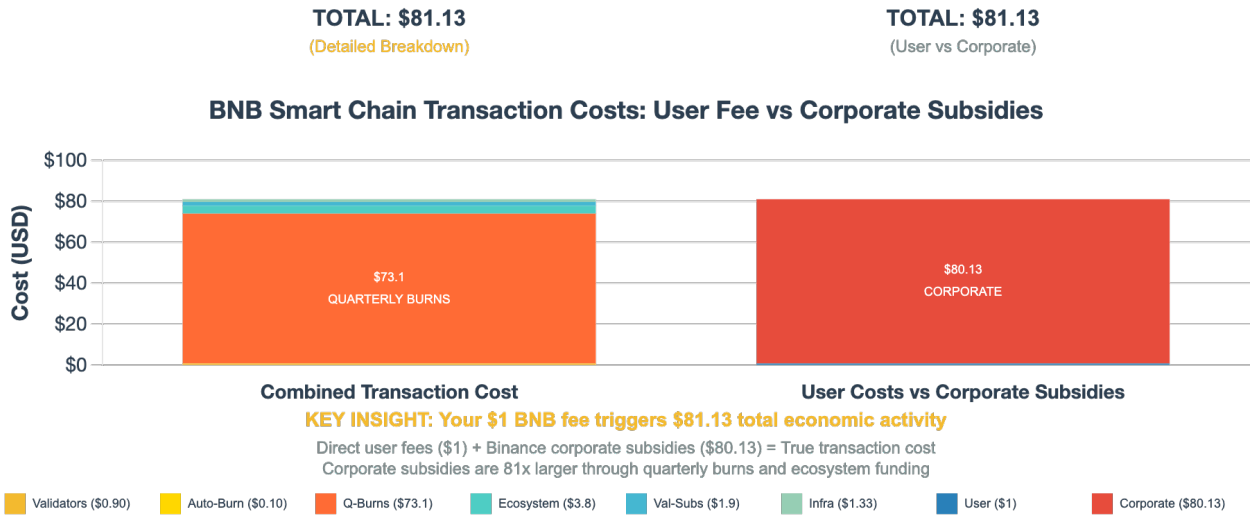
BNB Chain - Corporate-Backed Model

BNB Chain operates a corporate-subsidized economic model in which 90% of user fees accrue to validators and 10% are burned, generating approximately $53 million in annual on-chain fee revenue. The network's financial stability, however, relies primarily on Binance's corporate subsidies, totaling an estimated $4.0–4.3 billion annually—comprising $3.884 billion in documented quarterly token burns and $150–400 million in ecosystem development and infrastructure support. This corporate backing is roughly 80× larger than direct user fee income, positioning BNB Chain as a hybrid corporate–decentralized system that trades a degree of decentralization for financial durability and growth funding under its Proof-of-Staked-Authority (PoSA) consensus with 45 validators. As long as Binance's centralized exchange operations remain profitable, regular token buybacks and burns are expected to continue, driving ongoing supply contraction and maintaining market confidence in BNB's value framework.

BNB payment flow[4]



When a user pays $1 in BNB fees:

Direct Fee Recipients

- **Validators**: $0.90 (45 validators share 90% of fees via PoSA consensus)
- **Auto-Burn**: $0.10 (immediate token burn via BEP-95 mechanism)

[4] $4.3B (corp. subsidies)/$53M(chain fees revenues)

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The 90/10 split through BEP-95 provides validators with steady revenue while creating moderate deflationary pressure through automatic burning of user fees.

Binance Corporate Funding

- **Quarterly Burns**: $971M per quarter from Binance profits (Q3 2024: 1.6M BNB burned)
- **Ecosystem Development**: $100-300M annually from Binance for grants, partnerships, and infrastructure
- **Validator Subsidies**: Binance operates multiple validator nodes providing additional network security and infrastructure support

Infrastructure Recipients

- **BSC Validators**: $50-150M annually in rewards from fees, staking, corpo. backing.
- **Cross-Chain Bridges**: $20-50M annually in fees from BSC-Ethereum, BSC-Polygon, and multi-chain bridge operations
- **DeFi Protocols**: Significant subsidies for TVL incentives, liquidity mining programs.

Corporate Subsidy: $4.0-4.3B annually to generate approximately $53M in fees.

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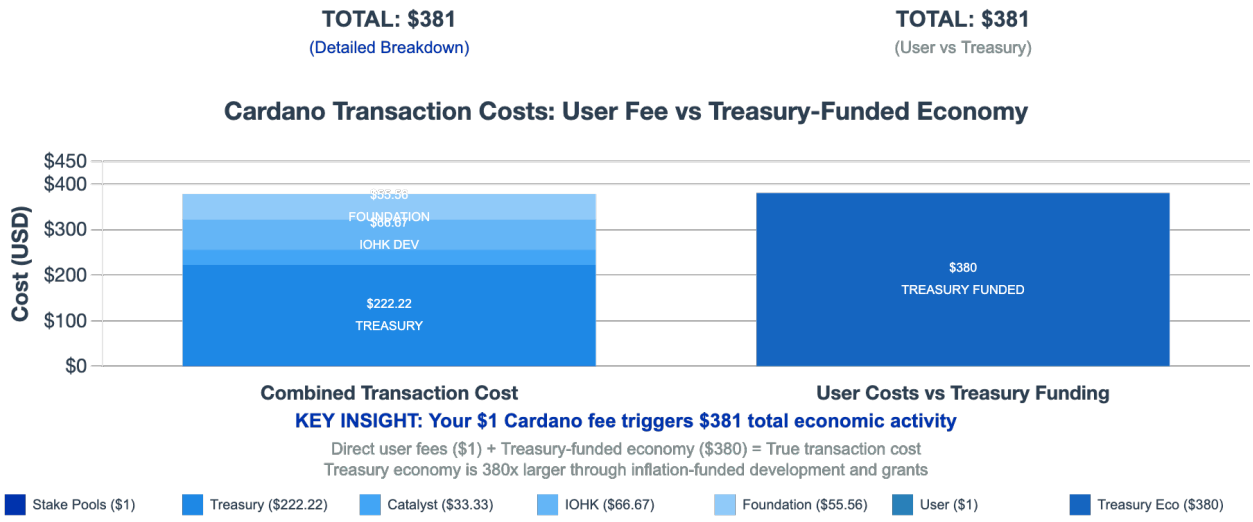
Cardano - Treasury-Funded Development

When users spend $1 on Cardano, fees flow entirely to stake pool operators (100%) through the eUTXO-based fee model, a UTXO with smart contracts. The chain itself doesn't generate revenues as per Defillama, but we approx. inferred $3.6M revenues based on Cardano chain explorer, which anyway doesn't really make a difference. Cardano operates a treasury-funded development model where ecosystem funding comes from inflation, creating $1-2B annually in ecosystem resources.

Cardano payment flow[5]



Direct Fee Recipients

- **Stake Pool Operators**: $1.00 (100% of fees via Ouroboros consensus)

Treasury Distribution

- **Cardano Treasury**: 1.5B+ ADA ($500M) from inflation, not fees
- **Block Rewards**: 340 ADA per block to pools
- **Project Catalyst**: $50-100M annually in community grants

Ecosystem Recipients

- **IOHK/Input Output**: $100-200M annually for core development
- **Cardano Foundation**: $50-100M annually for adoption and partnerships
- **Emurgo**: Commercial arm funding for enterprise solutions

[5] $1.375B (average ecosystem spending)/$3.6M (revenues from users)

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Treasury-Based Funding: $1-$2B annually from token inflation to generate $3.6M in revenues (Treasury distribution: $500M + Ecosystem development: $100-300M + Research funding: $100-200M, Others undisclosed)

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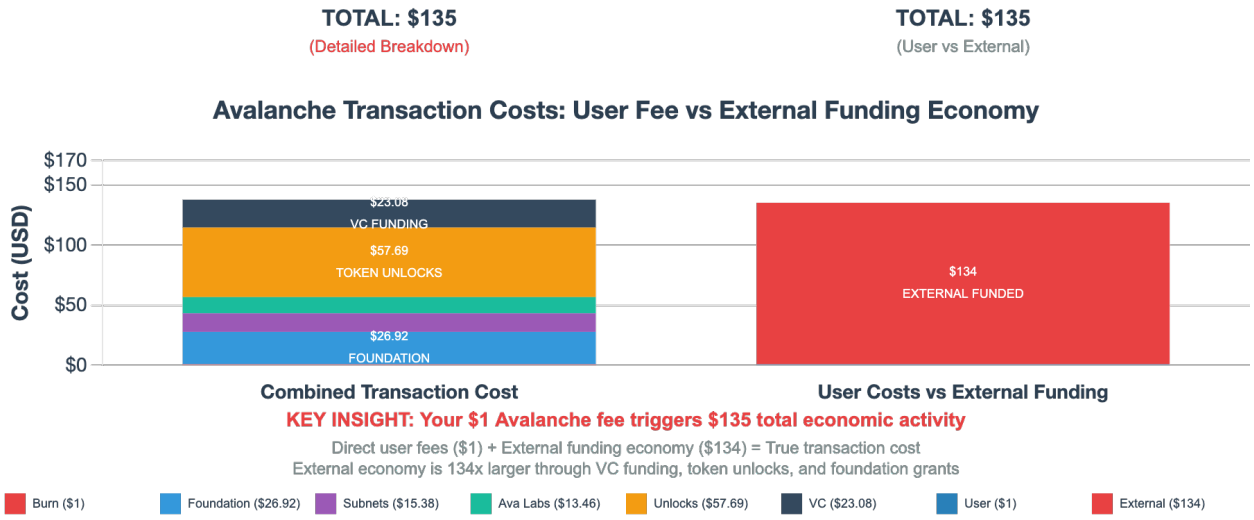
Avalanche - Deflationary with High External Funding

When users spend $1 on Avalanche, 100% of transaction fees are burned. Avalanche generates $26M in fees annually. Validators earn zero from fees, instead receiving rewards from newly minted AVAX through inflation. Avalanche operates on $3-4B annually in external funding from the Avalanche Foundation, subnet incentives, VC investments, and programmatic token unlocks ($1-2B annually through 2030), creating a deflationary network sustained by external capital rather than fee redistribution.

Avalanche payment flow[6]



When a user pays $1 in Avalanche fees:

Direct Fee Recipients

- **Token Burn**: $1.00 (100% of fees burned via deflationary mechanism)
- **Validators**: $0.00 from fees (rewards from inflation only)

Validator Funding

- **AVAX Staking Rewards**: Up to 7.65% APY from token inflation
- **Daily Validator Payments**: $280,000 from new token issuance
- **No Fee Revenue**: All transaction fees permanently burned

[6] $3.375B (external funding)/$26M(fees)

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Foundation and VC Funding

- **Avalanche Foundation**: $200-500M for ecosystem development
- **Subnet Incentives**: $100-300M for custom blockchain development
- **Ava Labs**: $350M+ raised for core development

Token Unlock Schedule

- **Annual Token Unlocks**: $1-2B annually in programmatic releases

External Funding: $3-4B annually beyond user fees to generate $26M in fees. (Foundation ecosystem: $200-500M + Subnet incentives: $100-300M + Ava Labs development: $350M + Token unlocks: $1-2B + Additional VC investments: $350-850M)

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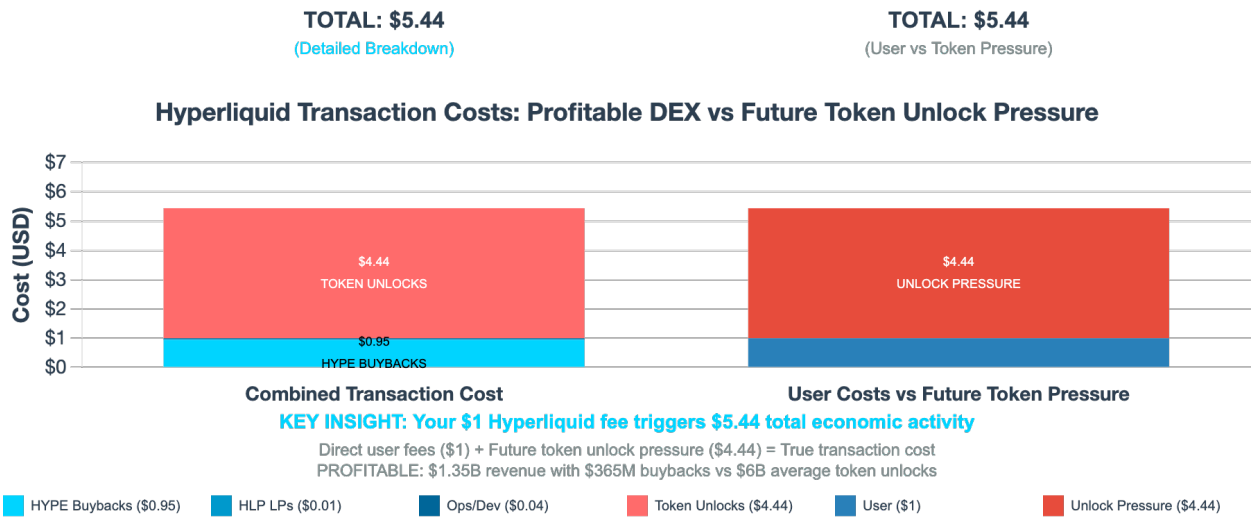
Hyperliquid - Purpose-Built DEX L1

Hyperliquid currently ranks as the highest revenue-generating blockchain ecosystem, with annualized revenues estimated at $1.3–1.4 billion, surpassing all other Layer-1 and Layer-2 networks. Approximately 93–97% of trading-fee revenues are directed toward daily HYPE token buybacks (≈$1 million per day), establishing a self-reinforcing, non-inflationary model that operates without venture-capital financing or token emissions. Averaging $8–15 billion in daily trading volume and capturing roughly 70% of the decentralized perpetuals market, Hyperliquid demonstrates genuine operational profitability rather than dependence on external subsidies. In this analysis, token unlocks have been integrated into valuation multiples to maintain conservative comparability; even under adjusted assumptions, Hyperliquid's fundamental efficiency and cash-flow strength remain superior to peer networks. Importantly, the Hyperliquid chain and trading protocol function as a unified architecture, eliminating the typical separation between base-layer infrastructure and application logic—a structure that enhances capital efficiency and aligns network incentives end-to-end.

Hyperliquid payment flow[7]



When a user pays $1 in Hyperliquid trading fees:

Direct Fee Recipients

- **HYPE Buybacks (Assistance Fund)**: $0.93-0.97 (93-97% for token buybacks)
- **HLP Liquidity Providers**: $0.01 (1% of trading revenue)
- **Operations/Development**: $0.02-0.06 (remaining for protocol operations)

[7] $6B (average unlock)/ $1.35B (revenue)

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Trading Economics

- **Daily Trading Volume**: $11-15B (futures and spot combined)
- **Daily Revenue**: $3.7M (top revenue blockchain)
- **Annual Revenue**: $1.35B (at current run rate)
- **Daily Buybacks**: $1M worth of HYPE tokens
- **Fee Structure**: 0.0225% average trading fee

Token Unlock Schedule

- **Core Contributors Unlock**: 236.94M HYPE ($12.09B at current price) vesting through 2028
- **Genesis Distribution**: 310M HYPE ($15.81B) - largely unlocked
- **Major Cliff**: Late 2025/early 2026 when core contributor vesting begins
- **Total Supply Unlocked by 2028**: 547.05M HYPE (54.71% of total supply)
- **Monthly Selling Pressure Post-Unlock**: $300-500M potential from gradual vesting
- **Buyback Capacity**: Current $30M monthly buybacks can only absorb 10% of potential selling
- **No VC/Exchange Allocations**: Pure community and team distribution

Protocol Profitability: Profitable at $1.35B annual revenue with $1M daily buybacks, unlike subsidy-dependent chains

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L1 Networks: Patterns and Limitations

Analysis of Layer-1 network architectures reveals structural mismatches between operational costs and user-driven fee generation across the ecosystem. Each network employs a distinct economic model but remains heavily reliant on subsidy mechanisms. Bitcoin issues approximately $18.2 billion annually to miners while collecting only $115 million in transaction fees (≈158× multiple). Ethereum, despite EIP-1559 burn mechanics, exhibits 0.8% net annual inflation post-Dencun. Solana requires $14–19 billion in annual subsidies against $55 million in fees (≈254–345×). BNB Chain depends on $3.9 billion in corporate token burns relative to $53 million in fees (≈73×). Cardano's treasury allocates $1–2 billion annually while producing only $3.6 million in fee revenue (≈277–555×), and Avalanche relies on $3–4 billion in external funding for $26 million in fees (≈115–154×).

Hyperliquid stands as the primary exception, generating $500 million–1.35 billion in annualized trading-fee revenue and exhibiting sustainable, fee-based profitability. However, it faces a $12 billion team unlock in 2026, representing 9–22× current buyback capacity, which could materially affect its equilibrium. Broader analysis of networks such as Tron, Polygon, and emerging Layer-1s remains limited by inconsistent on-chain disclosures, underscoring the need for dedicated indexing infrastructure to accurately trace value flows.

Overall, the data indicate that user-generated fees account for less than 1% of total annual economic activity across major Layer-1 networks, with Hyperliquid as the sole exception. This finding suggests that current network valuations are sustained primarily by token issuance, corporate subsidies, and redistribution mechanisms, rather than durable, fee-based revenue generation.

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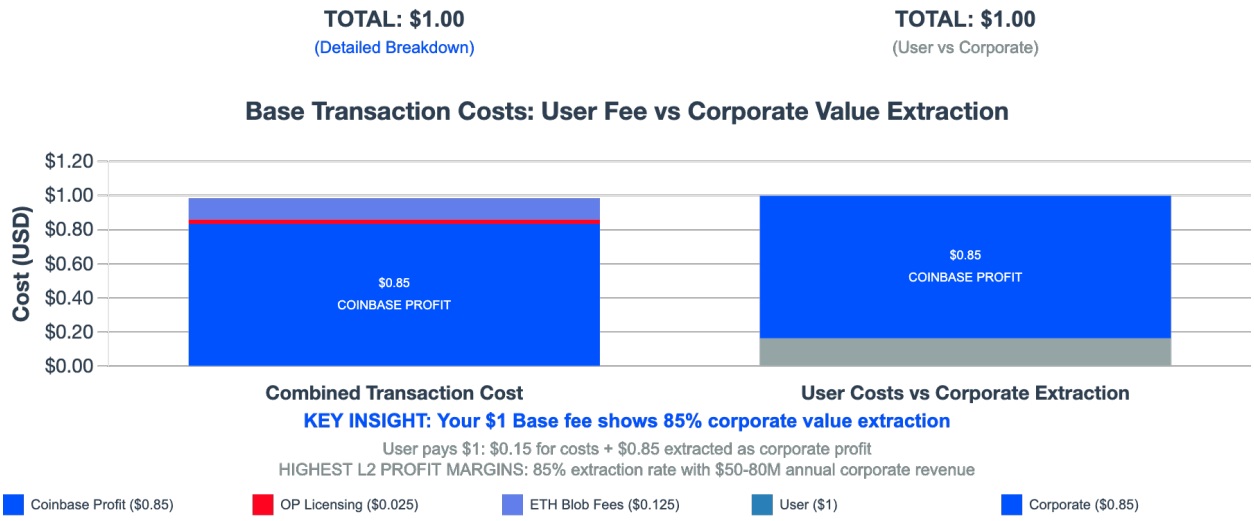
Layer 2 Networks: Fee Distribution (to table of contents)

Base (Coinbase) - Corporate Revenue Model

Base represents the most efficient corporate value-extraction model among Ethereum Layer-2 networks, capturing an estimated 65–80% of user fees—equivalent to $50–80 million in annual net profit to Coinbase's treasury after accounting for OP Stack licensing. Despite paying approximately 15% of revenue (~$12 million in 2025) to Optimism for infrastructure rights, Base maintains profit margins above 75%, the highest among major L2s. Unlike community-governed counterparts that reinvest surpluses into ecosystem development, Base functions primarily as a revenue engine, leveraging Coinbase's 100 million–plus user base, fiat integration, and regulatory positioning. This model illustrates how corporate-controlled sequencers can achieve maximal profit capture efficiency while contributing relatively little to shared public-goods infrastructure compared to the value extracted.

Base payment flow[8]



When a user pays $1 in Base fees:

Direct Fee Recipients

- **Coinbase**: $0.65-0.80
- **Optimism Collective**: $0.15 (15% revenue sharing for OP Stack licensing)
- **Ethereum L1**: $0.05-0.20 (blob fees for data availability)

[8] $80M revenues / costs are born by Coinbase itself, not the L2

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Corporate Value Capture

- **Annual Revenue**: $50-80M+ run rate
- **OP Stack Licensing**: $12M projected in 2025 to Optimism Collective
- **Net Corporate Revenue**: $50-70M after Optimism payments
- **Profit Margin**: 65-80% after OP Stack fees (still industry-leading)
- **Infrastructure Investment**: $10-20M annually in development (Base app.)
- **Settlement Costs**: $2-8M annually to Ethereum L1

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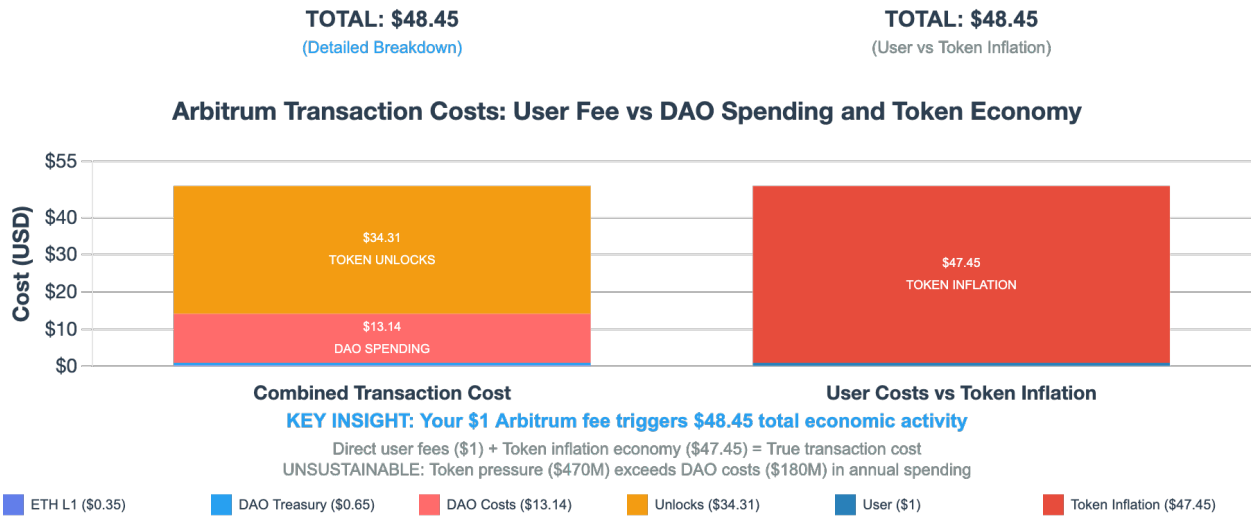
Arbitrum - DAO Treasury Model

Arbitrum operates as a DAO-governed Layer-2 network in which transaction fees are divided between Ethereum Layer-1 data availability costs (30–35%) and the Arbitrum DAO treasury surplus (65–70%). Although the network generates roughly $13–15 million in annualized sequencer revenue, the DAO currently spends over $180 million per year, including the distribution of 13.8 million ARB tokens monthly from the treasury for ecosystem grants, incentives, and operations. In parallel, $470 million in annual token unlocks to early investors and team allocations adds further inflationary pressure yearly until 2027. This creates a spending-to-revenue ratio exceeding 47:1, underscoring that Arbitrum remains structurally dependent on treasury reserves and token subsidies rather than sustainable on-chain fee capture.

Arbitrum payment flow[9]



When a user pays $1 in Arbitrum fees:

Direct Recipients

- **Ethereum L1**: $0.35 (data availability and calldata costs)
- **Arbitrum DAO**: $0.65 (treasury surplus after L1 reimbursement)

DAO Treasury Economics

- **Annual Revenue**: $13.7M (761 ETH in February 2025, declining trend)
- **Monthly DAO Spending**: 13.8M ARB tokens ($6.1M at $0.44) = $72M annually
- **Additional Costs**: Offchain Labs operations, infrastructure...=$110M annually
- **Total Annual Costs**: $180M

[9] $650M (DAO Spending)/$13.7M (total revenue from sequencer)

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Token Unlock Pressure

- **Monthly Unlocks**: 44M ARB tokens to investors/team ($19.4M monthly)
- **Annual Selling Pressure**: $233M from monthly unlocks
- **Cliff Unlock**: March 2024 released 2B ARB tokens to early stakeholders
- **Vesting Schedule**: Monthly unlocks continue through March 2027

Value Distribution

- **To Ethereum Validators**: 35% of fees ($4.8M annually)
- **To DAO Programs**: 65% of fees ($8.9M annually)
- **External Subsidies Required**: $166M annually to cover spending gap
- **Early Investor Extraction**: $233M annually in token unlocks

DAO Model: Unsustainable 46:1 spending-to-revenue ratio

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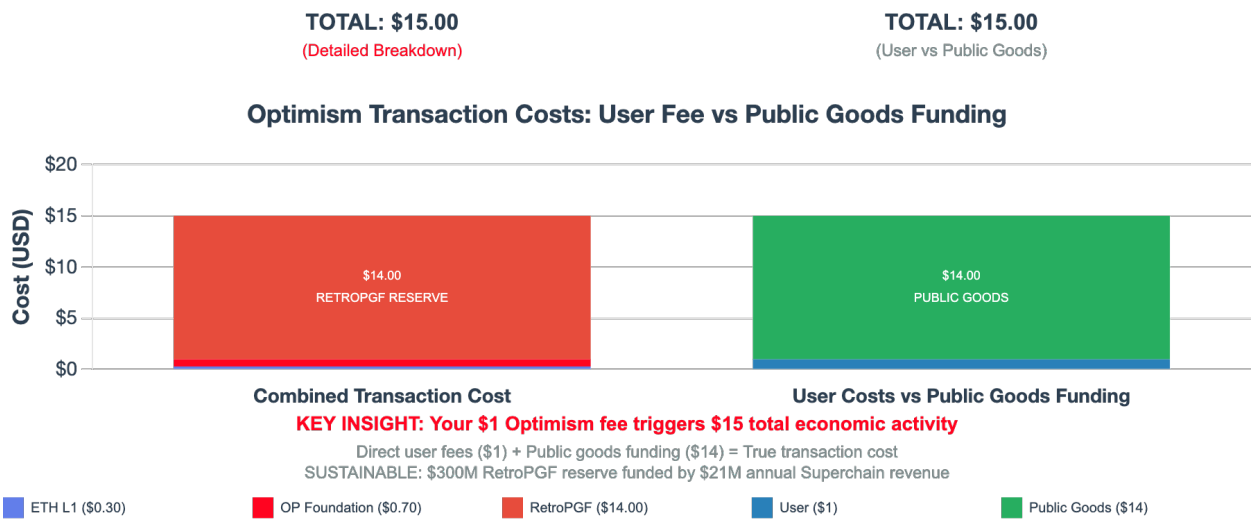
Optimism - Public Goods Funding (Superchain Model)

Optimism operates as a Public Benefit Corporation–governed Layer-2 ecosystem, directing sequencer revenues from the expanding OP Stack "Superchain" toward Retroactive Public Goods Funding (RPGF) rather than private shareholder profit. With more than $20 million in cumulative network revenue and ≈859 million OP tokens (≈$600 million USD) earmarked for public goods and ecosystem incentives, Optimism represents one of the most transparent and minimally extractive economic models in the L2 sector. The Superchain, which powers multiple L2 networks (Base, Unichain, Mode, Zora, Soneium, Worldchain, Lisk, Celo) accounts for a large amount of aggregate Layer-2 transaction volume (2025 YTD), creating a self-reinforcing economic loop in which network growth directly funds open-source infrastructure and collective ecosystem development, demonstrating a scalable, mission-aligned approach to blockchain governance.

Optimism payment flow[10]



When a user pays $1 in OP Mainnet fees:

Direct Recipients

- **Ethereum L1**: $0.30 (data availability and blob fees)
- **Optimism Foundation**: $0.70 (RetroPGF and public goods funding)

Superchain Public Goods Economics

- **Total Superchain Revenue**: $30M+ (7100+ ETH from 41 chains)

[10] $300M (DAO Spending)/$21M (total revenue from OP sequencer)

- **OP Mainnet Revenue**: $11M annually (100% to public goods)
- **Superchain Contribution**: Approx. $2-3M annually (15% of superchains revenue[11])
- **RetroPGF Reserve**: 859M OP tokens ($618M at $0.72) for ecosystem funding

Superchain Revenue Sources

- **Base**: 80%+ of total Superchain revenue (around $12M projected in 2025)
- **OP Mainnet**: $10-11M annually (100% contribution rate)
- **Unichain**: New contributor (launched Oct 2024)
- **Worldchain**: $115K revenue contribution (lifetime)
- **Other 35 Chains**: Combined network effects and revenue sharing

RetroPGF Distribution Scale

- **2024 Funding**: 20M OP tokens across 400+ builders
- **Available Funding**: $20M+ annual revenue
- **Network Effects**: Each new Superchain chain increases funding pool
- **2025 Evolution**: Measurement-driven continuous funding model

Value Distribution

- **To Ethereum Validators**: 30% of OP Mainnet fees ($3.3M annually)
- **To Public Goods**: 70% of OP Mainnet + 100% Superchain revenue ($36.7M annually)
- **To Ecosystem Development**: $40M+ total annual funding capacity
- **Corporate Extraction**: 0% (Public Benefit Corporation model)

Superchain Model: Network effects create sustainable $40M+ annual public goods funding

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[11] https://www.superchain.eco/chains

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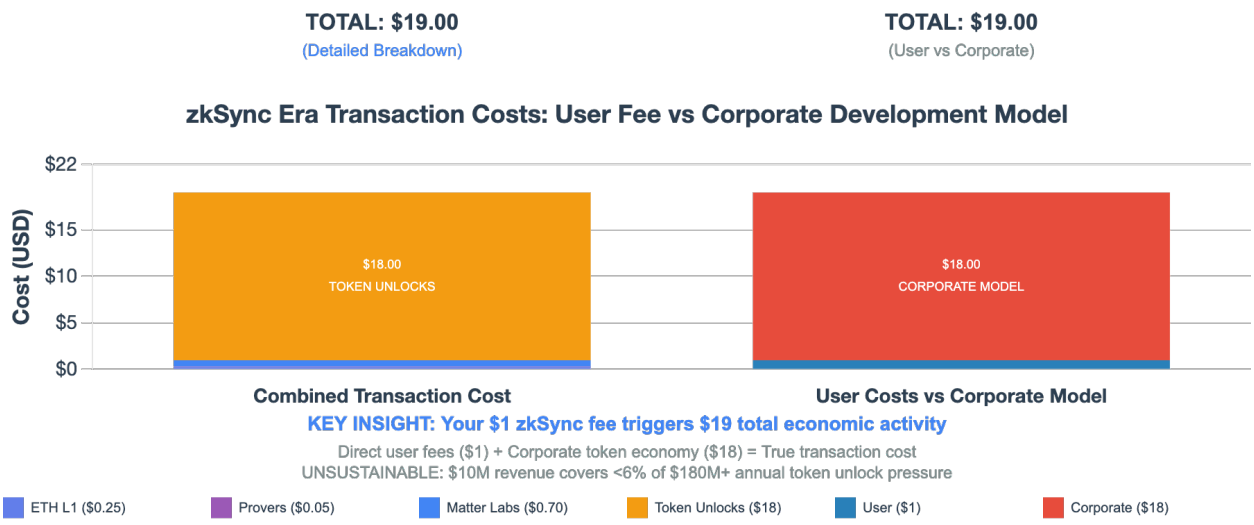
zkSync Era - Development Company Model

zkSync Era operates as a Matter Labs–controlled ZK rollup, where sequencer revenues are retained at the corporate level to fund continued network development. Despite its technical sophistication, the network currently generates only $8–12 million in annualized revenue and maintains approximately $90–100 million in total value locked (TVL), positioning it among the smaller major Layer-2 ecosystems by economic scale. The 21 billion ZK token supply allocates 33.3 percent to insiders (17.2 percent to investors and 16.1 percent to Matter Labs and team members), representing roughly $420 million in value distributed to early stakeholders at current market prices. While zkSync remains an important driver of zero-knowledge rollup innovation, its fee generation and user-side economic throughput remain limited relative to its token valuation and corporate ownership concentration.

zkSynk payment flow[12]



When a user pays $1 in zkSync fees:

Direct Recipients

- **Matter Labs**: $0.65-0.75 (centralized sequencer profit)
- **Ethereum L1**: $0.20-0.30 (proof verification and data costs)
- **Prover Network**: $0.05 (centralized proving, transitioning to decentralized)

[12] $180M (Annual Selling Pressure from Token Unlocks)/$10M (average revenue from ZK sequencer)

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Corporate Economics

- **Annual Revenue**: $8-12M estimated (based on activity)
- **L1 + Proving Costs**: $4-6M annually
- **Net Revenue**: $4-6M to Matter Labs operations
- **Profit Margin**: 40-50% after infrastructure costs

ZK Token Distribution

- **Total Supply**: 21B ZK tokens
- **Insider Allocation**: 33.3% (17.2% investors, 16.1% team)
- **Airdrop**: 3.675B tokens (17.5%) to 695,232 wallets
- **Token Unlocks**: $180M annual selling pressure starting June 2025

Value Extraction

- **To Matter Labs**: 65-75% of fees ($5-9M annually)
- **To Ethereum**: 20-30% for ZK proof verification
- **To Community**: 17.5% token airdrop completed
- **Sustainability Risk**: Revenue covers <10% of unlock pressure

Development Model: Corporate control with unsustainable token economics

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L2 Networks: Patterns and Limitations

The Layer 2 ecosystem reveals stark patterns in value extraction and sustainability across different operating models. Despite promises of scaling Ethereum affordably, L2s have evolved into sophisticated extraction mechanisms with wildly divergent economic models.

Revenue Generation Hierarchy

1. **Base**: approx. $80M annually
2. **Optimism Superchain**: $21M annually (including $11M fees)
3. **Arbitrum**: $13.7M annually
4. **zkSync Era**: $8-12M annually - minimal adoption despite ZK innovation

The L2 Sustainability Crisis

Most L2s operate on fundamentally unsustainable economics where:

- **Fee revenue:** $8-13M annually across major L2s (base excluded)
- **Ecosystem costs:** Extreme cost compared to revenues, mostly driven by token unlocks and inflation
- **Token unlocks:** $400M annually across major L2s
- **Net extraction:** $500M+ annually from token holders

Only Base and Optimism have currently achieved potentially long sustainable models. The majority rely on token inflation, VC subsidies, or treasury depletion to maintain operations and ecosystem, revealing that scaling solutions often become wealth transfer mechanisms from future token holders to current operators and early investors.

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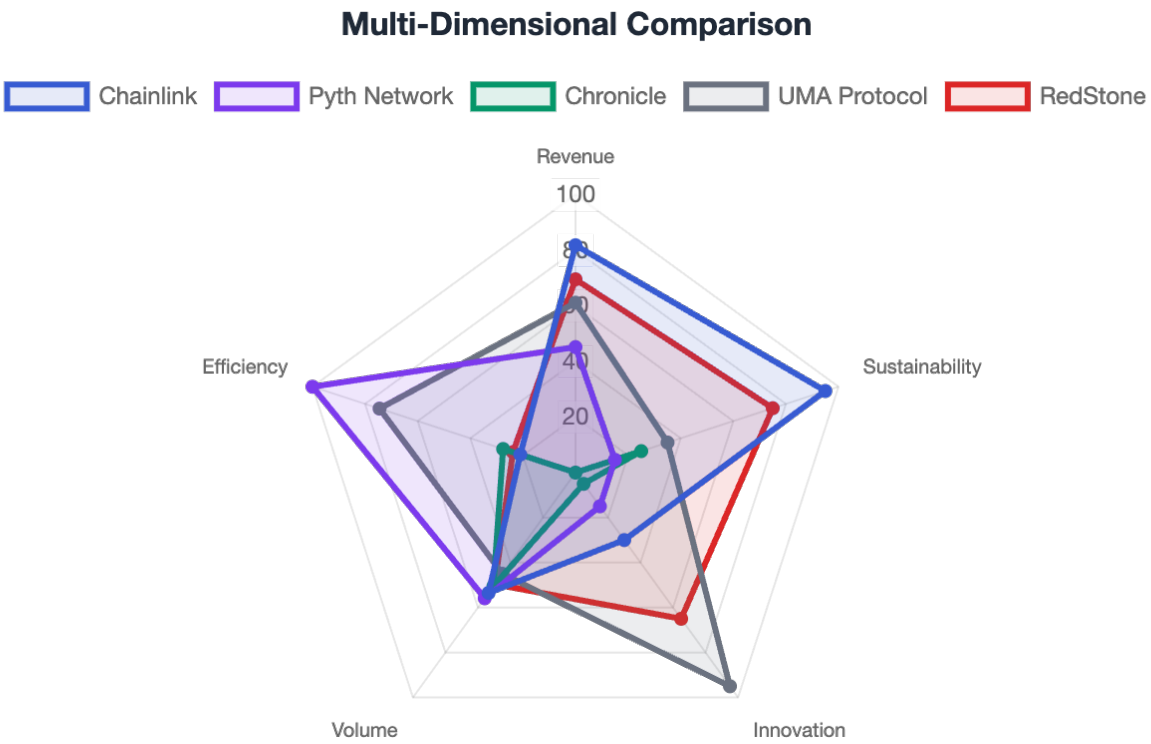
Infrastructure Layer: The Hidden Recipients (to table of contents)

Oracle Providers - The DeFi Infrastructure Tax

Oracle Revenue Reality Check: Most oracles generate minimal direct revenue from users through blockchain fees portion, despite critical infrastructure role.

Market Leaders and Financial Reality

The oracle infrastructure market represents a $178M-365M annual economy securing $189B+ in "Total Value Secured"(TVS) across 800+ protocols yet reveals a fundamental paradox where technical innovation drives costs toward zero while demand for reliable data infrastructure grows fast. We analyzed five major providers, Chainlink, Pyth, Chronicle Protocol, UMA Protocol, and Redstone Oracles, which demonstrates five distinct business model experiments ranging from revenue maximization to public-good strategies. The sector faces a critical inflection point where AI automation and competitive pressure threaten to commoditize traditional oracle services into utility-like infrastructure with minimal margins, while only specialized, premium, or monopolistic providers may achieve sustainable monetization. This natural experiment in blockchain infrastructure economics will likely determine the viability of other infrastructure-as-a-service models in the digital asset ecosystem, with the outcome dependent on whether providers can escape the commoditization trap through differentiation, integration, and premium service positioning.



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1. **Chainlink**: Market Dominant, Revenue Opaque
    - **452+ protocols** secured across ecosystems (68% DeFi market share)
    - **Weekly costs**: $4.89M in LINK rewards + $1.92M gas fees
    - **Revenue model**: Protocol fees + SVR/MEV recovery + enterprise partnerships
    - **Government contracts**: $5-20M annually (BEA, Commerce Dept partnership)
    - **Aave SVR integration**: 35% revenue share, $460K MEV recaptured (2025)
    - **Estimated total revenue**: $103-200M annually from multiple streams
2. **Pyth Network**: High Volume, Minimal Revenue
    - **Q1 2025 Reality**: $32.8K revenue on $149.1B transaction volume (376.6% YoY growth)
    - **100+ blockchains** integrated with millisecond-level updates
    - **Fee model**: 1 lamport per update (essentially free adoption strategy)
    - **Government contracts**: $1-10M annually (US Commerce Dept GDP data partnership)
    - **Revenue challenge**: Massive volume growth doesn't translate to revenue scaling
    - **Market position**: 32.5% oracle volume share, leading by transaction volume
3. **Chronicle Protocol**: Cost Efficiency Over Revenue
    - **$12.6B Total Value Secured** (16.5% market share, Sky Protocol 57.4%)
    - **No direct revenue model** - exclusively grant-funded since 2017
    - **Budget**: 3.7M DAI + 2.2K MKR annual allocation from MakerDAO
    - **65.7% cheaper** than Chainlink (67,700 vs 184,800 gas per update)
    - **Recent funding**: $12M seed round led by Strobe Ventures (March 2025)
    - **Sustainability risk**: Grant dependency raises long-term viability questions
4. **UMA Protocol**: AI-Powered Race to Zero
    - **$0.005 per oracle request** (LLM-powered dispute resolution, 99%+ cost reduction)
    - **$1B+ monthly volume** through Optimistic Oracle (primarily Polymarket)
    - **98% undisputed rate** (optimistic "innocent until disputed" model)
    - **AI automation**: 240 proposals/day, 99.3% accuracy in specialized markets
    - **Revenue challenge**: Ultra-efficiency reduces monetization opportunities
    - **Estimated revenue**: $400K-$2.2M annually (volume-dependent dispute fees)
5. **RedStone Oracles**: Fastest Growing Oracle, Focus on Institutional revenues with Credora Acquisition
    - **$10B+ TVL** across 110+ chains

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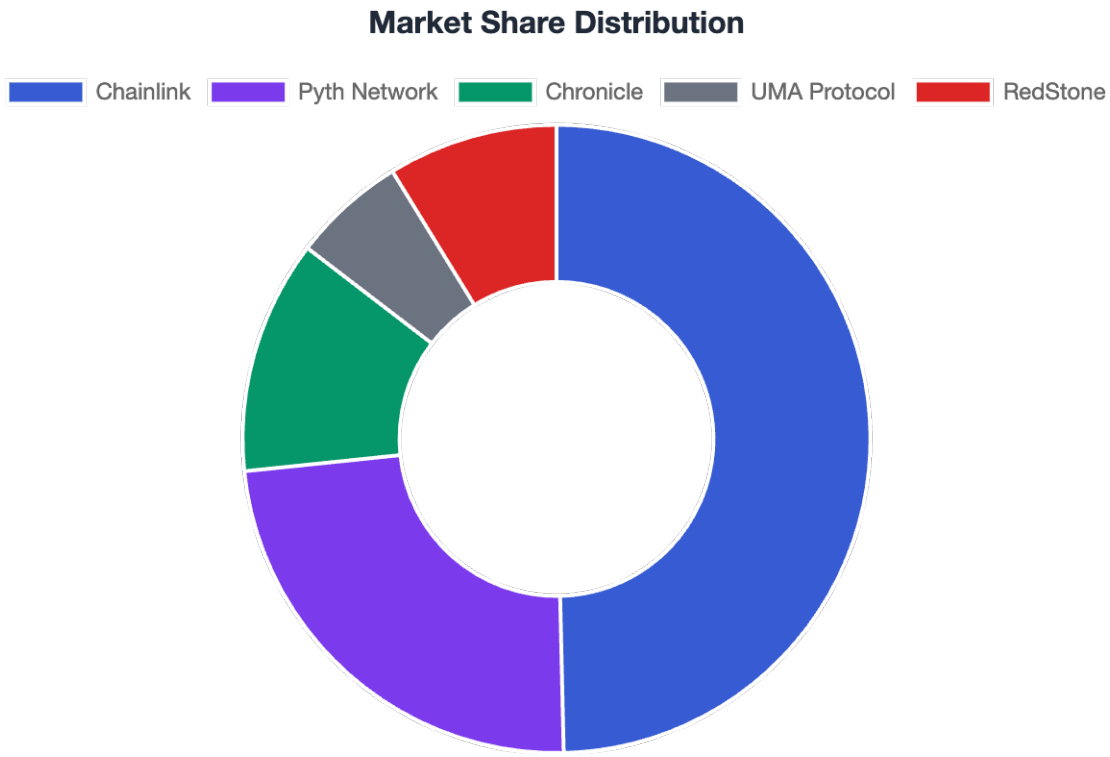
- **170+ clients** including Compound, Morpho, Venus, Pendle, VanEck, Blackrock, Securitize – Full DeFi exposure
- **Credora acquisition** (Sept 2024): First oracle combining price feeds + risk ratings – Difficult to assess new fee stream
- **RWA leadership**: Official oracle for BlackRock BUIDL, Apollo ACRED, VanEck VBILL, low revenues
- **$15M Series A** led by Arrington Capital, co-led by Alphemy Capital (July 2024)
- **Premium positioning**: "S&P for DeFi" - rated strategies grow 25% faster
- **Revenue estimation and projection**: 2025, $8-10M, by 2026 $16-20M partially off chain and through institutional oracle services



The Oracle Extraction Paradox

- **Critical Infrastructure**: DeFi requires oracles for $189B+ TVL (increasing fast)
- **Minimal Direct Revenue**: Most generate <$1M annually
- **Hidden Costs**: Protocols pay through token allocations and grants
- **Sustainability Crisis**: Most oracles operate at losses, subsidized by tokens

The oracle market extracts $178M-365M annually from DeFi protocols that generate $5-11B in yearly revenue, representing a 1-3% infrastructure tax on the entire DeFi ecosystem. This "oracle tax" is not paid directly by users during transactions or transfers but rather

absorbed by protocols as an operational cost for accessing reliable price feeds and data verification services.

Key distinction: When users swap tokens on Uniswap or borrow on Aave, they pay protocol fees, swap fees, interest rates, but never see oracle costs, these are backend expenses paid by the protocols themselves to function safely. This makes oracles a B2B infrastructure layer extracting value from protocol revenues rather than a user-facing service but ultimately impact the end users.

The extraction breakdown:

- **DeFi protocols:** $5-10.5B annual revenue
- **Oracle providers:** $178M-365M extracted
- **Cost burden:** 100% on protocols, 0% direct user fees
- **Payment flow:** Protocol treasuries → Oracle providers (not Users → Oracles)

This represents a significant but largely invisible tax on DeFi innovation, where protocols must allocate 1-3% of their revenue to data infrastructure before considering other costs like development, security audits, or profit distribution, explaining why many DeFi protocols struggle with profitability despite Bs in volume.

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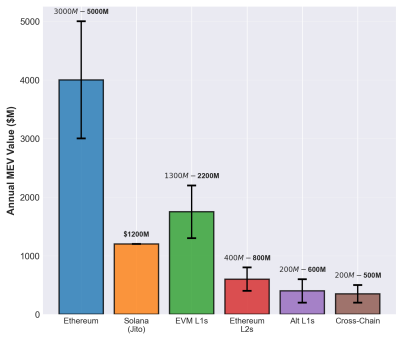
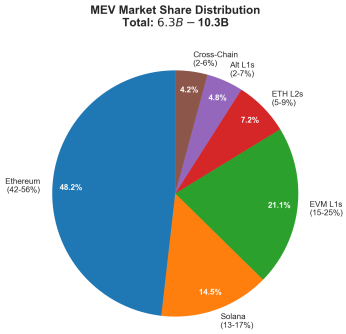
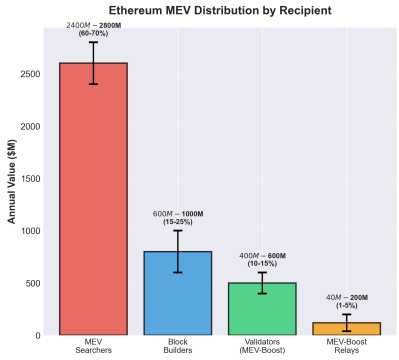
MEV (Maximum Extractable Value) Recipients

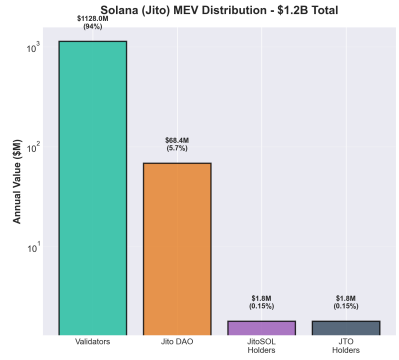
Total Market Size

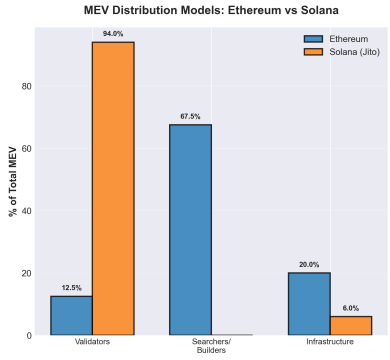
Annual MEV Value: $3-7B across all chains

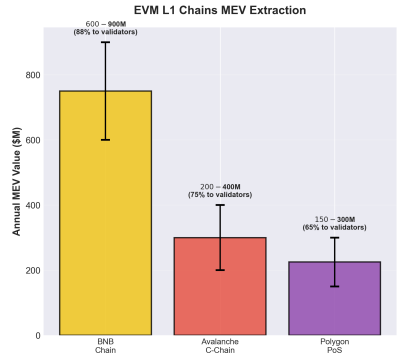


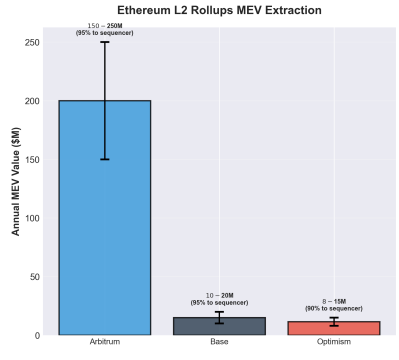


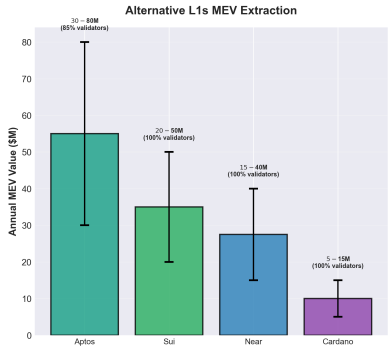


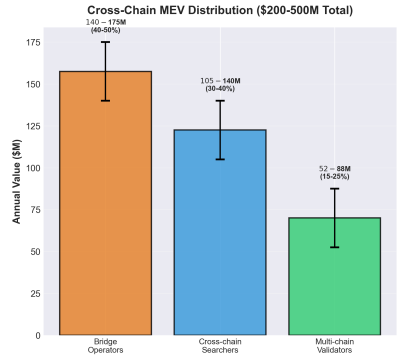


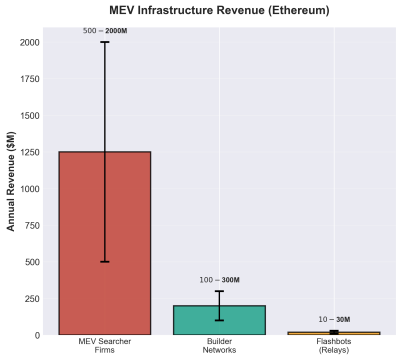


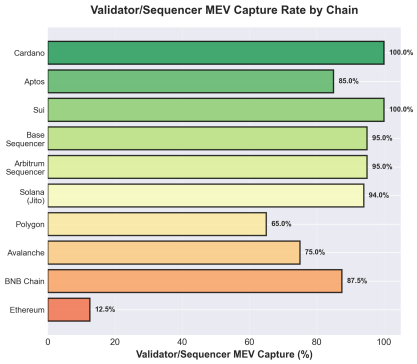


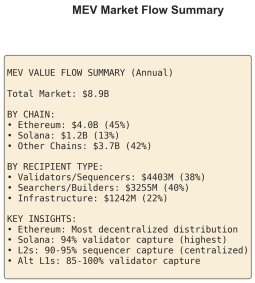












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MEV Recipients

1. **Ethereum MEV**:

- **Validators**: 10-15% of MEV via MEV-Boost ($400M annually)
- **MEV Searchers**: 60-70% of extracted value ($2.1B-4.9B annually)
- **Block Builders**: 15-25% of MEV value ($600M-1.75B annually)
- **MEV-Boost Relays**: 1-5% infrastructure fees ($50M-350M annually)

Key Characteristics: Mature MEV infrastructure with MEV-Boost adoption at 95% of validators. Ethereum represents $3-5B annually in MEV extraction, with searchers capturing the majority through sophisticated arbitrage, sandwich attacks, and liquidation strategies. The ecosystem has evolved complex infrastructure with builders aggregating bundles and relays facilitating validator-builder coordination.

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2. **Solana MEV (Jito)**:

- **Validators**: 94% of MEV tips directly ($1.128B in 2024)
- **Jito Infrastructure**: 6% of tips to stakeholders
  - Jito DAO: 5.7% ($68.4M in 2024)
  - JitoSOL holders: 0.15% ($1.8M in 2024)
  - JTO holders: 0.15% ($1.8M in 2024)
- **Searchers**: Competitive tip payments for inclusion (20-40% net profit margins)

Key Characteristics: Fundamentally different model where validators receive the vast majority of MEV value directly. Jito dominates with 93% validator adoption, processing $1.2B in annual tips. Lower searcher profit margins due to higher validator capture, with peak daily tips reaching $14.7M. More validator-centric distribution compared to Ethereum's infrastructure-heavy model.

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3. **Other Chains MEV**:

Estimated Combined Annual MEV: $2-4B across 20+ major networks

- **EVM L1 Chains ($1.3-2.2B annually):**
  - BNB Smart Chain: $600M-900M (85-90% to validators due to centralization)
  - Avalanche C-Chain: $200M-400M (70-80% to validators)
  - Polygon PoS: $150M-300M (60-70% to validators)
- **Ethereum L2 Rollups ($400M-800M annually):**
  - Arbitrum: $150M-250M (95% to Offchain Labs sequencer)
  - Base: $10M-20M (95% to Coinbase sequencer)
  - Optimism: $8M-15M (90% to OP sequencer)

- **Alternative L1s ($200M-600M annually):**
  - Sui: $20M-50M (100% to validators, limited by object model)
  - Aptos: $30M-80M (85% to validators, Move language protections)
  - Near Protocol: $15M-40M (100% to validators, sharding effects)
  - Cardano: $5M-15M (100% to SPOs, UTXO limitations)
- **Cross-Chain MEV ($200M-500M annually):**
  - Bridge operators: 40-50% of cross-chain MEV
  - Cross-chain searchers: 30-40%
  - Multi-chain validators: 15-25%

Key Characteristics: Highly fragmented ecosystem with varying MEV distribution models. EVM-compatible chains often favor validators due to centralization or faster block times. L2 rollups concentrate MEV extraction at sequencer level, creating corporate revenue streams. Alternative L1s show lower MEV intensity due to architectural protections and lower DeFi activity. Cross-chain MEV represents fastest-growing segment with bridge operators capturing significant value.

MEV Infrastructure Revenue

- **Flashbots**: $10-30M annually in relay fees
- **Builder Networks**: $100-300M annually in builder profits
- **MEV Searcher Firms**: $500M-2B annually in arbitrage profits

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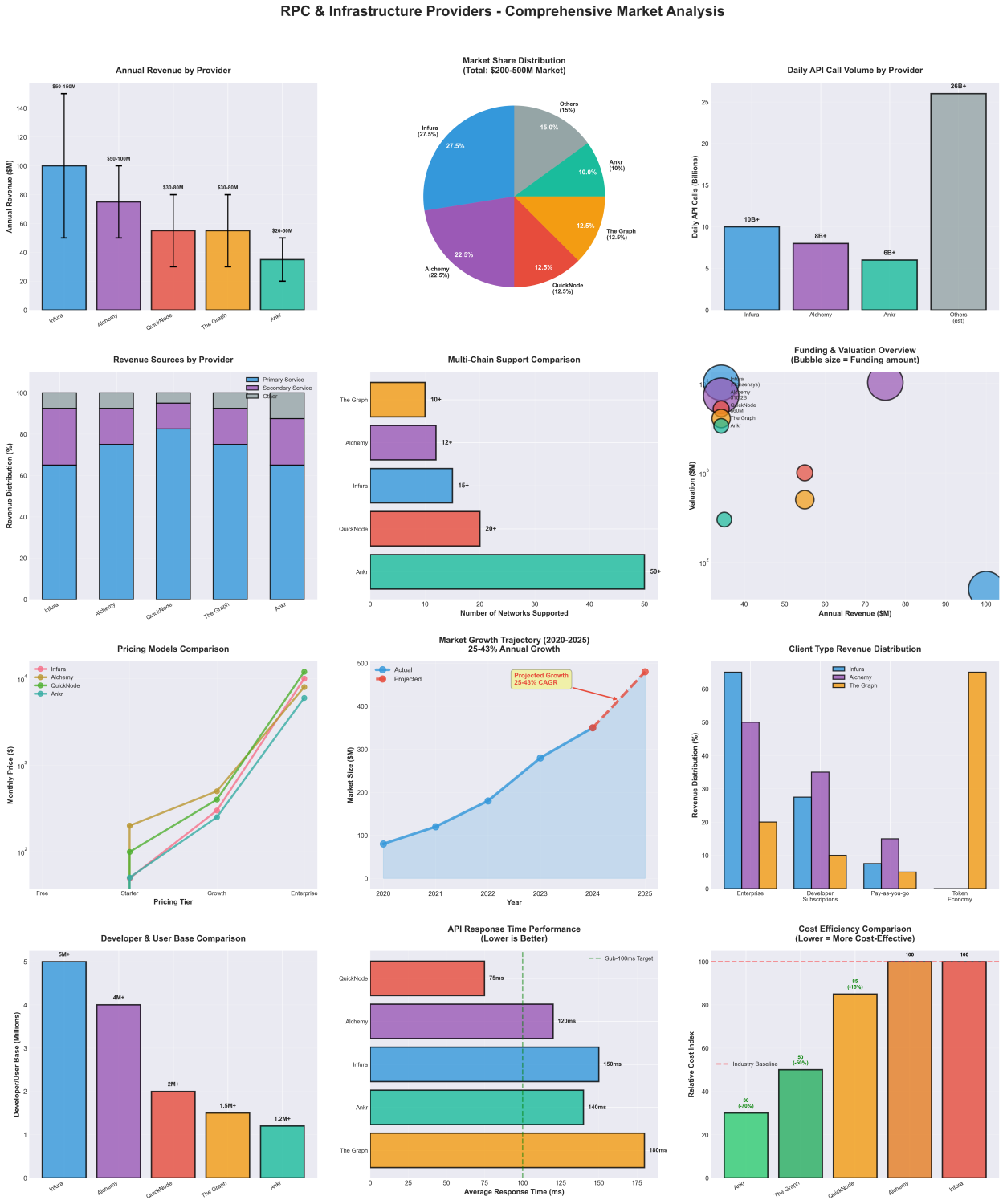
RPC and Infrastructure Providers

Market Overview

The blockchain RPC and infrastructure services market generates **$200-500M annually**.



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Major Provider Revenue Analysis

1. **Infura (Consensys): $50-150M annually**

- **Market Position:** Established leader, Consensys subsidiary
- **Revenue Sources:** 60-70% enterprise clients, 25-30% developer subscriptions
- **Key Metrics:** 10+ B daily API calls, 15 networks supported
- **Major Clients:** Uniswap, Compound, MetaMask integration

2. **Alchemy: $50-100M annually**

- **Market Position**: Developer-focused platform, $10.2B valuation
- **Revenue Sources**: 70-80% platform API, 15-20% Alchemy Pay
- **Key Metrics**: 8+ B daily requests, 4M+ developers
- **Funding**: $295M raised (February 2022)

3. **QuickNode: $30-80M annually**

- **Market Position**: Performance-optimized infrastructure
- **Revenue Sources**: 80-85% node infrastructure, 10-15% add-ons
- **Key Metrics**: Sub-100ms response times, 20+ networks
- **Funding**: $60M Series A (January 2022)

4. **Ankr: $20-50M annually**

- **Market Position**: Decentralized infrastructure provider
- **Revenue Sources**: 60-70% RPC services, 20-25% staking
- **Key Metrics**: 6+ B daily requests, 50+ networks
- **Advantage**: 50-70% lower costs than centralized providers

5. **The Graph: $30-80M annually**

- **Market Position**: Decentralized indexing protocol
- **Revenue Sources**: 70-80% query fees, 15-20% indexing rewards
- **Key Metrics**: 20+ B monthly queries, 4,000+ subgraphs
- **Network**: GRT token-based economy with indexers/curators

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Market Dynamics

1. **Revenue Distribution**

- **Total Market**: $200-500M annually
- **Growth Rate**: 25-43% annually (2024)
- **API Volume**: 50+ B daily requests across providers

2. **Competitive Landscape**

1. **Infura**: 25-30% market share
2. **Alchemy**: 20-25% market share
3. **QuickNode**: 10-15% market share
4. **Ankr**: 8-12% market share
5. **The Graph**: 10-15% market share

3. **Business Models**

- **Freemium**: Free tiers with 100K-300M monthly requests
- **Usage-Based**: $0.0001-0.01 per API call
- **Enterprise**: $10K-1M+ annual contracts
- **Protocol Tokens**: Decentralized fee distribution (The Graph)

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Ecosystem Funding: Foundations

Foundations Spending Analysis

Blockchain foundations represent a **$1-2 B annual economy** dedicated to ecosystem development, research funding, and infrastructure support across major networks. Unlike direct user fees or token mechanisms, foundation spending operates as a parallel funding system that redistributes wealth from token appreciation, treasury reserves, and strategic partnerships to developers, researchers, and ecosystem participants. This analysis examines seven major foundations, Ethereum, Solana, Avalanche, Cardano, and 3 others, revealing how their treasuries have become one of the primary mechanisms for sustainable blockchain ecosystem development beyond market speculation.

Total Annual Foundation Spending: $1-2B across major ecosystems

Major Foundations Analysis

Ethereum Foundation

Annual Budget: $50-135M

Foundation Overview

- **Treasury Value**: $1B (includes ETH holdings and other assets latest report 2025)
- **Annual Spending**: $134.5M in 2024 (estimated from public grant announcements)
- **Primary Mission**: Ethereum protocol development and ecosystem growth

Budget Breakdown (2024)

- **Core Development: $20-55M annually**
  - Client Development Teams: $25M across all client implementations
  - Protocol Research: $15M for consensus, scaling, and cryptography
  - EIP Development: $5M for Ethereum Improvement Proposals
- **Research Grants: $15-40M annually**
  - Academic Research Program: $12M to universities
  - Cryptography Research: $18M for zero-knowledge and privacy
  - Scaling Research: $10M for sharding, rollups, and L2 development
- **Ecosystem Grants: $15-30M annually**
  - Developer Tools: $15M for tooling, IDEs, and frameworks
  - Educational Programs: $8M for documentation and training
  - Community Events: $7M for conferences and hackathons

Major Grant Recipients (2024)

- **Protocol Development (estimated from public acknowledgments):**
  - Prysmatic Labs (Prysm client): $5M annually
  - Sigma Prime (Lighthouse client): $3M annually

  - Nethermind (Nethermind client): $2.5M annually
  - Consensys (Besu client): $2M annually
- **Research Institutions (estimated from public announcements):**
  - Stanford Blockchain Research: $2M annual partnership
  - MIT Digital Currency Initiative: $1.5M annual grant
  - UC Berkeley RISELab: $1M annual research grant
  - ETH Zurich: $800K annual cryptography research

2.2 Solana Foundation

Annual Budget: $100-200M

Foundation Overview

- **Treasury Value**: $1-3B+ (includes SOL holdings and strategic reserves)
- **Primary Mission**: Solana ecosystem development and adoption
- **Spending Philosophy**: Aggressive growth investment

Budget Breakdown (2024)

- **Validator Incentives: $200M+ annually**
  - Solana Foundation Delegation Program: $150M in ongoing validator rewards
  - Infrastructure Grants: $50M for RPC providers and infrastructure
  - Geographic Expansion: $30M for global validator distribution
- **Developer Grants: $50-150M annually**
  - Solana Ventures: $100M fund for early-stage projects
  - Hackathon Prizes: $25M across global hackathons
  - Developer Tools: $25M for SDKs, frameworks, and tooling
- **Marketing and Events: $20-30M annually**
  - Breakpoint Conference: $10M annual flagship event
  - Regional Events: $12M for global community building
  - Marketing Campaigns: $8M for ecosystem promotion

Major Programs and Recipients

- **Ecosystem Development:**
  - Magic Eden: $5-10M strategic investment and grants (partly VC, Foundation)
  - Phantom Wallet: $5M development support
  - Pyth Network: $5-10M data provider incentives
- **Academic Partnerships:**
  - University of California System: $10M blockchain education
  - Indian Institute of Technology: $5M developer training
  - African Blockchain University: $3M education initiative

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2.3 Avalanche Foundation

Ecosystem Fund: $200M

Foundation Overview

- **Established**: 2019
- **Treasury Value**: $700M-1.1B (AVAX holdings and liquid reserves)
- **Primary Mission**: Multi-chain ecosystem and subnet development
- **Strategic Focus**: Enterprise adoption and institutional use cases

Budget Breakdown

- **Subnet Incentives: $40-100M for custom chains**
  - Subnet Launch Program: $25M for enterprise subnets annually
  - Gaming Subnets: $20M for Web3 gaming chains
  - DeFi Subnets: $50M for specialized financial applications
- **Developer Programs: $50-100M annually**
  - Avalanche Rush: $180M DeFi incentive program (multi-year)
  - Core-as-a-Service: $10-30M for infrastructure development
  - Developer Bootcamps: $4-6M for education and training
- **Enterprise Partnerships: $25-40M annually**
  - Ava Labs Partnership: $50M for core development
  - Enterprise Integration: $20M for corporate blockchain solutions
  - Compliance and Regulatory: $10M for institutional requirements

Major Grant Recipients

- **Subnet Development:**
  - DFK Chain (gaming): $15M subnet development grant
  - Swimmer Network (DeFi): $10M liquidity incentives
  - Crabada (gaming): $8M ecosystem development
- **Infrastructure:**
  - GoGoPool (staking): $5M protocol development
  - Avalanche Bridge: $10M cross-chain infrastructure
  - Moralis (APIs): $3M integration support

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2.4 Cardano/IOHK Ecosystem

Development Budget: $100-200M annually

Foundation Structure

- **IOHK (Input Output)**: Core development company
- **Cardano Foundation**: Ecosystem support and adoption
- **Emurgo**: Commercial development arm
- **Combined Annual Budget**: $200-300M across all entities

Budget Breakdown (2024)

- **Core Development: $100-150M annually**
  - IOHK Development: $120M for core protocol development
  - Hydra Scaling: $25M for layer 2 scaling solutions
  - Plutus Smart Contracts: $15M for smart contract platform
- **Project Catalyst: $50-100M annually in community grants**
  - Community Voting: $80M distributed via community governance
  - Proposal System: 500+ funded projects quarterly
  - Global Reach: Projects across 50+ countries
- **Research: $50-100M annually (university partnerships)**
  - University of Edinburgh: $20M blockchain research partnership
  - University of Wyoming: $10M academic collaboration
  - Tokyo Institute of Technology: $5M cryptography research
  - IOHK Research Division: $30M internal research and development

Major Research Initiatives

- **Academic Partnerships:**
  - Blockchain Technology Laboratory (Edinburgh): $5M annual research
  - Wyoming Blockchain Symposium: $2M annual conference and research
  - Research Paper Publication: 150+ peer-reviewed papers funded
- **Project Catalyst Notable Funds:**
  - Fund 12: $50M distributed (Q4 2024)
  - Developer Tools: $15M for Cardano development infrastructure
  - DeFi Projects: $20M for decentralized finance applications
  - Social Impact: $10M for blockchain social good projects

2.5 Other Major Foundations

Polygon Foundation

- **Annual Budget: $50-150M**
  - zkEVM Development: $100M for zero-knowledge scaling
  - Developer Grants: $30M for dApp development

    - Enterprise Partnerships: $20M for institutional adoption

Near Foundation

- **Annual Budget: $100-200M**
    - Near Grants DAO: $800M allocated for ecosystem development
    - Regional Hubs: $50M for global community building
    - Developer Education: $25M for training and certification

Optimism Foundation

- **Annual Budget: $200-500M**
    - RetroPGF Program: $40M+ annual public goods funding
    - OP Grants Council: $20M for ecosystem development
    - Superchain Development: $100M for OP Stack expansion

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VC Money Flows (to table of contents)

VC Investment Flows

Annual VC Investment in Blockchain: $10-30B

2024 Investment Overview

The digital asset venture capital landscape tells a story of dramatic cycles and sobering corrections. Between 2021 and 2024, annual VC investment into blockchain startups has swung wildly between $10 billion and $30 billion, depending on how you count, a range wide enough to drive a truck through.

The 2024 numbers reveal a market finding its footing: digital assets startups raised approximately $13.7 billion, up 28% from 2023's $10.7 billion. Yet this "recovery" remains a far cry from the speculative fever dreams of 2021-2022, when VCs deployed $29 billion and $33.3 billion respectively, capital allocation driven more by FOMO than fundamentals.

These figures come with significant asterisks. The reported numbers typically capture only disclosed rounds, missing the shadow economy of stealth deals and undisclosed financings. The methodology chaos continues with token sales, some datasets include them, others don't, and many blur the lines between equity and token investments.

The macro environment has fundamentally shifted the game. Rising interest rates transformed "growth at any cost" into "prove you have revenue." Post-FTX investor caution replaced blind faith with due diligence. Regulatory uncertainty turned deployment decisions into legal minefields. The result: a venture landscape where $13.7 billion represents not recovery, but the new reality of a maturing market where capital follows substance rather than storylines.

Investment Categories

1. **Protocol Development**: $3-8B annually

Infrastructure Led 2024 Funding: Around **$5.5 B** invested across over 610 deals, a 57% year-over-year increase and the highest for the sector to date.

Major Protocol Investments (2024):

- **Monad Labs**: $225 M to build a layer-1 smart contract network
- **Berachain**: $100 M to support modular blockchain development platform
- **Babylon**: $70 M for Bitcoin staking protocol
- **Berachain** (additional round): $69 M funding round co-led by Brevan Howard Digital

Core Focus Areas:

- Core blockchain infrastructure
- Layer 2 scaling solutions

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- Consensus and cryptography research
- Bitcoin-based infrastructure development

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2. **Application Development**: $5-15B annually

DeFi Applications: $763M in Q4 2024

- **DeFi protocols raised $763 M in the last quarter of 2024, driven by:**
  - Bitcoin-based DeFi use cases (stablecoins, lending protocols)
  - Perpetual swaps and derivatives
  - Layer-2 networks development
  - Non-custodial payments solutions

Notable DeFi Investments:

- **Maverick Protocol**: $9 M with contributions from Pantera Capital, Binance Labs, Coinbase Ventures and Apollo Crypto
- **Across Protocol**: $41 M through ACX token sale, led by Paradigm with participation from Coinbase Ventures

Gaming and NFT Platforms:

- Early-stage funding dominated 2024, with pre-seed deals reaching an all-time high of over **1,180 deals** (+68% year-over-year)

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3. **Infrastructure Services**: $200-500M annually

Oracle and Data Providers:

- Oracle chains like **Chainlink** have secured mainstream adoption across DeFi and Web3 applications
- **UMA** acting as oracle network and infrastructure for digital assets derivatives

RPC and Indexing Services:

- RPC provider ecosystem growth with focus on multichain support
- Managed data streams and real-time data access
- Specialized indexing APIs development

AI Infrastructure (Emerging Category):

Crypto AI achieved approximately 100% year-on-year growth in 2024, with financing rounds increasing by 138%:

- **Sahara AI:** $43 M led by Binance Labs, Pantera Capital, and Polychain Capital
- **Sentient:** $85 M seed round with Pantera Capital and Framework Ventures

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Major VC Players by Investment

1. **Andreessen Horowitz (a16z)**: $1-3B annually

Fund Size and Activity:

- **Total Crypto Assets Under Management**: Over $7.6 B across crypto and web-focused venture funds
- **Latest Fund (2022)**: $4.5 B fourth digital asset fund
- **2024 New Fundraise**: $7.2 B across multiple funds including Infrastructure ($1.25B) and Growth ($3.75B)

Investment Activity:

- **2024**: Made 160 investments
- **2025** (through September): Made 109 investments
- **Average**: 70 new investments annually over the last 10 years

Portfolio Focus:

AI-driven wallets, autonomous agents, proof-of-personhood tech, stablecoins, tokenization of real-world assets, blockchain payments, DAOs, and crypto-native app stores.

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2. **Paradigm**: $500M-1.5B annually

Fund Information:

- **Latest Fund (June 2024)**: $850 M for third fund focusing on early-stage digital asset projects
- **Previous Fund (2021)**: $2.5 B raised during digital asset bull run
- **Investment Range**: Series A and B rounds with check sizes typically $3-15 M

Investment Strategy:

Focus on early-stage projects in DeFi and blockchain infrastructure, decentralized governance, often taking active role in product-market fit development.

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3. **Coinbase Ventures**: $300M-800M annually

Investment Activity (2024):

- **Tenor Labs**: $2.5 M seed round participation
- **Maverick Protocol**: $9 M round participation
- **Across Protocol**: $41 M round participation

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Investment Focus:

Active in digital asset AI sector with demonstrated optimism for the field through multiple investments.

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4. **Binance Labs**: $200-600M annually

Notable Investments (2024):

- **Sahara AI**: Led $43 M financing round
- **Maverick Protocol**: $9 M round participation

Investment Preference:

Tends to invest in AI application products rather than infrastructure, contrasting with other major VCs.

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5. **Polychain Capital**: $200-500M annually

Recent Activity:

- **Sahara AI**: $43 M round participation
- **Sentient**: $85 M seed round participation
- **Trading Platform**: Led $22 M seed round at $225 M valuation

Investment Focus:

Tends to invest in AI infrastructure including decentralized AI networks and GPU tokenization.

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Comprehensive Money Flow Summary (to table of contents)

Direct Fee Recipients (Per $1 User Fee)

Network	Validators/Miners	Token Burn	Protocol Treasury	L1 Settlement
Ethereum	$0.10-0.20	$0.80-0.90	$0.00	N/A
Bitcoin	$1.00	$0.00	$0.00	N/A
Solana	$0.50-1.00	$0.00-0.50	$0.00	N/A
BNB Chain	$0.90	$0.10	$0.00	N/A
Cardano	$1.00	$0.00	$0.00	N/A
Avalanche	$0.00	$1.00	$0.00	N/A
Base	$0.00	$0.00	$0.80	$0.15
Arbitrum	$0.00	$0.00	$0.65	$0.35
Optimism	$0.00	$0.00	$0.70	$0.30

Annual Ecosystem Funding Beyond User Fees

Category	Annual Value	Primary Recipients
Token Inflation	$50-75B	Stakers, validators, token holders
Foundation Spending	$1-2B	Developers, researchers, ecosystem projects
VC Investments	$10-30B	Protocols, applications, infrastructure
Oracle Infrastructure	$178M-365M	Chainlink, Pyth, Chronicle, RedStone
MEV Extraction	$5-15B	Searchers, validators, builder networks
RPC/Infrastructure	$200-500M	Infura, Alchemy, The Graph, others

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Biggest Money Recipients in Blockchain Ecosystem

By Annual Value Captured:

1. **Validators/Miners/Stakers**: $50-75B annually
    - Ethereum stakers: $4B annually
    - Bitcoin miners: $15-20B annually (mostly subsidies)
    - Other network validators: $30-50B annually
2. **VC Firms and Early Investors**: $20-40B annually
    - Token unlock value realization
    - Portfolio company value appreciation
    - New investment deployment
3. **Foundation Treasuries**: $5-10B annually (received from tokens)
    - Protocol development funding
    - Ecosystem growth initiatives
    - Community grant programs
4. **Infrastructure Providers**: $3-8B annually
    - Oracle providers: $178M-365M
    - RPC/indexing services: $200-500M
    - MEV extraction: $3-7B (including searcher profits)
5. **Corporate Entities**: $2-5B annually
    - Coinbase (Base): $80M+ annually
    - Binance (BNB ecosystem): $1-2B annually
    - Matter Labs, ConsenSys, others: $500M-1B annually

Key Insights: Who Really Gets Paid

1. **Validators earn the most consistent revenue** from actual user activity
2. **Token holders benefit most from burn mechanisms** Only if high activity onchain
3. **VCs and early investors extract the most total value** through token unlocks
4. **Infrastructure providers collect Bs in "hidden taxes"** on user activity
5. **Foundations redistribute wealth** from token inflation to ecosystem development
6. **Corporate-controlled networks** (Base, BNB) capture fees most efficiently
7. **Oracle providers** successfully tax all DeFi activity at 6-10% rate

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Conclusion: The Blockchain Industry as Modern Digital Tribalism (to table of contents)

The Entertainment Economics of Belief

After analyzing $170 billion in annual subsidies against $14 billion in realized revenue across 28 blockchain networks, a fundamental truth emerges: the blockchain sector functions less as a rational economic system and more as humanity's most sophisticated entertainment platform—a $2-4 trillion market theater... Where technological tribalism meets financial performance art.

The numbers tell a story that traditional finance cannot comprehend:

- Bitcoin Network burning $54-72 B annually to secure $115 M in annual Bitcoin fees
- Ethereum shifting from deflation to inflation while celebrating "ultrasound money"
- Solana depending on $4-6B in subsidies to process $55 M in fees annually

This 90% subsidization rate would signal catastrophic failure in any traditional industry. Yet in blockchain, it represents the price of admission to humanity's grandest experiment in collective belief.

The Tribal Economy of Tomorrow

The blockchain ecosystem has fragmented into distinct economic tribes, each with its own mythology, rituals, and forms of economic irrationality.

The Bitcoin Maximalist Religion venerates digital gold—a belief system sustained by $153 in mining costs for every $1 in transaction fees, a prayer wheel spinning $18.1 billion annually in new issuance while real transactional usage remains minimal. In this creed, energy consumption becomes virtue, and environmental destruction transforms into security theater, where the waste itself is reinterpreted as proof of value.

The Ethereum Intelligentsia orchestrate intricately layered DeFi symphonies, while MEV bots quietly siphon $2–5 billion annually from their own community. They celebrate token burning as virtue even as they inflate total supply through staking rewards, performing the cognitive alchemy of transforming loss into progress—a belief system where monetary contraction and monetary expansion coexist as proof of economic enlightenment.

The Solana Speed or Throughput Cult sacrifices network decentralization for microsecond advantage, sustaining $4–6 billion in annual token inflation through 2036 while generating transaction fees smaller than a Fortune 500 company's coffee budget. In this brotherhood, throughput becomes theology, and latency reduction replaces monetary sustainability as the measure of progress.

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The L2 Scaling Disciples promise to solve problems that their very existence creates, fragmentation, with Arbitrum spending 46 times its revenue and Base extracting 97% profit margins while claiming to democratize finance.

The Fanbase Foundation

What traditional analysts miss is that blockchain has successfully transformed finance into fandom. Like music fans purchasing concert tickets, NFT collectors buying digital art, or gamers spending on virtual items, blockchain participants aren't making rational economic decisions, they're buying membership in a movement.

Consider the parallels:

- **Music Industry**: Fans pay $200 for concert tickets to hear songs they stream for free
- **Gaming Industry**: Players spend $80B annually on virtual items with no resale value
- **Blockchain Industry**: Investors pour $120-170B annually into networks that lose money on every transaction

The difference? Blockchain convinced its fans that their entertainment purchases are investments. It's the world's most successful LARP (Live Action Role Playing) game, where participants pretend digital tokens have value until, through collective belief, they do.

The Infrastructure of Illusion

The sophistication of value extraction mechanisms reveals blockchain's true innovation: creating infinite layers of intermediaries who each take their cut while claiming to eliminate intermediaries:

- **Oracle providers** tax every DeFi transaction at 1-3% while providing data freely available elsewhere
- **MEV searchers** extract $3-7B annually by front-running the very users they claim to serve
- **RPC providers** charge $200-500M for API calls to "decentralized" networks
- **Validators** collect $50-75 B annually for reaching consensus on largely empty blocks

Each layer adds complexity that requires another layer to manage it, creating a Rube Goldberg machine of financial engineering where the complexity itself becomes the product. The more convoluted the system, the more sophisticated it appears, justifying higher valuations and attracting more capital.

The Perpetual Motion Machine of Hope

The genius of blockchain economics lies not in its efficiency but in its inefficiency. By burning millions to process thousands, by requiring massive subsidies to function, by

creating artificial scarcity through elaborate token release schedules, blockchain has discovered something profound: **humans will pay infinite premiums for finite hope**.

Every bull market brings new narratives, DeFi Summer, NFT Mania, Institutional Adoption, Real World Assets, each promising that this time, the fundamentals will matter. Yet the fundamentals never matter because blockchain's product isn't technology or finance, it's the feeling of being early to the future, for the past 15 years.

The Inevitable Conclusion

The blockchain industry will continue to thrive not despite its economic irrationality but because of it. If it maintains its entertainment value, the tribalism, the drama, the dream of revolutionary wealth, the David vs. Goliath narrative against traditional finance, the show will go on.

The $120-170 B annual subsidy isn't a bug: it's the production budget for the greatest show in financial history. The VCs aren't investors; they're producers. The foundations aren't charities; they're studios. The developers aren't building infrastructure; they're writing scripts. And the users aren't adopting technology; they're buying tickets.

The Final Act

The ultimate irony is that by succeeding as entertainment, blockchain will eventually succeed as infrastructure. Not because it's efficient, secure, or necessary, but because if enough people believe in something for long enough, it becomes real. The internet started as a military experiment that nobody understood. Social media began as a way for college students to rate attractiveness. Every transformative technology looks like a toy until suddenly it doesn't.

When the world's financial system eventually runs on blockchain, and it will, it won't be because blockchain solved the double-spend problem or enabled trustless transactions or provided banking for the unbanked. It will be because humanity chose the most entertaining option.

In a world where traditional finance offers 2% savings rates and 7% equity returns, blockchain offers something infinitely more valuable: the chance to be part of a story worth telling. Whether that story ends in revolution or ruin matters less than the fact that Ms are willing to pay $170B annually to find out!

The blockchain industry isn't building the future of money, it's monetizing the future of belief. And in an attention economy where engagement equals value, that might be the smartest trade of all.

The ultimate twist in this narrative? Despite all its theatrical inefficiency, its tribal irrationality, and its $170 B annual comedy of errors, blockchain infrastructure remains infinitely superior to traditional finance infrastructure and industry.

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Traditional finance hides its theft behind closed doors, market manipulations, high-frequency trading that front-runs pension funds, bailouts for banks while families lose homes, money printing that enriches asset holders while impoverishing wage earners. At least blockchain's extraction is transparent. Every MEV bot's theft is on-chain. Every token unlock is public. Every rug pull is visible. The fat cats, politicians, and crooked bankers who've spent centuries perfecting opacity suddenly find themselves in a glass house where every transaction is permanent, public, and pseudonymous.

Yes, blockchain is a circus. But traditional finance is a criminal enterprise wearing a three-piece suit. Given the choice between transparent entertainment and opaque exploitation, humanity is choosing the show. Because while blockchain may be stealing your money through elaborate token mechanisms and MEV extraction, at least it's doing so while you watch, with open-source code you can verify, on networks no single entity controls. That's not just progress; it is revolution disguised as entertainment.

The blockchain industry operates as a complex value redistribution system where user fees represent only 5-10% of total money flows, with the remaining 90-95% sustained by token inflation, venture subsidies, and the greatest suspension of disbelief in financial history. Yet this very irrationality, this transformation of technology into tribalism, of finance into fandom, may be blockchain's greatest innovation. For in the end, all money is belief, and blockchain has discovered how to manufacture belief at scale.

The revolution will not be economically rational. But it will be televised, tokenized, and unmissable.

Report Compiled: October 2025
Data Sources: On-chain analytics, foundation disclosures, governance proposals, financial reports
Coverage: 25+ major blockchain networks and Layer 2 solutions

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