Where Is Ethereum Headed in 2026?

Pressures Surrounding the World Computer and Three Responses

About

Metanomia is a think tank focused on analyzing transformations in the cryptocurrency market and related technologies.

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Introduction

In recent months, a series of key personnel departures have swept the Ethereum Foundation. High-profile contributors responsible for core protocol coordination and research—including Danny Ryan, a key architect who led the transition to Proof-of-Stake, alongside Barnabé Monnot, Tim Beiko, Trent Van Epps, and Alex Stokes—have resigned or entered a sabbatical period. This unprecedented brain drain has ignited anxiety and debate within the community. Critics argue that the Foundation has become excessively dogmatic regarding ideology at the expense of tokenomics and competitive edge, raising existential concerns that top talent and market share could be ceded to rival ecosystems.

Amid stagnant ETH prices and the exodus of leading researchers, growing uncertainty surrounding the ecosystem's trajectory prompted the Foundation to release The Ethereum Foundation Mandate (EF Mandate)[1]. In the document, the Foundation defines Ethereum as a "World Computer"—a permissionless, decentralized infrastructure for computation, communication, and association. Furthermore, to safeguard this World Computer and the "Infinite Garden," the Mandate establishes "CROPS"[2]—an acronym representing Censorship & Capture Resistance, Open Source and Free (as in freedom)[3], Privacy, and Security—as non-negotiable core principles that must not be compromised under any circumstances.

Behind these developments lie unexpected challenges born from Ethereum's growth and success over the past decade. As Ethereum solidified its position as the most successful blockchain project since Bitcoin, it attracted vast waves of developers, capital, and users. Breakthrough innovations such as smart contracts, decentralized finance (DeFi), non-fungible tokens (NFTs), decentralized autonomous organizations (DAOs), and stablecoins emerged, expanding the network to unprecedented scale. However, this very success generated new pressures. The massive financial market constructed atop the network demanded efficiency and profitability, leading to a gradual concentration of core infrastructure among a small set of actors. Concurrently, nation-states, regulatory bodies, and legacy financial institutions sought to integrate Ethereum into existing legal and financial frameworks. These forces exerted continuous pressure to reinterpret the original vision of Ethereum—a neutral, general-purpose World Computer accessible to all—to fit specific, institutionalized objectives. This trend ultimately raises a fundamental question: Can Ethereum remain an open, general-purpose platform accessible to everyone?

Confronted with the pressures of hyper-financialization, centralization, and internal debates over organizational direction, Vitalik Buterin published "Make Ethereum Cypherpunk Again" (2023)[4], emphasizing the urgent need for the ecosystem to return to its foundational vision. Criticizing the degradation of Ethereum into a speculative arena or an isolated financial instru-

ment, he reminded the community that Ethereum's original aspiration was to serve as a public, decentralized, shared hard drive—a true World Computer—accessible and modifiable by anyone. His plea called for a restoration of the authentic cypherpunk ethos: constructing a freer, open society through the interplay of technical, social, and economic mechanisms, and serving as the underlying infrastructure for an open web stack (Web3).

Vitalik's call resonates with historical precedent. In A Culture of Growth (2016)[5], economic historian Joel Mokyr traced the origins of modern European innovation. Mokyr demonstrated that sustained innovation and growth cannot be explained solely by formal institutions or physical resources; rather, they flourish within a cultural environment where knowledge is shared openly and existing authority can be freely challenged. When specific entities monopolize the direction of knowledge, the springs of innovation dry up. Although the structural pressures confronting Ethereum exert force from distinct directions, hyper-financialization and infrastructure centralization risk locking the network into serving specific entities and narrow use cases. Viewed through Mokyr’s analytical framework, if these pressures constrain the open sharing of knowledge and the ability to contest authority, they pose a direct threat to the very cultural conditions that enable innovation.

Building upon these central inquiries, this paper explores the core nature of Ethereum's foundational vision of the World Computer, analyzes the structural pressures brought about by its success, and examines the responses formulated by the Ethereum community. In conclusion, we critically evaluate both the limitations and potential of these responses, drawing upon historical precedents of non-coercive norms and culture to demonstrate why these elements constitute a durable, uncopyable strategic asset for Ethereum.

01

The Vision of Ethereum

The Cypherpunk Legacy

To trace the philosophy and vision of Ethereum, one must first understand Vitalik Buterin. Given that Buterin was an active participant in the Bitcoin community, examining the roots of Bitcoin provides essential context regarding his intellectual foundation. The philosophical origins of Bitcoin trace back to the cypherpunk movement that emerged in the late 1980s. Eric Hughes eloquently articulated the core thesis of this movement in "A Cypherpunk's Manifesto" (1993)[6]: "Privacy in an open society requires anonymous transaction systems." This conviction inspired a series of digital cash experiments. David Chaum's DigiCash[7], Wei Dai's b-money (an anonymous, distributed electronic cash system)[8], and Nick Szabo's Bit Gold[9] all envisioned autonomous payment networks capable of bypassing sovereign monetary systems. In 2009, Satoshi Nakamoto's Bitcoin[10] emerged as the culmination of these long-standing experiments.

Inheriting this cypherpunk tradition within Bitcoin culture, Buterin explored the technical and philosophical implications of Bitcoin as a co-founder and lead writer for Bitcoin Magazine. While he actively embraced foundational cypherpunk principles—such as censorship resistance, open-source culture, and the cryptographic guarantee of freedom—he selectively rejected the movement's anti-statist radicalism and extreme individualism, which presupposed nation-states and existing institutions as inherently hostile adversaries[11]. Buterin observed that the early cypherpunk movement was excessively fixated on evading state surveillance and maximizing individual autonomy, arguing that the cryptocurrency community needed to transcend such insular individualism[12]. This selective adoption provided a key philosophical foundation for Ethereum's subsequent development, enabling it to seek coexistence with nation-states and institutional frameworks while driving broader societal transformation through infrastructural experimentation.

The World Computer

Buterin drew attention to the novel social possibilities demonstrated by Bitcoin. Bitcoin was not merely a digital currency; it served as empirical proof that participants across the globe could collaborate under a shared system of rules without relying on a centralized authority. Though participants neither knew nor trusted one another, they could sustain a unified network by trusting an open protocol and consensus rules. What Buterin envisioned was a generalization of these social possibilities pioneered by Bitcoin.

In late 2013, Buterin published the Ethereum Whitepaper, proposing a transformative thesis: the true breakthrough of blockchain technology lies in its capacity as a social coordination mechanism, which can be extended beyond currency into domains such as contracts, organizations, markets, and platforms[13]. The use cases enumerated in his initial whitepaper extended far beyond finance, encompassing decentralized file storage, identity verification, prediction markets, domain name system (DNS)[1)] alternatives, and decentralized governance tools[14]. Buterin conceptualized a general-purpose platform capable of executing diverse human social domains directly on top of code.

1)
Domain Name System (DNS) is a protocol that maps human-readable domain names, such as "example.com," to machine-readable IP addresses. It is frequently described by the analogy of an "internet phonebook."

It was Gavin Wood who translated Buterin's philosophical vision into a concrete technical architecture. In 2014, Wood authored the Ethereum Yellow Paper, introducing the Ethereum Virtual Machine (EVM) as the execution environment and defining Ethereum as a "transaction-based state machine"[15]. The EVM is a general-purpose computational environment engineered to ensure that every node executes smart contracts identically, producing deterministic state transition results. All smart contracts on Ethereum run on the EVM, and the execution of transactions consistently updates the global state—termed the World State—of the network. This design fundamental distinguishes Ethereum from Bitcoin's constrained scripting language[16].

A state machine refers to a system that transitions a shared state to a new state according to deterministic rules. Human society itself can be conceptualized as an aggregation of "states." Information regarding monetary balances, contractual obligations, land ownership records, and organizational rules collectively constitutes the state of a society. Historically, these social states were managed separately by centralized institutions—such as land registries, bank databases, and corporate servers. Ethereum represented an attempt to share social information by implementing a global, distributed state space jointly verified and maintained by participants worldwide.

The "World Computer" is a metaphor encapsulating the profound social implications embedded in the technical concept of a state machine. As a system that collectively updates a universally shared state space, Ethereum can be understood as a singular computer co-owned and operated by humanity. On July 30, 2015, the day the Ethereum mainnet officially launched, Stephan Tual, then Chief Communications Officer (CCO) of the Ethereum Foundation, declared in an official statement: "The vision of a censorship-re-

sistant world computer that anyone can program, paying only for what they use… is now a reality"[17]. Subsequently, co-founder Gavin Wood described Ethereum as "a computer for the entire planet," emphasizing that blockchain should be understood not as a mere ledger for transactions, but as a general-purpose computational platform[18]. Following these declarations, the term "World Computer" became widely adopted as a foundational metaphor within the Ethereum community.

As the World Computer became operational, developers sought to construct societal institutions—including organizations, markets, contracts, ownership systems, and internet infrastructure—atop this open network. The DAO demonstrated decentralized organization; Augur introduced decentralized prediction markets; the Ethereum Name Service (ENS) established a decentralized naming system and the foundation for Web3 identity; and CryptoKitties proved that digital asset ownership could be realized on a blockchain. Although these projects pursued distinct objectives, they shared a common foundation: all were social experiments enabled by the underlying World Computer.

As these social experiments materialized, Ethereum evolved into a contested arena among diverse actors driven by competing visions and economic interests. Entrepreneurs seeking to build financial markets, projects issuing novel digital assets, investors chasing yield opportunities, and nation-states and financial institutions seeking to incorporate blockchain technology into legacy regulatory frameworks all converged on Ethereum. This actor diversity demonstrated the wide-ranging utility enabled by the World Computer. However, as specific application domains experienced explosive growth, the network faced increasing pressure to adapt to their specific demands. The burgeoning DeFi market demanded efficiency and scalability; institutional investors required stability and regulatory alignment; and nation-states and regulatory agencies demanded controllability and legal accountability. The new actors who succeeded atop the World Computer sought to optimize the network for their own requirements, gradually challenging the original ideal of an open, general-purpose platform accessible to all. Ultimately, the central dilemma confronting Ethereum was a consequence of its own success.

02

Pressures Facing Ethereum

Over-concentration in DeFi

The ERC-20 token standard paved the way for anyone to issue their own digital assets on the Ethereum network. As thousands of projects issued tokens to raise capital, Ethereum rapidly emerged as a primary asset issuance platform. The subsequent emergence of MakerDAO, Uniswap, Compound, Curve, and Yearn Finance brought about a more fundamental transformation. MakerDAO issued the stablecoin DAI backed by ETH collateral; Uniswap implemented an Automated Market Maker (AMM) enabling asset exchanges without centralized intermediaries; and Compound established a bankless lending and borrowing market. Curve provided exchange infrastructure for correlated assets analogous to foreign exchange markets, while Yearn Finance automated the functions of asset managers through code, evolving into a protocol that managed yields across the broader DeFi ecosystem. These protocols constructed an open financial system by replicating traditional financial functions through smart contracts. During the "DeFi Summer" that began in 2020, the Total Value Locked (TVL) in DeFi protocols experienced explosive growth, gradually channeling the theoretical general-purpose nature of the World Computer into market-driven financial applications.

The overwhelming success of DeFi encroached upon the space available for broader social experimentation, pushing non-market values to the periphery. Vitalik Buterin asserted that "Ethereum needs to expand beyond DeFi"[19], expressing hope that Ethereum would serve as a launchpad for diverse socio-political experiments—including fair voting systems, urban planning, universal basic income (UBI), and public works projects. Warning against the risk of Ethereum's vision being reshaped around short-term profits, he cautioned: "If we don't exercise our voice, the only things that get built are the things that are immediately profitable."[20]

However, the market had already determined its trajectory. Socio-political experiments such as voting systems or urban planning possessed ambiguous criteria for success and distant monetization pathways. Conversely, DeFi demonstrated its value through immediate market signals, such as token prices and TVL. Capital and developers gravitating toward explicit profit models and measurable performance indicators represented a natural market outcome. Consequently, non-financial experiments—such as identity

systems, decentralized social media, and decentralized autonomous organizations (DAOs)—increasingly lost attention and funding avenues. The financial gravitational field formed during this period established the blueprint for the numerous pressures and structural tensions Ethereum would subsequently confront.

Infrastructure Concentration Stemming from Convenience and Efficiency

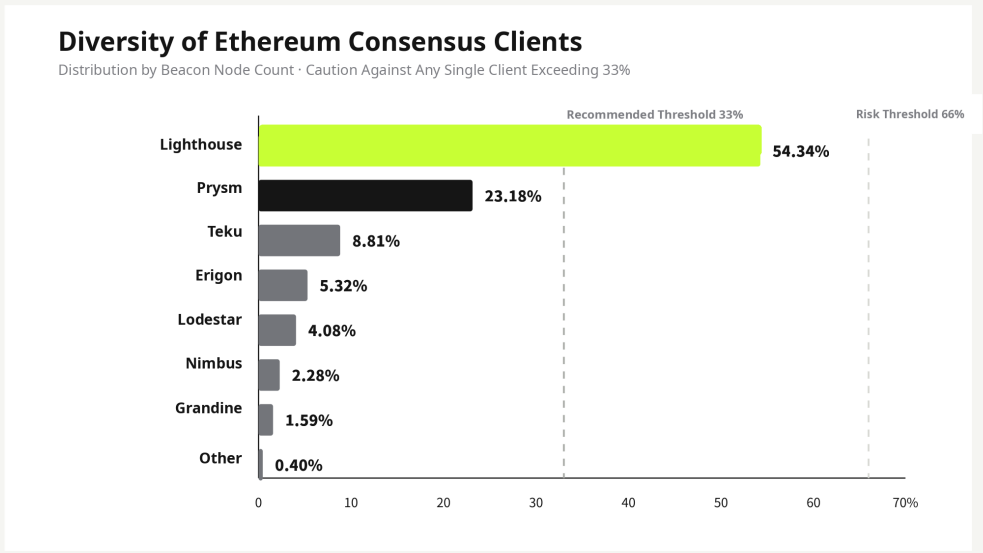
In September 2022, Ethereum successfully executed "The Merge" upgrade, transitioning its consensus mechanism from Proof-of-Work (PoW) to Proof-of-Stake (PoS). This transition was widely recognized for reducing network energy consumption by over 99% and significantly enhancing Ethereum's long-term sustainability. However, participating directly as a validator required a substantial capital commitment of 32 ETH, along with the technical overhead of operating independent hardware. To improve access for smaller investors, liquid staking protocols emerged and expanded rapidly, with Lido taking center stage. Under Lido's model, when users deposit ETH, the protocol distributes the funds across a set of node operators and issues a liquid staking token (stETH) in return. Driven by its commercial success, Lido came to control 32% of all staked Ether by May 2022[21]. Danny Ryan, a prominent researcher at the Ethereum Foundation, warned that a single entity exceeding the critical 33% threshold introduced theoretical risks of impeding block finality or exerting disproportionate influence over block space allocation[22]. Although the Ethereum Community requested Lido to self-impose a staking cap, 99.8% of Lido DAO token holders voted against the proposal[23].

Client[2)] diversity exhibits a similar category of systemic risk. Ethereum employs an architecture where multiple independent consensus client implementations jointly maintain the network, a design intended to prevent bugs in a single client from corrupting the entire chain. Contrary to this design goal, validator reliance concentrated heavily on a small subset of client software, creating structural vulnerabilities capable of triggering network-wide disruptions.

2)
A client is the software that validators run to execute the rules of the Ethereum protocol. Validators process transactions, produce blocks, and participate in network consensus through their chosen client. Execution clients handle transaction execution and state updates, while consensus clients manage validators and block consensus. Following The Merge upgrade, Ethereum decoupled these two functions to minimize the network-wide impact of a single software bug and strengthen overall client diversity.

FIGURE 01

METANOMIA DATA VIEW



[Figure 1] This figure shows the market share distribution of Ethereum consensus clients based on the number of beacon nodes. Lighthouse accounts for the highest proportion for a single client at 54.34% of the total, which significantly exceeds the safety recommendation threshold of 33%. (Note: As of June 19, 2026, the figure is based on crawler-aggregated self-reported node data and may differ from market shares based on validator counts.)

Source: Miga Labs crawler data (published on clientdiversity.org), reconstructed by Metanomia.

In December 2025, immediately following the activation of the Fusaka upgrade, a critical software flaw was discovered in the Prysm consensus client, which accounted for approximately one-quarter of all consensus nodes. Consequently, the network's overall validator participation rate plunged from nearly 100% to roughly 75%—flirting within 8 to 9 percentage points of the 66.7% (two-thirds) supermajority threshold required to maintain finality[24]. More alarmingly, the incident highlighted that another consensus client, Lighthouse, commanded nearly 48% of all active consensus nodes[25], exposing the severe systemic vulnerability inherent in single-client dominance.

These centralization dynamics also surfaced within the block production pipeline centered around Maximal Extractable Value (MEV) and Flashbots. MEV represents the economic value derived from exercising control over transaction ordering, conceptually analogous to High-Frequency Trading (HFT) in traditional finance. Just as HFT firms generate profit by leveraging informational advantages within order flow, MEV reflects the additional revenue block producers extract by reordering, inserting, or censoring transactions. Flashbots was established in 2020 as a research and development collective and block-building infrastructure provider to bring transparency and efficiency to MEV extraction. Its software solution, MEV-Boost, enabled external "block builders" to competitively construct blocks, allowing validators to select and sign the most profitable proposal[26]. While Flashbots succeeded in transforming MEV extraction into an open and competitive market, it inadvertently gave rise to new forms of concentration: by 2024, over 90% of all Ethereum blocks were produced via MEV-Boost auctions, with just three

major block builders accounting for approximately 80% of those blocks between late 2023 and early 2024[27].

Although Ethereum operates as a decentralized network backed by more than one million active consensus validators, user access to the blockchain passes through a tight bottleneck controlled by a small group of Remote Procedure Call (RPC) providers[3)]. RPC nodes act as gateways used by non-custodial wallets and decentralized applications (dApps) to query account balances or broadcast transactions to the network; most services rely on third-party RPC vendors rather than hosting their own full nodes. On the morning of October 20, 2025, an outage at Amazon Web Services (AWS) disrupted Infura, a dominant RPC provider operating on AWS infrastructure[28]. The outage paralyzed direct connections to the Ethereum mainnet as well as major scaling networks—including Polygon, Base, Arbitrum, and Optimism—preventing user requests routed through Infura from reaching the underlying blockchains. While Ethereum itself continued producing blocks without interruption, user access pathways were severed, exposing an infrastructural vulnerability where a single cloud service outage could simultaneously block millions of users from reading state or submitting transactions.

3)
An RPC (Remote Procedure Call) provider is an infrastructure vendor that supplies remote access services allowing user wallets and decentralized applications to communicate with Ethereum nodes. They act as intermediary server operators connecting users to the Ethereum network.

Crucially, none of these cases—Lido, client dominance, block builders, or RPC providers—stemmed from malicious attacks. Rather, they were the natural byproduct of actors optimizing for convenience, proven reliability, order-flow economics[4)], and engineering efficiency. Occurring entirely outside the jurisdiction of protocol consensus rules, these dynamics nonetheless brought about market concentration that structurally threatens Ethereum's decentralization. Decentralization is not a permanent state achieved once and for all; it is a precarious equilibrium maintained between convenience and efficiency—a balance Ethereum continues to navigate.

4)
The order flow economy refers to an economic structure in which transaction orders themselves become valuable economic resources. Controlling or routing these orders generates revenue via MEV extraction, transaction fees, order flow rebates, and related monetary incentives.

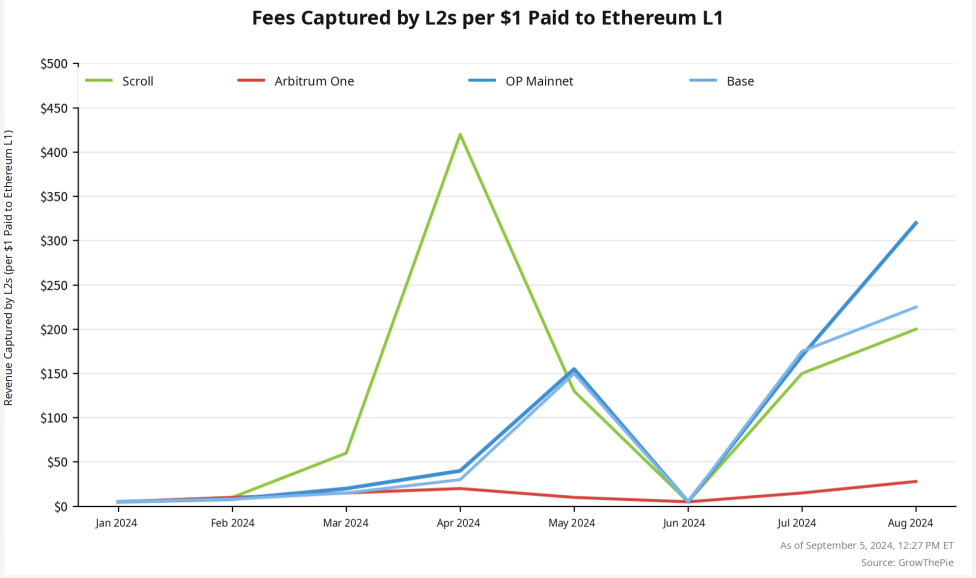
The Layer 2 Value Accrual Controversy and the Weakening ETH Narrative

Ethereum adopted Layer 2 (L2) rollups as its primary strategy to address scalability constraints. The Dencun upgrade in 2024 marked the full-scale deployment of this approach, introducing dedicated "blob" space designed to reduce data availability costs for L2s and drive expansion across the entire ecosystem. However, as this rollup-centric roadmap materialized, a new controversy erupted over whether L2s formed a symbiotic foundation for Ethereum's growth or functioned as a structural mechanism for value extraction. Following the Dencun upgrade, despite a surge in user activity on L2 networks, Ethereum Layer 1 (L1) protocol revenue failed to increase as anticipated. Critics argued that major L2s—such as Base, Arbitrum, and Optimism—were leveraging Ethereum’s underlying security and consensus to grow while capturing the vast majority of users, liquidity, and transaction fee revenue. Some community members went so far as to describe this dynamic as "parasitic"[29].

Rollup proponents countered that such criticisms viewed Ethereum's scaling strategy through an overly narrow, short-term fee lens. Rollup architecture offloads transaction execution to L2 while relying on Ethereum for final settlement, security, and data availability. Through this design, Ethereum maintains its core security guarantees while accommodating higher transaction volumes and broader user bases, thereby expanding the overall footprint of the ecosystem. Indeed, transaction costs dropped dramatically post-Dencun, significantly broadening user access to Ethereum-based applications. However, data from August 2024 revealed that for every $1 paid to Ethereum L1, Optimism Mainnet generated approximately $320 in revenue, while Base captured roughly $225. Critics cited these figures as empirical evidence that the relationship leaned closer to value extraction than mutual symbiosis[30].

FIGURE 02

METANOMIA DATA VIEW



[Figure 2] As of August 2024, for every $1 paid to Ethereum L1, OP Mainnet captured approximately $320, Base chain approximately $225, and Arbitrum approximately $25–$30 in fees.

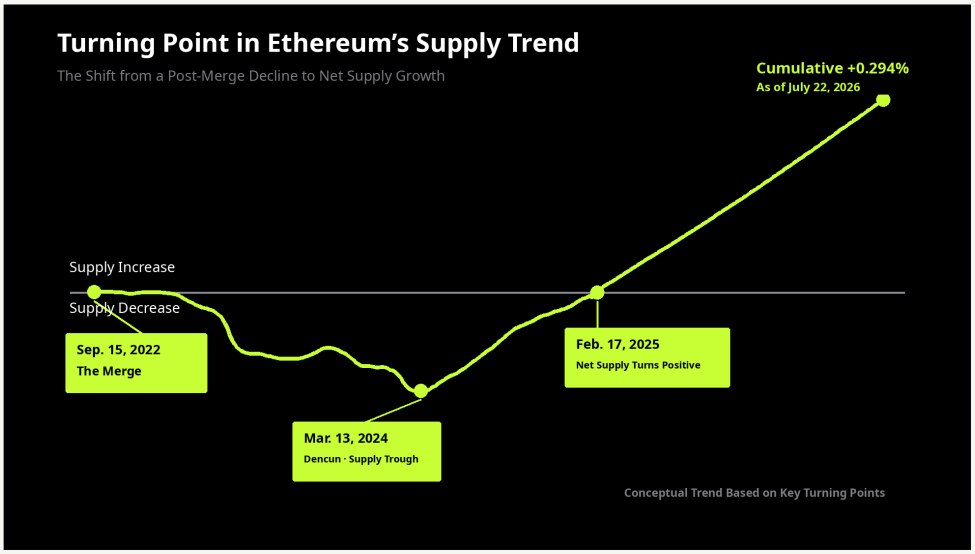
Source: Unchained, "Are L2s Parasitic? Analysis Shows Ethereum Only Gets a Tiny Percentage of Fees" (https://unchainedcrypto.com/are-l2s-parasitic-analysis-shows-ethereum-only-gets-a-tiny-percentage-of-fees/), reconstructed by Metanomia.

This revenue distribution dilemma sparked a more fundamental shift in market narrative. Following The Merge, ETH's annualized net supply growth rate had remained negative for over 18 months; however, post-Dencun, supply growth turned positive once again[31], undermining the once-dominant "Ultra Sound Money"[5)] narrative.

5) *"Ultra Sound Money" gained widespread popularity in 2020 after Ethereum Foundation researcher Justin Drake popularized it as a meme using the bat emoji on Twitter. While Bitcoin is considered "sound money" due to its capped supply, the "ultra sound money" narrative posits that Ethereum (ETH) becomes an increasingly scarce, deflationary asset as a portion of transaction fees is permanently burned through the EIP-1559 mechanism. (Justin Drake, X post, September 9, 2020, https://x.com/drakefjustin/status/1304064879662227456).*

FIGURE 03

METANOMIA DATA VIEW



[Figure 3] The decline in ETH supply that had continued for about two years following The Merge (Sep. 15, 2022) reached its lowest point following Dencun (Mar. 13, 2024) and then reversed, with net supply turning positive on February 17, 2025. Since then, the supply has continued to increase, reaching a cumulative gain of 0.294% as of July 22, 2026.

Source: Ultrasound Money (https://ultrasound.money/?timeFrame=since_merge), reconstructed by Metanomia.

This reversal signaled a weakening in Ethereum's identity narrative, which had sought to position ETH as a scarce store of value. Furthermore, as user activity and economic value increasingly concentrated on L2s, concerns grew that Ethereum risk being relegated from a general-purpose World Computer to a mere settlement layer for peripheral platforms.

If the growth of L2s—and the accompanying rise in aggregate user activity—fails to translate into value accrual for ETH or economic sustainability for L1, Ethereum's long-term growth trajectory risks decoupling from the physical expansion of its broader ecosystem. The value capture debate and the weakening ETH narrative leave a critical question unanswered: how can Ethereum convert the independent success of L2s into its own?

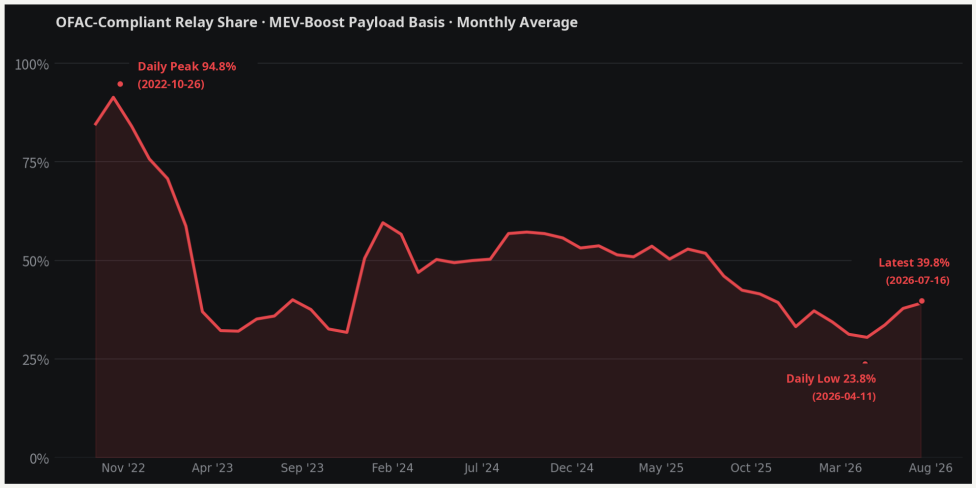
The Materialization of Censorship

On August 8, 2022, the U.S. Department of the Treasury's Office of Foreign Assets Control (OFAC) added Tornado Cash—an Ethereum-based privacy protocol—and its associated smart contract addresses to the Specially Designated Nationals (SDN) sanctions list. A sovereign state designating autonomously functioning smart contract code as sanctionable property constituted an unprecedented regulatory precedent. The repercussions reverberated across two distinct dimensions. The first was a legal shockwave: a key developer was arrested in the Netherlands, GitHub removed the Tornado Cash code repository, and contributor accounts were suspended. The second—and far more alarming—shockwave was the internal response within the Ethereum ecosystem itself.

Immediately following the sanction announcement, Flashbots reconfigured its relay operations to comply with OFAC regulations, subsequently becoming the most widely utilized relay in the MEV-Boost ecosystem. Consequently, blocks containing transactions interacting with Tornado Cash were prohibited from passing through Flashbots relays. At its peak, the proportion of blocks built via OFAC-compliant relays exceeded 90% of all MEV-Boosted blocks[32].

FIGURE 04

METANOMIA DATA VIEW



[Figure 4] This figure shows the monthly average trend of MEV-Boost payload proportions delivered through relays that comply with OFAC regulations. Because a single block can be delivered via multiple relays, this may differ from counts based strictly on block numbers, and the marked points indicate daily extreme values. Starting at approximately 89% at the time of The Merge (September 15, 2022), this proportion reached a daily peak of 94.8% on October 26 of the same year before plummeting into the 30% range in the first half of 2023 due to the growth of non-censoring relays. It subsequently rebounded to the 50% range in 2024, fell back down to hit a daily low of 23.8% on April 11, 2026, and is currently trending upward again to around 40% as of mid-July.

Source: MEV Watch (https://www.mevwatch.info/) API data, reconstructed by Metanomia.

This constituted censorship carried out at the block-production layer, outside the protocol's consensus rules, by preventing specific transactions from being included in blocks. The block-building and relay infrastructure—which had expanded rapidly by chasing economic incentives—was the first to yield

to external regulatory pressure, effectively serving as an execution channel for censorship that compromised protocol neutrality. This watershed event laid bare the deep-seated ideological clash between internal and external stakeholders. From a cypherpunk perspective, an immutable smart contract was ownerless mathematics, and sanctioning permissionless code represented a direct infringement on freedom of speech. Conversely, from the institutional compliance standpoint, OFAC adherence was an indispensable prerequisite for Ethereum to gain legitimacy as a lawful financial infrastructure.

The debate quickly expanded to whether major validators operated by centralized exchanges, such as Coinbase and Kraken, would comply with state-directed censorship. Following the transition to Proof-of-Stake, validator power had concentrated within large staking pools and centralized exchanges, raising grave concerns that state regulations could directly infiltrate the consensus process itself. Some community members argued that, if faced with censorship mandates, validators should cease validating rather than comply, even at the risk of being slashed. Others, however, maintained that regulated entities could not disregard government sanctions.

Censorship challenges further spilled into the service provider layer, where users directly interact with the protocol. Shortly after the Tornado Cash sanctions were announced, Circle, the issuer of the USDC stablecoin, froze approximately 75,000 USDC held in addresses linked to the sanctioned protocol[33]. While this was a legally imperative action for a compliant corporation, it delivered another profound shock to the Ethereum community. While users treated Ethereum as a censorship-resistant network, the incident exposed a stark reality: its primary dollar asset remained bound to centralized issuers capable of freezing funds and nullifying private property at will.

These incidents carry profound significance because the censorship was executed not via direct state intervention on the blockchain layer itself, but by key market actors operating on top of Ethereum—including validators, relay operators, and stablecoin issuers. They demonstrated that external pressure could induce core ecosystem participants to self-enforce censorship. Ultimately, the question of censorship expanded beyond a simple confrontation of state versus protocol, evolving into a fundamental doubt over whether the economic actors constituting the Ethereum ecosystem could truly preserve political neutrality in practice.

The Entry of Wall Street

Following the approval of spot Ethereum ETFs in the United States in 2024, the world's largest asset managers—including BlackRock, Franklin Templeton, and Fidelity—began directly participating in the Ethereum market. The ETF approvals marked a milestone where Ethereum secured institutional legitimacy as a recognized financial asset. Concurrently, Real World Asset (RWA) tokenization sustained its upward momentum. BlackRock's BUIDL fund introduced a tokenized Treasury Money Market Fund (MMF), enabling investors to hold direct rights to underlying assets on-chain. Tokenized MMFs subsequently expanded into the banking sector: JPMorgan launched MONY (My OnChain Net Yield Fund)—a private tokenized MMF for accredited investors—on Ethereum in December 2025, followed by JLTXX (JPMorgan OnChain Liquidity-Token) in May 2026, a registered U.S. government MMF[34] that expanded the product structure from private placements to public offerings. Whereas earlier DeFi represented an internal financial innovation within the crypto sphere, this subsequent shift reflected Wall Street's institutional capital adopting blockchain as its asset issuance and settlement infrastructure—entering the ecosystem from the outside in.

This shift ignited a new internal debate within the Ethereum community regarding how Wall Street's participation alters the fundamental nature of the network. Proponents interpret the arrival of ETFs and RWAs as a sign of Ethereum's maturity. They argue that Ethereum has evolved beyond a speculative blockchain into a trusted settlement infrastructure capable of hosting real-world financial assets, such as U.S. Treasuries, MMFs, and interbank settlements. In their view, financial institutions are actively issuing and operating products atop Ethereum's open standards, smart contract environment, and global liquidity pools.

Conversely, critical perspectives express concern that Ethereum risks being restructured to serve the specific needs and imperatives of Wall Street. The regulatory reshaping surrounding ETF staking clearly illustrates this tension. During the SEC approval process in May 2024, under the direction of former Chair Gary Gensler, issuers were required to strip staking functionality from all applications, resulting in spot Ethereum ETFs launching in July 2024 without staking features[35]. However, mega-asset managers led by BlackRock pushed for the approval of new ETFs that included staking. Ultimately, propelled by the passage of the GENIUS Act in July 2025 and a shift in regulatory stance under newly appointed SEC Chair Paul Atkins, BlackRock successfully launched ETHB (iShares Staked Ethereum Trust ETF) in March 2026, staking up to 95% of its holdings[36]. Wall Street effectively redesigned the institutional framework governing Ethereum's core staking architecture to align with its own product logic.

As institutional capital accumulates on Ethereum, the nature of these external pressures could become increasingly structural. Staking analysis reports indicate that with hundreds of billions of dollars locked on Ethereum via ETFs

and RWAs, the economic cost of a single code vulnerability becomes unacceptable to institutional investors[37]. Should these concerns materialize, massive stakeholders might lobby against complex or innovative upgrades to mitigate risk, giving rise to "innovation paralysis"—a state where incumbent institutional capital halts the engine of protocol advancement in the name of safety. This scenario cannot be dismissed as mere conjecture, as the risk-averse posture of major asset holders is already becoming visible in other contexts. For instance, Michael J. Saylor, Chairman of Strategy—the largest corporate holder of Bitcoin—acknowledged potential quantum computing threats yet advocated for caution, arguing that attempting protocol modifications could introduce even greater risks[38]. For an institution holding hundreds of thousands of bitcoins, protocol changes represent asset security liabilities rather than purely technological progress. Vitalik Buterin made a similar point: as Ethereum becomes the foundation backing hundreds of billions of dollars in assets and transactions for ETFs and RWAs, the systemic risks associated with protocol upgrades scale exponentially, creating structural incentives for institutional capital to prioritize stability over innovation[39].

These cases must be distinguished by their respective developmental stages. The regulatory reshaping of ETF staking is an already realized shift: from the initial prohibition of staking to BlackRock’s rollout of ETHB, Wall Street actively influenced the institutional rules governing access to Ethereum. By contrast, "innovation paralysis"—where institutional capital actively blocks complex upgrades—remains largely a warning. Yet, as demonstrated by the ETF staking episode, where once-rejected institutional demands eventually prevailed in a different form, this warning cannot be taken lightly. Thus far, what Wall Street has redesigned is the SEC’s regulatory handling of ETF staking. The critical boundary will be crossed when institutional pressure begins dictating the adoption or postponement of core protocol decisions. Whether Ethereum is drawing Wall Street into its own rules, or Wall Street is reshaping Ethereum according to its own logic, will ultimately be decided at that threshold.

03

Ethereum's Three Responses

The Public Goods Funding Ecosystem

The external pressures examined in previous sections originated outside the direct purview of Ethereum's consensus rules. Correspondingly, the Ethereum community's responses emerged outside the protocol's consensus rules—by reallocating resource flows (public goods funding), codifying non-negotiable core values (CROPS), and reframing the overarching nature of the participant game (the Infinite Garden). These three responses operate across distinct layers: resources, norms, and culture.

Public goods funding represents an effort to fill a void where market mechanisms fail to provide adequate incentives and sovereign states offer no protection. The financialization of DeFi and the materialization of protocol-level censorship revealed the existence of core values that could not be subsumed under either market-driven revenue logic or state-centered regulatory imperatives. While the success of DeFi and the influx of institutional capital undoubtedly generated immense economic value for Ethereum, the core developers maintaining the underlying protocol were not the primary beneficiaries of this prosperity. Validators earned staking rewards and DeFi founders accumulated wealth via token issuance, whereas the researchers designing and maintaining Ethereum's base layer remained dependent on limited grants from the Ethereum Foundation. Because market incentive structures selectively reward monetizable domains, public-interest activities—such as base-protocol development, open-source maintenance, and community organizing—suffer from systemic underfunding. Vitalik Buterin emphasizes that for blockchain ecosystems like Ethereum to survive and flourish, public goods such as open-source client implementations, protocol research, cryptographic analysis, documentation, and community building are indispensable[40]. Given the open-source paradigm where code can be freely copied and deployed, public goods are notoriously difficult to construct and even harder to sustain. While anyone could utilize the Ethereum protocol, the economic costs of maintaining it fell upon a small minority. Furthermore, traditional funding mechanisms—such as individual donations, corporate sponsorships, and one-off pre-mines—exhibited inherent structural limits. Individual donations were insufficient in scale, whereas corporate funding, despite aggregating capital, introduced the risk of centralized influence over public infrastructure. Buterin argued that the public goods problem requires a long-term, systematic approach wherein sustain-

able funding is continuously generated through revenues derived from applications and Layer-2 protocols[41].

The theoretical foundation for this approach was articulated in the 2019 paper *"A Flexible Design for Funding Public Goods"* by Vitalik Buterin, Zoë Hitzig, and E. Glen Weyl[42]. The authors sought to overcome both the free-rider problem and underprovision of public goods inherent in pure capitalist market systems ("one dollar, one vote") as well as the suppression of minority preferences common to traditional democratic systems ("one person, one vote"). They introduced*Liberal Radicalism* as a novel political-economic framework designed to preserve individual liberty and market flexibility while empowering communities to organically form and fund public goods[43]. Specifically, they proposed the Quadratic Funding (QF) model, wherein matching funds are allocated based on the total number of contributors rather than the absolute dollar amount raised. Under this mechanism, a project supported by 100 individuals contributing $10 each receives a significantly larger matching allocation than a project funded by a single benefactor contributing $1,000,000. By designing the matching formula such that smaller contributions command proportionally higher subsidies, the model mitigates plutocratic capture and reflects broader community preferences without centralized decision-making[44].

Gitcoin served as the primary real-world implementation of this mechanism within the ecosystem. Gitcoin directly addressed the structural problem of non-monetizable, non-financial experiments being starved of resources by deploying Quadratic Funding. Founded in 2017 by Kevin Owocki and others, Gitcoin launched Gitcoin Grants[45], which evolved into a core public goods funding infrastructure connecting capital with builders of critical open-source libraries, developer tooling, security audits, and documentation. According to Gitcoin's metrics, the Grants program has distributed over $60 million across more than 3,700 projects via Quadratic Funding[46].

Optimism's Retroactive Public Goods Funding (Retro Funding) introduced an alternative paradigm for capital allocation. While Gitcoin distributes capital ex-ante based on community preferences, Retro Funding rewards public goods ex-post after value has already been demonstrated. By capturing value that markets fail to measure, this model ensures that public goods creators receive equitable compensation for their contributions to the broader ecosystem, even if they cannot directly extract revenue from the market[47]. Optimism allocated approximately 20% of its total OP token supply (roughly 850 million OP) toward public goods funding, and had distributed over 60 million tokens as of 2026[48].

Meanwhile, Protocol Guild implemented the public goods philosophy directly at the protocol maintenance layer, serving as critical infrastructure for safeguarding Ethereum core development. Whereas Gitcoin Grants and Retro Funding support the broader ecosystem, Protocol Guild focuses on providing long-term funding to the core contributors maintaining the Ethereum protocol itself. The organization established a collective structure uniting researchers from the Ethereum Foundation alongside developers from independent execution and consensus client teams—including Geth,

Nethermind, and Lighthouse—enabling the broader ecosystem to collectively sponsor core developers[49]. Major Ethereum projects, including Lido, ENS, and Uniswap, provided financial support to Protocol Guild[50]. Furthermore, Protocol Guild proposed the "1% Pledge," encouraging protocols and DAOs to direct 1% of their token supply back toward core protocol development[51]. This movement extended into traditional finance: asset manager VanEck announced it would donate 10% of its Ethereum Strategy ETF profits to Protocol Guild for at least ten years[52]. Although this futures ETF was liquidated in 2024 during VanEck's product line restructuring[53], it marked a historic precedent as the first instance of a traditional asset manager publicly committing a portion of ETF revenues to protocol-level public goods over an extended horizon.

A defining strength of Protocol Guild is its organizational autonomy. Unlike traditional grant programs or centralized foundations, Protocol Guild distributes capital directly to individual contributors via self-executing smart contracts. Crucially, at its inception, only 30% of its members were affiliated with the Ethereum Foundation, demonstrating a decentralized composition reliant on widespread ecosystem participation[54]. Protocol Guild functions both as a social safety net for core maintainers and as a foundational pillar of community-led public goods governance. Growing from an initial cohort of 111 contributors to over 190 core maintainers, its cumulative funding and distribution volume surpassed $100 million as of 2025[55].

Nevertheless, Ethereum’s pursuit of public goods generated novel dilemmas—most notably exemplified by Tornado Cash, a privacy protocol developed to complement the complete transparency of public blockchains. Positioned as an essential privacy-preserving infrastructure, the project initially received community funding through Gitcoin Grants[56]. However, technology designated by the community as a vital public good was subsequently categorized by sovereign states as illicit criminal infrastructure. Both sides prioritized divergent values regarding the exact same technology: the Ethereum community viewed privacy and censorship resistance as essential public goods for the digital age, whereas sovereign states viewed transaction traceability and law enforcement capabilities as non-negotiable prerequisites for public order. This friction exposed a fundamental conflict over who holds the authority to define public goods and prioritize values in the digital era.

The Tornado Cash episode simultaneously highlighted the structural vulnerabilities of public goods projects and reaffirmed their core raison d’être. Values such as privacy, censorship resistance, and openness cannot be sustained solely through market efficiency or profit motives. Institutional mechanisms like Gitcoin, Protocol Guild, and open-source grant programs represent the self-built framework through which the Ethereum community seeks to preserve and perpetuate these principles.

The CROPS Principles

The financialization of DeFi, capital concentration around specific entities, value leakage controversies surrounding Layer-2s, the expanding influence of state regulations and Wall Street, and the materialization of transaction censorship may appear superficially as distinct issues. However, they converge on a singular foundational question:*What kind of network should Ethereum remain?* If public goods initiatives serve as institutional mechanisms to sustain areas ignored by market rewards, CROPS codifies the non-negotiable normative and technical principles that must not be compromised under any circumstances. If protocol development is governed solely by efficiency, profitability, and regulatory compliance, Ethereum risks degenerating into an infrastructure optimized for specific industries and powerful stakeholders. Financial markets demand higher capital efficiency; institutional investors demand stability and predictability; and sovereign regulatory bodies demand control and law enforcement capabilities. While each of these demands possesses its own internal justification, they collectively act as external forces attempting to reshape Ethereum toward specialized ends. Structural tensions persist between censorship/capture resistance and regulatory compliance, openness and efficiency, privacy and traceability, and decentralization and economic optimization. CROPS represents the Ethereum community's normative consensus on what to prioritize and what to preserve amidst these competing pressures.

CROPS can be structured into four interconnected pillars: Censorship and Capture Resistance, Open Source and Freedom, Privacy, and Security. These principles share a unifying premise: Ethereum exists to fulfill a social purpose as a global World Computer. At the core of this framework is censorship and capture resistance—the principle that no entity should possess the arbitrary power to block or exclude specific transactions or accounts, nor should a minority of actors, such as sovereign states, corporations, foundations, or major validators, seize control of the network's operation and future direction[57]. This constitutes the baseline prerequisite for Ethereum to function as a neutral public infrastructure, growing increasingly vital as the influence of state regulation and concentrated validation power expands. Key research streams aimed at implementing censorship and capture resistance include Fork-Choice Enforced Inclusion Lists (FOCIL), enshrined Proposer-Builder Separation (ePBS)[6)], and Encrypted Mempools[7)]. FOCIL prevents block proposers from intentionally omitting specific transactions by mandating that a validator committee construct an inclusion list that proposers are protocol-obligated to satisfy. By decentralizing inclusion authority across multiple participants rather than concentrating it in a single proposer, FOCIL minimizes single-entity censorship capabilities. ePBS absorbs the block production architecture—previously reliant on external third-party relays—directly into the base protocol, reducing vulnerabilities stemming from off-chain relay dependency and lowering the risk of block production being captured by centralized intermediaries. Meanwhile, Encrypted Mempools eliminate the information-level prerequisites for censorship itself. In current unencrypted mempools, pending transactions are publicly visible,

6) *Proposer-Builder Separation (PBS) originally separated the roles of block proposers and builders to reduce censorship; however, the relay-dependent structure of MEV-Boost created new trust bottlenecks and builder centralization. ePBS aims to eliminate reliance on third-party relays and mitigate censorship concerns.*

7) *What Encrypted Mempools prevent is weak censorship—filtering transactions in real time based on content inspection. Ensuring that transactions are ultimately included in a block is handled by forced inclusion mechanisms like FOCIL. The two mechanisms are complementary.*

allowing builders to inspect content and deliberately delay or drop specific transactions. Under an Encrypted Mempool scheme, users submit encrypted transactions, and builders sequence them into blocks without knowledge of their underlying contents. Decryption keys are revealed and executed only after block commitment. Because builders construct blocks blind to payload contents, real-time transaction censorship becomes structurally impossible, while opportunistically extractive MEV strategies such as front-running and sandwich attacks are heavily suppressed. Furthermore, since builders cannot inspect payload data, regulatory risks associated with knowingly processing sanctioned transactions are mitigated, thereby dismantling the primary pressure points used to compel censorship[58].

The second CROPS principle, Open Source and Freedom, guarantees protocol transparency and accessibility. Originating as a licensing requirement—that anyone must be empowered to inspect, modify, and fork code—this principle expanded into an overarching doctrine of permissionless ecosystem participation. Universal access to code inspection, modification, and forking functions as a structural safeguard against power concentration. A scenario where a handful of corporate entities or developer teams exercise a practical monopoly over core client implementations represents a direct threat to this principle. Open Source and Freedom is operationalized first through open decision-making processes. Ethereum implements this at the governance level via the Ethereum Improvement Proposal (EIP) process, which enables any participant to propose protocol modifications and join technical discussions. Changes to protocol rules or new features undergo transparent documentation and public review, preventing unilateral protocol changes by isolated corporate or organizational interests. By opening protocol evolution to public scrutiny, Ethereum aligns technical innovation with social consensus.

Open decision-making leads to decentralized implementation. Rather than relying on a single official software implementation, Ethereum adopts a multi-client architecture wherein multiple independently developed execution clients (such as Geth, Nethermind, and Besu) and consensus clients (such as Lighthouse, Prysm, and Teku) implement the exact same protocol specifications. This distributed setup prevents single-client software bugs from causing network-wide failures and prevents any single development team from monopolizing operational control over the protocol. Although the Ethereum Foundation explicitly targets maintaining client diversity such that no single client exceeds a 33% validator market share[59], a gap between normative ideals and empirical reality persists. In execution clients, Geth has historically maintained a dominant market position, while in consensus clients, Lighthouse holds over half of the node-level distribution, perpetuating systemic risks associated with single-client dependencies.

This reality demonstrates that normative principles alone cannot automatically prevent power concentration; they require continuous community vigilance and active resource allocation toward alternative client software. This commitment has materialized in dedicated measurement and monitoring infrastructures. *Blockprint*, developed by client team Sigma Prime, analyzes

block proposal heuristics to estimate validator-level market share, while crawlers operated by independent research group *Miga Labs* aggregate node-level client distributions[60]. Additionally, the community-run portal clientdiversity.org, managed by *Ether Alpha*, consolidates these metrics and offers migration guides for operators running majority clients. These monitoring infrastructures were forged through real-world crises. In early 2022, when Prysm's node market share surged past two-thirds of the network, community activists organized migration campaigns, prompting major staking operators like Coinbase and Kraken to publicly disclose and rebalance their internal client configurations[61]. The Ethereum Foundation supports these grass-roots efforts not by enforcing centralized dashboards, but by funding client telemetry research and officially recommending minority client adoption in technical documentation[62]. The 33% threshold operates without protocol-level enforcement; instead, real-time metric visibility serves as the practical mechanism compelling operators to recognize and recalibrate the systemic impact of their software choices.

Underpinning this distributed architecture is code freedom. Ethereum's open nature is embedded in its open-source licensing models, which ensure that core software implementations remain freely accessible for public review, modification, and independent client development. This hinders centralized actors from monopolizing core technologies or restricting competitor entry, while guaranteeing the freedom to fork—allowing developers to deploy new networks based on existing codebases whenever necessary. Open-source licensing thus serves as an institutional mechanism that checks power concentration and drives continuous protocol development through permissionless competition and voluntary collaboration.

The third CROPS principle, Privacy, asserts that users must retain sovereign control over their transactions and personal data. Going beyond mere anonymity, privacy safeguards individuals against pervasive surveillance and tracking, functioning as a necessary condition for meaningful freedom of participation. The core cryptographic technology enabling this principle is Zero-Knowledge Proofs (ZKPs), which allow an entity to mathematically prove the validity of a statement without disclosing the underlying data. *Privacy Pools* represents a practical application of this technology, engineered to allow users to demonstrate via ZKPs that their funds are unlinked to illicit activities without exposing their complete transaction histories. By establishing a mechanism that conceals "who you are" while proving "your funds are clean," Privacy Pools seeks a balance between transaction privacy and regulatory compliance—directly incorporating the lessons learned from the Tornado Cash enforcement actions.

The fourth CROPS principle, Security, requires that network consensus and data integrity be maintained even in the face of external attacks or internal faults. Reflecting a design philosophy that prioritizes long-term stability over short-term performance optimization, security is also a prerequisite for Ethereum to function as social infrastructure. Key areas of technical research aimed at realizing this principle include Peer Data Availability Sampling (PeerDAS) and Single Slot Finality (SSF).

PeerDAS is a mechanism that enables nodes to probabilistically verify Data Availability (DA)[8] without downloading the entirety of a block's data. By substantially reducing the burden on individual nodes while maintaining resistance to data-availability attacks, it seeks to address the vulnerability of the current architecture, in which data verification is concentrated among a small number of large nodes, through distributed sampling.

SSF aims to achieve block finality within a single slot—approximately 12 seconds—rather than requiring multiple epochs[9], as is currently the case. Faster finality can reduce the risk of block reorganization (reorg)[10] attacks and diminish incentives to reorganize previously recorded blocks in pursuit of additional arbitrage opportunities, thereby improving both network security and user experience.

While each of these four pillars holds independent normative value, they mutually reinforce one another. Censorship and capture resistance cannot survive without open-source access and distributed client structures, and transaction privacy loses practical utility without robust baseline security. CROPS represents Ethereum's answer not to *what* should be built, but to *what* must be defended. While technical roadmaps and market demands inevitably evolve, these four principles delineate the absolute boundaries Ethereum must not cross under any pressure. CROPS functions simultaneously as a set of engineering design constraints and as a normative social contract by which the Ethereum community self-governs. Whether the World Computer vision can withstand contemporary political and economic forces ultimately hinges on the durability of this collective agreement.

The Infinite Garden

The growing influence of institutional capital pressures Ethereum to operate according to the logic of a finite game—a pressure to slow the pace of evolution and move in predictable directions to safeguard accumulated assets. The Ethereum community's most fundamental response to this pressure was one of self-definition. At the 2021 EthCC conference, Aya Miyaguchi, then Executive Director of the Ethereum Foundation, described Ethereum as an "Infinite Garden." Inspired by James P. Carse's book *Finite and Infinite Games*, this formulation applied a central thesis to Ethereum: *"A finite game is played for the purpose of winning, an infinite game for the purpose of continuing the play."*[63] According to Carse, finite games operate under fixed rules with clear endings, aiming solely for victory. In contrast, infinite games feature fluid rules, aiming to sustain the game itself over time. While finite games remain trapped in a zero-sum logic—seeking to validate one's success through the failure of others—infinite games focus on expanding participation, fostering cooperation and innovation to render the broader ecosystem sustainable[64]. Miyaguchi emphasized that human cooperation and coordination through Ethereum is not a finite game played to defeat opponents, but a continuous process akin to cultivating a garden so that it may flourish[65]. Under this philosophy, ecosystem participants, including the Ethereum Foundation, view themselves as gardeners who nurture the soil and facili-

8) *Data Availability means that when a block producer issues a block in a blockchain network, all transaction data required to verify that block is actually published to the network and accessible for other participants to download.*

9) *A single slot is 12 seconds, and 32 slots constitute 1 epoch. Currently, Ethereum's economic finality takes approximately 2 epochs (about 12.8 minutes).*

10) *Block reorganization is a phenomenon where previously recorded blocks are replaced by a more valid chain, altering transaction order. During this process, transactions may be canceled or reordered.*

tate growth. Even when inevitable competition and debate arise within the network, they are understood not as attempts to exclude or defeat rivals, but as part of an organic evolutionary process that enables Ethereum—a decentralized garden—to expand and endure indefinitely[66]. This metaphor vividly captures Ethereum as an open space accessible to all, where new actors and ideas continuously emerge, and where the collective ecosystem sustains perpetual growth.

What distinguishes the Infinite Garden from public goods initiatives and the CROPS principles is that it represents a cultural premise rather than an institutional framework or set of technical rules. Public goods initiatives construct dedicated funding mechanisms for non-monetizable domains, while CROPS defines the non-negotiable boundaries that must be defended under all external pressures. In contrast, the Infinite Garden defines Ethereum's ultimate orientation and the kind of community it strives to remain. DeFi financialization threatened to narrow Ethereum into a specialized financial engine; Wall Street capital sought to reshape it according to institutional logic; and regulatory pressures attempted to tame it into a manageable infrastructure. Amid these converging forces, the Infinite Garden stands as a cultural assertion that Ethereum must not collapse into a single, closed purpose, but must instead remain an open arena for continuous experimentation. The moment the logic of winning, dominating, and optimizing comes to govern Ethereum, the network becomes susceptible to capture by powerful stakeholders. The Infinite Garden serves as a cultural line of defense against such capture.

The existential challenge facing Ethereum stems not from any specific technology or cohort of actors. The success of DeFi brought substantial capital and users to Ethereum, while institutional participation served as a major catalyst for its evolution into global financial infrastructure. The underlying issue arose when a single success model grew so dominant that it threatened to overwhelm alternative possibilities. When financial experiments absorb disproportionate attention and resources, other vital domains—such as governance, digital identity, social networks, and public goods—are inevitably pushed to the periphery. Similarly, if regulatory demands or institutional requirements excessively dictate the network's trajectory, novel experiments that do not conform to the established order lose their footing. Public goods initiatives and CROPS function as institutional and normative safeguards to preserve this openness, while the Infinite Garden provides the foundational rationale explaining why such safeguards are essential.

Ethereum's overarching trajectory is equally evident in the human resource shifts accompanying the Ethereum Foundation's structural reorganization between 2025 and 2026. During this period, the Foundation underwent two leadership transitions, culminating in the departure of at least eight senior contributors by May 2026. Departing figures included key contributors who had built Ethereum's social and institutional foundations through Protocol Guild operations, upgrade coordination, mechanism design research, and community organizing. These coordination functions were increasingly assumed by independent organizations outside the Foundation. Meanwhile, the Foundation's remaining protocol R&D leadership pivoted sharply toward cryptographic capabilities, establishing dedicated security tracks such as "Harden the L1,"[11)] the Trillion Dollar Security project,[12)] post-quantum consensus research,[13)] internal zkEVM security frameworks[14)] and formal verification[15)] capabilities[67]. Whereas previous leadership prioritized visible achievements in scalability and user experience, the new leadership placed paramount importance on cryptographic infrastructure and long-term security. The Foundation and Vitalik Buterin explicitly articulated the objective behind this reorganization: reducing the Foundation's centrality while expanding the roles of independent ecosystem actors.

In practice, Etherealize—co-founded by former Foundation contributor Danny Ryan—assumed the role of advocating for Ethereum's economic value to institutional audiences from outside the Foundation[68]. A similar pattern unfolded through the spin-off of internal Foundation teams. Beginning in 2025, the Foundation operated an Enterprise Team that established touchpoints with hundreds of financial institutions. When the Foundation decided in early 2026 to refocus its internal resources strictly on protocol R&D and CROPS, the personnel leading this enterprise initiative departed in July 2026 to establish*Ethereum Institutional*, an independent non-profit organization dedicated to maintaining Wall Street institutional touchpoints outside the Foundation[69]. Shortly prior, in June 2026, five former Foundation researchers, including Barnabé Monnot, launched *Ethlabs*, an independent protocol R&D collective[70]. This broader trajectory—wherein capabilities developed and validated within the Foundation transition into autonomous entities—marks a deliberate decentralization of the Foundation's authority.

11)
Harden the L1: Refers to a development strategy aimed at making Ethereum's base layer safer and more resilient by improving consensus protocols, validator structure, data availability, and censorship resistance.

12)
Trillion Dollar Security (1TS): A proposed long-term security strategy designed to evolve Ethereum into a "civilization-scale infrastructure." The Ethereum Foundation established the goal of securing sufficient reliability and safety so that billions of individuals can hold over $1,000 on-chain each, and corporations, institutions, or governments can deposit over $1 trillion in value into a single application. *See: Ethereum Foundation Team, "Announcing the Trillion Dollar Security Initiative," Ethereum Foundation Blog, May 14, 2025, https://blog.ethereum.org/2025/05/14/trillion-dollar-security.*

13)
Post-Quantum Consensus Research: A research area focused on post-quantum cryptography and new consensus structures to ensure Ethereum maintains long-term security and verifiability against the possibility of future quantum computers neutralizing current cryptographic systems.

14)
zkEVM Security Framework: A security research domain aimed at evaluating and enhancing the reliability of proof systems, circuit designs, and verification mechanisms, ensuring that zero-knowledge proof-based Ethereum scaling technologies guarantee correct computational results.

15)
Formal Verification: A method of mathematically proving that smart contracts or protocol implementations do not violate designed rules, utilized to proactively identify security vulnerabilities and unexpected behaviors.

On February 22, 2026, during a pop-up event in Berlin, Vitalik Buterin published an essay titled *"Reclaiming the Cypherpunk Soul of the World Computer"* (2026), criticizing Ethereum for neglecting its core mission while overly focusing on financial speculation and regulatory compliance[71]. In March of the same year, the Foundation released the *EF Mandate*, formally defining itself as a neutral steward, establishing CROPS as unalterable principles, and framing Ethereum as a sanctuary designed to protect individuals from coercive power and empower permissionless cooperation[72]. Buterin characterized the Foundation as *"one node, with a defined purpose, alongside other nodes,"* affirming that his personal influence would continue to diminish over time[73]. As the Foundation steps back from its role as central coordinator and independent ecosystem actors assume these responsibilities, Ethereum moves closer to an architecture that relies on no single entity. Viewed alongside the *Walkaway Test*[16)] embedded in the EF Mandate, the Foundation's choice to streamline its scope while preserving core principles can be interpreted as the Infinite Garden's primary survival strategy against capture pressures.

16)
Walkaway Test: A benchmark dictating that Ethereum must continue to function normally even if the Ethereum Foundation were to disappear, establishing the reduction of reliance on the Foundation itself as a primary criterion for the Foundation's success.*See: Ethereum Foundation, The Ethereum Foundation Mandate, 6.*

Whether this process will unfold as intended remains an open question. Former Foundation researcher Dankrad Feist argued that because the Foundation holds less than 0.1% of the total ETH supply and receives no revenue from staking or transaction fees, it cannot effectively represent Ethereum's economic interests. He advocated for a new entity funded with at least $1 billion in ETH, governed by a board explicitly responsible for ETH price appreciation. Feist's proposal—that a single, highly aligned, economically focused organization is the solution—represents a direct challenge from the finite game mindset to the logic of the Infinite Garden. From the perspective of the Infinite Garden, success cannot be evaluated through short-term metrics. Values such as censorship resistance, openness, and neutrality do not offer immediate, quantifiable comparisons like throughput or transaction fees. They represent trust accumulated over extended horizons, requiring considerable time to demonstrate their true value. However, this argument cuts both ways: while it offers a justification for patience in pursuit of long-term value, it also risks functioning as an unfalsifiable defense that dismisses any empirical failure with the claim that "it is simply not time yet." Whether Feist's skepticism or the Infinite Garden's response proves correct will ultimately be revealed by Ethereum's future trajectory.

04

Ethereum's Competitive Edge

Structural Openness and Neutrality

The past decade of Ethereum is a history defined by the success of the World Computer and the structural tensions generated by that very success. By 2026, Ethereum stands at an identity crossroads, re-evaluating what it was, what it ought to be, and what it must never become. Inheriting the cypherpunk legacy of Bitcoin, Vitalik Buterin did not limit Ethereum to the singular function of peer-to-peer digital money. Instead, he sought to extend the possibilities of decentralized social coordination demonstrated by Bitcoin across contracts, organizations, markets, identity, and governance. The resulting World Computer was conceived as a general-purpose state space where anyone could experiment with novel social rules. However, the World Computer's success catalyzed new pressures. DeFi pulled Ethereum toward financial specialization; core infrastructure gradually became concentrated in the hands of a few, creating new concentrations of power; and Layer 2 solutions addressed the challenge of scalability while also giving rise to debates over value capture. The enforcement action against Tornado Cash demonstrated that censorship resistance was not an abstract ideal, but a value tested under real-world regulatory pressure. The launch of spot ETFs and the expansion of RWAs signaled institutional finance's endorsement of Ethereum, yet simultaneously introduced new tensions regarding institutional capital's ability to influence protocol trajectory.

Vitalik Buterin's calls to "return to the World Computer" and "reclaim the cypherpunk soul" serve as warnings that accurately diagnose the direction of external pressures exerted upon Ethereum. The cypherpunk ethos is the conviction that individual liberty can be technologically guaranteed against encroachment by sovereign states and capital; the World Computer was the vision extending that conviction across society. As Ethereum faces these mounting pressures, it risks preserving its outward form while degenerating in substance—leaving the platform intact while narrowing the scope of permissionless experimentation allowed upon it. Buterin's appeal is a demand that Ethereum remain an uncapturable public space rather than sinking into an efficient infrastructure optimized exclusively for specialized stakeholders.

The Ethereum community's response to these multifaceted pressures can be synthesized into three pillars. First, public goods funding represents a social framework designed to sustain areas ignored by market rewards. Initiatives

such as Gitcoin, Retro Funding, and Protocol Guild represent systematic efforts to ensure internal sustainability for non-monetizable activities, including open-source development, protocol research, privacy tooling, documentation, and community organizing. Second, the CROPS principles define the non-negotiable boundaries that must not waver under short-term incentives or external coercion. Censorship and capture resistance, open source and freedom, privacy, and security guard Ethereum against being reduced to a single-purpose financial clearinghouse or regulated settlement network. Third, the Infinite Garden serves as the cultural foundation articulating why these mechanisms are necessary. Ethereum is not engaged in a finite game where a single dominant model suppresses alternative possibilities; it is an infinite game where diverse experiments continuously emerge, collide, and coexist.

The limitations of these three responses are self-evident: none are enforced at the protocol consensus layer. Yet the absence of protocol-level enforcement does not imply impotence. Rather than relying on hardcoded constraints, these three responses operate through voluntary choices made by ecosystem actors, exerting influence even in domains they do not directly govern. For example, direct interventions addressing Layer-2 value non-accrual are being pursued through protocol economics—specifically by redesigning fee structures, as seen in the Fusaka upgrade (EIP-7918), which introduced a floor price for blob fees. The three responses address this issue indirectly. Public goods funding promotes a norm under which L2s and applications voluntarily return a portion of their revenue to public goods. CROPS provides the community with criteria for evaluating whether an L2 acts as a participant in the ecosystem or merely extracts value from it. The Infinite Garden reframes the relationship between L1 and L2, moving it away from a zero-sum competition and placing both within a shared ecosystem.

Ethereum's design is not inherently frictionless for traditional finance. Permissionless access, pseudonymous addresses, and the absence of native compliance mechanisms present friction for traditional financial institutions operating under prerequisites of credential verification, identity confirmation, and transfer controls. However, these barriers exist because Ethereum's baseline defaults to a neutral, general-purpose state environment—not because Ethereum intentionally excludes traditional finance or regulatory authorities. This gap is bridged through architectural separation. Ethereum's design operates across two distinct layers: the base protocol remains a general-purpose execution environment unconstrained by specialized regulatory rules, while compliance requirements for financial assets are handled by token standards at the application layer above. Standardized protocols such as ERC-1400 and ERC-3643 (T-REX) exemplify this approach. Extending ERC-20, both standards embed compliance logic directly into the token contract itself, enabling investor qualification checks, on-chain identity verification, transfer restrictions, and freeze/clawback capabilities. In the case of ERC-3643, transfers to unqualified counterparties are blocked programmatically at the smart contract level. According to metrics from Tokeny, the entity managing the standard, assets tokenized via ERC-3643 have exceeded $28 billion.[74] In short, Ethereum is engineered so that permissionless

activities and regulated financial instruments share the exact same underlying infrastructure without compromising its core neutrality. Institutional integration on-chain takes place precisely upon this layered architecture.

A Culture of Growth

Ethereum's neutrality and openness do not automatically translate into competitive advantage. By the standards of efficiency and control, Ethereum struggles to compete with existing systems. Centralized databases are faster, enterprise platforms are more convenient, and state-operated systems possess stronger enforcement capabilities. Ethereum's fundamental competitive strength lies elsewhere.

In *A Culture of Growth*, economic historian Joel Mokyr does not explain Europe's sustained economic growth after the Industrial Revolution in terms of any particular technology or exceptional invention. Innovations such as the steam engine, the spinning machine, and advances in steelmaking were outcomes rather than causes. Instead, he asks why such innovations in Europe did not end as isolated events, but continued to emerge in succession, stimulating and building upon one another.

According to Mokyr, the answer lay in a cultural transformation in how knowledge was understood and pursued. New knowledge could challenge established authority, circulate freely across regional and disciplinary boundaries, and be revised and refined through continual criticism and debate. Mokyr called this environment a "market for ideas." Within such a space, no single authority possessed the final power to determine what was correct. Rather, the process through which competing claims were tested and evaluated itself generated new useful knowledge.

Mokyr's central argument is not that Europe possessed superior science or technology compared with China or the Ottoman Empire. What made the difference was that political decentralization prevented intellectual competition from coming to a halt in any one place, allowing innovation to generate further innovation through a self-reinforcing process. Even when a state or political authority suppressed new ideas, scholars could continue their work by moving to other cities or universities or by seeking new patrons.

This competitive structure prevented any single authority from monopolizing the direction of knowledge and enabled a cumulative process in which even failed experiments could become the foundation for subsequent innovations. For Mokyr, the possession of a particular technology is an outcome[75]. The essence of innovation lies in a society's capacity to continuously generate new technologies. Technologies can be copied, but the environment that continually produces them can be sustained only through culture, institutions, and communal trust developed over long periods of time.

This is precisely the kind of environment Ethereum has cultivated over the past decade. Censorship and capture resistance, openness, neutrality, a supportive cultural environment, and a public-goods ecosystem are all forms of

social capital that develop over time and are difficult to replicate quickly. They embody the trust accumulated through Ethereum's continuing efforts to negotiate and reaffirm these values even under the pressures created by its own success.

Competitors optimized for the interests of particular stakeholders are unlikely to reproduce this trust in a short period of time. Ethereum's distinctive competitive strength lies in its ability to bring together developers pursuing the vision of a World Computer, companies building financial infrastructure, communities supporting public goods, and institutional capital on a single network—even as these groups coexist in tension. Only a platform that remains uncaptured by any single purpose can accommodate all of these participants simultaneously.

Conclusion

By 2026, Ethereum remains not a completed answer, but an ongoing question. Amidst Ethereum's expansion and the structural pressures generated by that growth, what matters most is ensuring that no single identity completely eradicates another. The challenges Ethereum faces in the future will manifest in forms vastly different from those of the past: a world where AI agents execute economic activities autonomously, inter-state digital currency conflicts, a future where quantum computing threatens contemporary cryptographic foundations, and unprecedented transformations that currently remain unnamed.

From a long-term perspective, the public goods mechanisms, the CROPS principles, and the cultural commitment to the Infinite Garden cultivated by Ethereum serve not only as responses to past pressures, but as the structural capacity to absorb future shocks. Herein lies the true meaning behind the call to "return to the World Computer." It is neither a demand to restore a specific historical artifact nor an impractical assertion trapped in abstract idealisms detached from reality. Rather, it is a commitment to safeguard an open space where new participants and novel imaginations can continually emerge—regardless of whatever unnamed future arrives. The World Computer is not a finalized blueprint, but a question being continuously rewritten; and Ethereum strives to endure as the open space where that question can endlessly persist.

Notes

1. Ethereum Foundation, *The Ethereum Foundation Mandate*, 2026, https://ethereum.foundation/ef-mandate.pdf.

2. CROPS, first formalized in the EF Mandate officially announced by the Ethereum Foundation in March 2026, comprised four principles: Censorship Resistance, Open Source and Free (as in Freedom), Privacy, and Security. In May 2026, Vitalik Buterin refined this framework into five pillars, expanding it in two respects: he elevated Capture Resistance to an independent pillar, and broadened Open Source and Free — previously centered on licensing policy — into Openness, encompassing permissionless participation and ecosystem sovereignty. Because capture is the cause and censorship the resulting effect, forming a causal chain, this report treats the two forms of resistance together as "censorship/capture resistance," and in discussing the Open Source and Free principle, also reflects the implications of the broadened concept of openness that Buterin introduced. Behind the explicit inclusion and emphasis of capture resistance lies concern that the protocol could be captured by particular interests, given both the rapid inflow of Ethereum (ETH) assets from Wall Street institutions and the growing influence of partially centralized infrastructure such as staking pools, RPC providers, and the MEV industry complex. Vitalik Buterin (@VitalikButerin), "The Ethereum Foundation will choose 'longevity over breadth,' reduce ETH sales and narrowly focus on CROPS: censorship resistance, capture resistance, openness, privacy and security," X (formerly Twitter), May 24, 2026, https://x.com/VitalikButerin/status/2032469755614179700. The Ethereum Foundation maintains this principle as a core success factor, so that the protocol will fully pass the "Walkaway Test" — continuing to function normally, uncaptured by outside pressure, even if the Foundation or its core developers were to vanish tomorrow. Ethereum Foundation, *The Ethereum Foundation Mandate*, 6.

3. "Open Source and Free, as in Freedom" borrows from the classic slogan of the free software movement — "free as in 'free speech,' not as in 'free beer'" — which distinguishes the two senses of "free" (freedom versus cost). The slogan was used by Richard Stallman and the Free Software Foundation to draw exactly this distinction, and the Ethereum Foundation's adoption of it as a principle name in an official document can be read as a declaration situating itself within the lineage of the free software movement. The original text reads: "To understand the concept, you should think of 'free' as in 'free speech,' not as in 'free beer.'" Richard Stallman, "The Free Software Definition," in *Free Software, Free Society: Selected Essays of Richard M. Stallman*, 3rd ed. (Boston: Free Software Foundation, 2015), 3.

4. Vitalik Buterin, "Make Ethereum Cypherpunk Again," Vitalik Buterin's website, December 28, 2023, https://vitalik.eth.limo/general/2023/12/28/cypherpunk.html.

5. Joel Mokyr, *A Culture of Growth: The Origins of the Modern Economy* (Princeton, NJ: Princeton University Press, 2016), 5–6, 189–91, 340–41.

6. "I have no privacy. I cannot here selectively reveal myself; I must always reveal myself. Therefore, privacy in an open society requires anonymous transaction systems." Eric Hughes explains the background and logic of this claim through a distinction between privacy and secrecy, the minimization of identity disclosure in transactions, and the essential nature of anonymous systems. Privacy, he argues, is not secrecy — hiding everything from others — but the power to selectively reveal oneself to the world. Parties to a transaction should share only the minimum information necessary, and individuals should be able to choose for themselves whether to disclose their identity. If a transaction's basic structure always exposes identity, individuals cannot selectively reveal them-

selves, and privacy cannot exist. He therefore holds that, like cash — which does not require unnecessary disclosure of identity — an anonymous transaction system letting individuals reveal their identity only when they choose is essential to guaranteeing privacy in an open society. For the cypherpunks, cryptography was not a security technology but a political tool; what united the movement was the belief that technology could technically guarantee individual freedom against the surveillance power of states and corporations. Eric Hughes, "A Cypherpunk's Manifesto," March 9, 1993, https://nakamotoinstitute.org/library/cypherpunk-manifesto/.

7. DigiCash was an early electronic-money and payment-technology company founded in 1989 by cryptographer Dr. David Chaum. Its flagship digital currency, eCash, was designed as a digital form of cash suited to an internet environment in which paper money cannot function. In 1996, DigiCash partnered with Germany's Deutsche Bank on a pilot project testing internet electronic-cash payments. DigiCash and Deutsche Bank, "DigiCash's Ecash™ to be Issued by Deutsche Bank," press release, May 7, 1996, https://chaum.com/wp-content/uploads/2022/01/05-07-96-DigiCash_s-Ecash%E2%84%A2-to-be-Issued-by-Deutsche-Bank.pdf.

8. Wei Dai's 1998 b-money proposal was one of the early anonymous electronic-cash proposals. Similar to what is known today as proof of work, it linked the solution of computational problems to currency issuance, and envisioned participants maintaining the transaction ledger in a distributed manner. Wei Dai, *b-money, an anonymous, distributed electronic cash system*, November 1998, https://nakamotoinstitute.org/library/b-money/.

9. Bit Gold was designed as "a protocol for creating bits online that minimize dependence on a trusted third party, while being verifiable as costly to produce yet difficult to counterfeit, and that can be securely stored, transferred, and assessed." Nick Szabo, "Bit Gold," *Unenumerated* (blog), December 27, 2008, accessed July 22, 2026, https://unenumerated.blogspot.com/2005/12/bit-gold.html.

10. In 2010, Satoshi wrote on the Bitcointalk forum that Bitcoin "implemented" the b-money proposal Wei Dai published on the cypherpunk mailing list in 1998, along with Nick Szabo's Bit Gold proposal. Satoshi Nakamoto, "Re: They want to delete the Wikipedia article," Bitcointalk (forum), July 20, 2010, https://satoshi.nakamotoinstitute.org/posts/bitcointalk/249/.

11. Buterin, "Make Ethereum Cypherpunk Again."

12. David Z. Morris, "Vitalik Buterin Is Embracing a New Role: Political Theorist," BreakerMag, March 25, 2019, https://breakermag.breaker.io/vitalik-buterin-is-embracing-a-new-role-political-theorist/.

13. Vitalik viewed Bitcoin as confining this principle to a single purpose — currency — through its Turing-incomplete scripting, and proposed Ethereum as an extension letting anyone implement arbitrary rules in code. Vitalik Buterin, "Ethereum: A Next-Generation Smart Contract and Decentralized Application Platform," 2014, https://ethereum.org/whitepaper/.

14. Buterin, "Ethereum: A Next-Generation Smart Contract."

15. Gavin Wood, *Ethereum: A Secure Decentralised Generalised Transaction Ledger*, Ethereum Project Yellow Paper (2014): 2, 13, accessed July 22, 2026, https://web.archive.org/web/20140410013339/http://gavwood.com/paper.pdf.

16. Gavin Wood, *Ethereum: A Secure Decentralised Generalised Transaction Ledger*, Ethereum Project Yellow Paper (Shanghai Version, 2025), https://ethereum.github.io/yellowpaper/paper.pdf.

17. Stephan Tual, "Ethereum Launches," Ethereum Foundation Blog, July 30, 2015, https://blog.ethereum.org/2015/07/30/ethereum-launches.

18. Thejaswini M A, "Gavin Wood: Building, Breaking, Rebuilding," Token Dispatch, November 10, 2025, https://www.thetokendispatch.com/p/gavin-wood-building-breaking-rebuilding.

19. Chris Williams, "Ethereum 'Has to Expand' Beyond DeFi: Vitalik Buterin," Crypto Briefing, July 21, 2021, https://cryptobriefing.com/ethereum-has-expand-beyond-defi-vitalik-buterin/.

20. Andrew R. Chow, "Vitalik Buterin Ethereum Profile," Time, March 2022, https://time.com/6158182/vitalik-buterin-ethereum-profile.

21. The original Lido Governance Forum post, written in May 2022, states that Lido's share at the time exceeded 30 percent and briefly crossed the roughly one-third (33.3 percent) threshold. A GSR analysis report further indicates that Lido maintained a share around 32 percent for about eighteen months, from roughly May 2022 to October 2023. Vasiliy Shapovalov et al., "Should Lido on Ethereum be limited to some fixed % of stake?," Lido Governance, May 21, 2022, https://research.lido.fi/t/should-lido-on-ethereum-be-limited-to-some-fixed-of-stake/2225; GSR, "GSR: Lido DAO's Staking Dominance," CoinMarketCap, October 2023, https://coinmarketcap.com/academy/article/lido-daos-staking-dominance.

22. Major figures in the Ethereum community, including Vitalik and Danny Ryan, strongly proposed introducing a share cap (15–33 percent) for any single staking protocol, sparking intense debate. Shapovalov et al., "Should Lido on Ethereum be limited."

23. Osato Avan-Nomayo, "Lido Community Strongly Against Limiting Its Ethereum Staking Dominance," The Block, June 30, 2022, https://www.theblock.co/post/155070/lido-community-strongly-against-limiting-its-ethereum-staking-dominance.

24. This incident caused roughly 248 blocks to be missed, and validators — including institutional investors — lost approximately 382 ETH in rewards, worth more than $1 million at the time. Everstake, "Ethereum (ETH) Staking Insights & Protocol Analysis: Annual 2025," Everstake (blog), January 26, 2026, https://everstake.one/ethereum-eth-staking-insights-protocol-analysis-annual-2025.

25. Everstake, "Ethereum (ETH) Staking Insights."

26. Before MEV-Boost emerged, validators handled every stage themselves — transaction selection, transaction ordering, block building, and block proposal.

27. According to the paper, MEV-Boost — the out-of-protocol implementation of proposer-builder separation (PBS) proposed by Flashbots — currently produces roughly 90 percent of all Ethereum blocks. Analysis of empirical data from October 2023 to March 2024 in particular found that just three large block builders — beaverbuild, rsync, and Titan — accounted for roughly 80 percent of all MEV-Boost blocks. The researchers note that this concentration of power among a small number of builders could seriously threaten Ethereum's decentralization ethos and censorship resistance. Burak Öz, Danning Sui, Thomas Thiery, and Florian Matthes, "Who Wins Ethereum Block Building Auctions and Why?," 2024, https://arxiv.org/pdf/2407.13931.

28. Oluwapelumi Adejumo, "How Today's AWS Glitch Took Down Coinbase, ETH L2s, and Half the Internet," CryptoSlate, October 20, 2025,

https://cryptoslate.com/aws-failure-exposes-cryptos-centralized-weak-point/.

29. Some critics, including Solana co-founder Anatoly Yakovenko, have argued that when L2s absorb more transactions and revenue than the value they return to Ethereum's base layer, they form a "parasitic" relationship with Ethereum. Sage D. Young, "Are L2s 'Parasitic'? Analysis Shows Ethereum Only Gets a Tiny Percentage of Fees," Unchained, September 5, 2024, https://unchainedcrypto.com/are-l2s-parasitic-analysis-shows-ethereum-only-gets-a-tiny-percentage-of-fees/.

30. Young, "Are L2s 'Parasitic'?"

31. "Ether Turns Inflationary for the First Time Since the Merge," CoinTelegraph, May 9, 2024, https://cointelegraph.com/news/ethereum-dencun-upgrade-ether-supply-shift; Ultrasound.money, "ETH Supply and Issuance Data," accessed June 29, 2026, https://ultrasound.money.

32. U.S. Department of the Treasury, "U.S. Treasury Sanctions Notorious Virtual Currency Mixer Tornado Cash," August 8, 2022, https://home.treasury.gov/news/press-releases/jy0916; MEV Watch, accessed July 5, 2026, https://www.mevwatch.info.

33. Nikhilesh De, "Crypto-Mixing Service Tornado Cash Blacklisted by US Treasury," CoinDesk, August 8, 2022, https://www.coindesk.com/policy/2022/08/08/crypto-mixing-service-tornado-cash-blacklisted-by-us-treasury.

34. A "registered" fund is one formally registered with the SEC under the Investment Company Act of 1940 and permitted to be sold publicly, as distinct from a private fund (e.g., MONY) sold only to accredited investors under Regulation 506(c). J.P. Morgan Asset Management, "J.P. Morgan Asset Management Launches Its First Tokenized Money Market Fund," press release, December 15, 2025, https://am.jpmorgan.com/us/en/asset-management/adv/about-us/media/press-releases/jp-morgan-asset-management-launches-its-first-tokenized-money-market-fund/. A "government money market fund (MMF)" is a top-tier, highest-safety category under SEC Rule 2a-7 that invests at least 99.5 percent of total assets in cash, government securities, or fully collateralized repurchase agreements, as distinct from a "prime" MMF, which may hold commercial paper, corporate bonds, and similar instruments. U.S. Securities and Exchange Commission, "Money Market Funds," 17 C.F.R. § 270.2a-7, Electronic Code of Federal Regulations, accessed July 5, 2026, https://www.ecfr.gov/current/title-17/chapter-II/part-270/section-270.2a-7.

35. U.S. Securities and Exchange Commission, Order Granting Accelerated Approval of Proposed Rule Changes, as Modified by Amendments Thereto, to List and Trade Shares of Ether-Based Exchange-Traded Products, Release No. 34-100224, May 23, 2024, published in Federal Register 89 (May 30, 2024): 46937, https://www.sec.gov/files/rules/sro/nysearca/2024/34-100224.pdf. On the process by which issuers amended their applications to remove staking provisions ahead of approval, see Foley & Lardner LLP, "What's Next for Ethereum ETFs Following SEC Approval?," July 25, 2024, https://www.foley.com/insights/publications/2024/07/next-ethereum-etfs-sec-approval/.

36. Helene Braun, "BlackRock Files for Staked Ethereum ETF," CoinDesk, December 8, 2025, https://www.coindesk.com/markets/2025/12/08/blackrock-files-for-staked-ethereum-etf-aiming-to-bring-yield-to-the-masses; Jessica, "What Is ETHB? BlackRock's Staked Ethereum ETF Explained — And What It Means for Crypto Traders," Phemex Academy, March 12, 2026, https://phemex.com/academy/

what-is-ethb-blackrock-staked-ethereum-etf-explained.

37. Everstake, "Ethereum (ETH) Staking Insights."

38. Lockridge Okoth, "Michael Saylor Flags a New Quantum Risk for Bitcoin," BeInCrypto, January 24, 2026, https://beincrypto.com/michael-saylor-bitcoin-protocol-quantum-risk/.

39. Everstake, "Ethereum (ETH) Staking Insights."

40. In this talk, Vitalik argued that, unlike early blockchain thinking, which centered on private goods such as individual property rights, public goods — freely accessible client software, protocol research, community, and events — are just as important as private goods if a network is to remain secure and to scale. "Transcription: Vitalik Buterin on Funding Public Goods," Protocol Labs, November 22, 2022, https://www.protocol.ai/blog/transcription-vitalik-buterin-funding-the-commons/.

41. Vitalik argued that funding should be systematic and sustained, drawn from sources such as the transaction-fee revenue generated by L2 protocols and applications like Optimism and Uniswap. "Transcription: Vitalik Buterin on Funding Public Goods."

42. Vitalik Buterin, Zoë Hitzig, and E. Glen Weyl, "A Flexible Design for Funding Public Goods," *Management Science* 65, no. 11 (2019): 5171–5187, https://doi.org/10.1287/mnsc.2019.3337.

43. Buterin, Hitzig, and Weyl, "A Flexible Design for Funding Public Goods."

44. The total amount a project receives is determined by squaring the sum of the square roots of individual contributions; the difference between this total and the actual sum of contributions is subsidized from the matching pool. Buterin, Hitzig, and Weyl, "A Flexible Design," 5172.

45. Gitcoin Grants began as a bug-bounty network but, after launching quadratic funding, evolved into a powerful ecosystem supporting open-source software and public-goods developers. Stephen Laddin, "Gitcoin's Kevin Owocki Is Paying It Forward to the Next Generation of Innovators," Decential Media, November 6, 2024, https://www.decential.io/articles/gitcoins-kevin-owocki-is-paying-it-forward-to-the-next-generation-of-innovators.

46. Gitcoin, "Quadratic Funding," Gitcoin, accessed July 5, 2026, https://gitcoin.co/mechanisms/quadratic-funding.

47. Vitalik Buterin and Optimism, "Retroactive Public Goods Funding," Ethereum Optimism (blog), Medium, July 20, 2021, https://medium.com/ethereum-optimism/retroactive-public-goods-funding-33c9b7d00f0c.

48. "Retroactive Funding," Gitcoin, February 13, 2026, https://gitcoin.co/mechanisms/retroactive-funding.

49. Protocol Guild is a collective funding mechanism supporting Ethereum layer-1 (L1) R&D maintainers; through an eligibility framework and an on-chain split smart contract, it is designed to ensure that voluntary donations from the ecosystem are distributed continuously to core contributors. Protocol Guild, "Protocol Guild," Protocol Guild Documentation, https://protocol-guild.readthedocs.io/en/latest/.

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cluding a 2,000,000 LDO donation from Lido and a 500,000 UNI donation from Uniswap. Trent Van Epps and Tim Beiko, "[EP13][Executable] Support the Protocol Guild Pilot," ENS DAO Governance Forum, May 25, 2022, https://discuss.ens.domains/t/ep13-executable-support-the-protocol-guild-pilot/12877.

51. A number of projects, including the Eigen Foundation, Aztec Foundation, and Ether.fi, have also joined in supporting on-chain distribution. Protocol Guild, "Protocol Guild," accessed June 24, 2026, https://protocolguild.org/; "Protocol Guild," Gitcoin, accessed June 24, 2026, https://gitcoin.co/campaigns/protocol-guild-ongoing.

52. VanEck (@vaneck_us), "Big announcement! We intend to donate 10% of our $EFUT ETF profits (https://vaneck.com/investments/et...) to @ProtocolGuild for at least 10 years. Thank you, Ethereum contributors, for nearly a decade of relentless building& ongoing stewardship of this common infrastructure," X (formerly Twitter), September 29, 2023, https://x.com/vaneck_us/status/1707888396171977036.

53. VanEck, "VanEck Announces Change to ETF Product Line (EFUT)," press release, September 6, 2024, https://www.vaneck.com/us/en/press-releases/vaneck-announces-changes-to-etf-product-line-ethereum-strategy-etf/.

54. Van Epps and Beiko, "[EP13][Executable] Support the Protocol Guild Pilot."

55. Protocol Guild, "Protocol Guild," Protocol Guild Documentation.

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57. Ethereum Foundation, *Ethereum Foundation Mandate*, 9, 12.

58. "EIP-8105: Universal Enshrined Encrypted Mempool," Ethereum Improvement Proposals, accessed July 5, 2026, https://eips.ethereum.org/EIPS/eip-8105.

59. Official developer documentation maintained by the Ethereum Foundation presents a distribution in which no single client exceeds 33 percent of the total as the ideal benchmark, and recommends that users of majority clients migrate to minority clients, stating that it also provides migration guides to assist the switch. "Client Diversity," ethereum.org, accessed July 15, 2026, https://ethereum.org/developers/docs/nodes-and-clients/client-diversity/.

60. Blockprint uses machine learning to identify each client's block-proposal style and estimate validator-level share, while Migalabs uses a crawler to aggregate self-reported information from beacon nodes. Under Blockprint's estimation methodology, consensus-layer clients leave few clear identifying traces on the network, which can introduce technical error in classifying minority clients precisely. Migalabs's aggregation methodology counts a single beacon node only once even when shared by multiple validators, which can distort figures by overstating the share of small node operators relative to large institutions holding many validators. "Data Methodology," Client Diversity, accessed July 15, 2026, https://clientdiversity.org/methodology/. The site's source code is maintained publicly by Ether Alpha on GitHub. Ether Alpha, "clientdiversity-org," GitHub repository, accessed July 15, 2026, https://github.com/etheralpha/clientdiversity-org.

61. The unfolding of the switching campaign that arose alongside heightened alarm over majority-client concentration at the time, together with the staking-pool client-composition disclosures of Coinbase (February 22, 2022) and Kraken (February 20, 2022), are

recorded in the Client Diversity site's archive feed. "Feed," Client Diversity, accessed July 15, 2026, https://clientdiversity.org/feed/.

62. The Ethereum Foundation provided a grant (Grant FY23-1321) for the Blockprint accuracy study conducted at Migalabs. Santiago Somoza, Tarun Mohandas-Daryanani, and Leonardo Bautista-Gomez, "Blockprint Accuracy Study: Grant FY23-1321 from the Ethereum Foundation," arXiv:2409.15808 (2024), https://arxiv.org/abs/2409.15808. See also "Client Diversity," ethereum.org, for the official documentation's migration recommendation.

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69. Margaux Nijkerk, "Ethereum Gets a New Nonprofit Focused on Institutional Adoption," CoinDesk, July 1, 2026, https://www.coindesk.com/tech/2026/07/01/ethereum-gets-a-new-nonprofit-focused-on-institutional-adoption. On the incubation of Ethereum Institutional within the Ethereum Foundation and the decision to refocus it in early 2026, see "Institutional," accessed July 15, 2026, https://www.ethereuminstitutional.org/.

70. Ethlabs is an independent nonprofit R&D organization founded on June 22, 2026, by five former senior Foundation researchers: Ansgar Dietrichs, Barnabé Monnot, Caspar Schwarz-Schilling, Josh Rudolf, and Julian Ma. "Ethlabs," accessed July 16, 2026, https://ethlabs.org/; "Ethlabs, Founded by Former Ethereum Foundation Contributors and Funded by Bitmine, Sharplink and Joe Lubin, Launches to Accelerate Ethereum's Institutional Supercycle," PR Newswire, June 22, 2026, https://www.prnewswire.com/news-releases/ethlabs-founded-by-former-ethereum-foundation-contributors-and-funded-by-bitmine-sharplink-and-joe-lubin-launches-to-accelerate-ethereums-institutional-supercycle-302806705.html. Its initial research areas are settlement efficiency, scalability, cross-chain interoperability, data availability, and protocol economics, with a focus on the foundational technologies institutional adoption requires — improving transaction settlement speed and strengthening infrastructure for issuers of tokenized assets and

stablecoins among them. Margaux Nijkerk, "EthLabs Launches as Ethereum Undergoes Its Biggest Leadership Transition in Years," CoinDesk, July 1, 2026, https://www.coindesk.com/tech/2026/07/01/ethlabs-launches-as-ethereum-undergoes-its-biggest-leadership-transition-in-years. Research decisions are made independently of sponsors and the Foundation. "Ethlabs, Founded by Former Ethereum Foundation Contributors," PR Newswire.

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73. Francisco Rodrigues, "Buterin says Ethereum Foundation will shrink, sell less ETH, and focus on 'CROPS'," CoinDesk, May 25, 2026, https://www.coindesk.com/web3/2026/05/25/buterin-says-ethereum-foundation-will-shrink-sell-less-eth-and-focus-on-crops.

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Where Is Ethereum Headed in 2026?

Pressures Surrounding the World Computer and Three Responses

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