Aevirum Protocol: Building Decentralized Collective Intelligence

Abstract

Aevirum is a decentralized intelligent collaboration network driven by the Proof of Intelligent Contribution (PoIC) consensus mechanism. It transforms the computational work of securing the network into beneficial contributions toward a "collective intelligence," aiming to build a self-evolving AI ecosystem that aggregates global wisdom, co-owned and co-governed by its contributors.

"A decentralized collective intelligence protocol that deeply integrates a high-quality content ecosystem, federated learning, and a composable Agent economy, owned by the community."

Aevirum is a decentralized intelligent collaboration network powered by Proof of Intelligent Contribution (PoIC). It converts the cost of securing a blockchain network into the "intelligent contribution" of creating high-quality content and training AI in a distributed manner. This approach resolves the inefficiencies of value creation in traditional consensus mechanisms and addresses the data monopoly and value distribution imbalances of centralized AI. Through a 100% fair launch principle, the protocol links all token distribution to genuine intelligent contributions, ensuring that the network's ownership and value ultimately return to the contributors.

Aevirum fosters a continuously evolving "collective intelligence," nurtured by a global community, through a value network that deeply integrates high-quality content, privacy-preserving federated learning, and an Agent economy. This collective intelligence, created and shared by all, and the ecosystem of tradable, composable digital Agents derived from it, form the core of the Aevirum ecosystem.

The mission of Aevirum is to build an AI value creation protocol that fuses a high-quality content ecosystem, federated learning, and an Agent economy into a single, cohesive unit, becoming the foundational infrastructure for the future of the intelligent internet. We are dedicated to distributing the rights to create, own, and govern AI more broadly to every individual, collectively

building an intelligent future that serves the public interest and is co-owned and co-governed by a global community.

Executive Summary

Artificial Intelligence (AI) is catalyzing a fundamental societal and technological transformation. However, the current trajectory of AI development is highly dependent on centralized entities, leading to a series of structural problems, including data monopolies, high barriers to computational access, imbalanced value distribution, and a lack of user data sovereignty. The potential of AI is confined within a few closed systems, hindering broader innovation and collaboration.

Aevirum Protocol is designed to address these challenges. It is not a general-purpose public chain but a decentralized intelligent collaboration network focused on building an open, collaborative, and self-evolving AI. At its core is the construction of a collective intelligence capable of aggregating global wisdom. To achieve this, the protocol introduces the Proof of Intelligent Contribution (PoIC) consensus mechanism. This design transforms the computational work traditionally used to secure a network into "intelligent contributions"—distributed AI model training and the creation of high-quality content—thereby using network computing resources to generate measurable intelligent value.

Aevirum's design is based on five foundational principles:

1. **100% Fair Launch:** The total supply of AEV tokens is 2.1 billion, with no pre-mine, private sale, or team reservation. All initial and subsequent token distribution is earned fairly through contributions to the protocol.
2. **Privacy-Preserving Distributed Intelligence:** The protocol employs federated learning and other privacy-enhancing technologies to ensure user data contributes to the optimization of global AI models without leaving local devices.
3. **Intent-Driven Value Capture:** User interaction behaviors are distilled into structured "intent vectors" by a local client. These intents form the basis for training personalized digital Agents.
4. **Composable Agent Economy:** Digital avatars (Agents), trained based on user intents, are encapsulated as Non-Fungible Tokens (NFTs). These intelligent assets can be traded, leased, and combined in an open market.

5. **Community-Owned Protocol:** Key protocol parameters, model selections, and upgrade paths are governed by veAEV holders through a Decentralized Autonomous Organization (DAO).

Aevirum's unique positioning lies in its deep integration of three key elements: a high-quality content ecosystem, federated learning, and an Agent economy. Through an innovative AEV+AC dual-token model, the protocol provides clear mechanisms for network security, ecosystem incentives, and value circulation, aiming to solve the disconnect between incentives and value creation found in existing decentralized AI projects. The protocol's roadmap is clear: starting with infrastructure development, it will progressively expand the ecosystem and deepen its intelligent capabilities, with the ultimate goal of realizing a decentralized collective intelligence co-owned, co-governed, and serving the public interest of the global community.

Chapter 1: The Paradigm Shift of the AI Era

1.1 From Information Interconnection to Intelligent Collaboration

The evolution of the internet can be divided into several stages, each deepening the dimension of connection and the model of value creation.

1. **Information Internet (Web 1.0):** This phase, represented by web portals, centered on achieving "one-way information connection." Information was produced and distributed by centralized institutions, with users acting primarily as passive consumers of information.

2. **Social and Mobile Internet (Web 2.0):** The proliferation of social media and smartphones ushered in the "read-write" era, enabling "peer-to-peer connection." Users became content creators, giving rise to the platform economy. However, this model was built on the uncompensated appropriation of user data, with platforms becoming centralized controllers of data and value distribution.

3. **Value and Intelligent Internet (Web 3.0 & AI):** We are now entering a new phase. Blockchain technology, with its decentralized and immutable characteristics, has constructed a "value internet" where value can flow as freely as information. Concurrently, AI is emerging as a new force of production, transforming how value is created. The goal of the Aevirum protocol is to merge these two technologies to build a network where value can flow freely and intelligence can be continuously created.

1.2 The Structural Limitations of Centralized AI

Current AI development is primarily driven by a centralized model. While this model has demonstrated high efficiency in the early stages of technological development, its inherent structural flaws are becoming increasingly apparent, presenting four major challenges.

1.2.1 Data Monopoly and Unequal Value Distribution

AI models rely on vast amounts of data for training, yet the majority of high-value data globally is concentrated in the hands of a few tech giants. In this model, users, as the ultimate source of data, typically do not own their data and cannot receive a fair return on the value it generates. Industry analysis shows that in the massive value created by the digital economy, the share captured by data creators is extremely low. This imbalance in value distribution stifles the supply of high-quality data and the innovative potential of the ecosystem.

1.2.2 Computational Barriers and Unfair Access to Innovation

Training cutting-edge large AI models requires enormous computational resources, with costs running into the tens or even hundreds of millions of dollars. This makes AI research and development a capital-intensive activity, putting small and medium-sized enterprises, academic institutions, and independent developers at a significant disadvantage. The cost of computation has become a major barrier to innovation, preventing many promising research projects and applications from being realized due to a lack of resources.

1.2.3 Incentive Misalignment and a Decline in Information Quality

Centralized platforms typically aim to maximize user engagement time and advertising revenue. Their recommendation algorithms tend to promote content that can trigger emotions and create controversy, while rigorous and profound high-quality content may be marginalized. This traffic-oriented incentive mechanism, in the long run, can lead to a "Gresham's Law" effect where bad money drives out good, exacerbating information cocoons and potentially degrading the quality of the entire information environment.

1.2.4 Lack of User Sovereignty

In the Web 2.0 service model, users cede the right to use their personal data to platforms by agreeing to lengthy terms of service. Platforms thus gain extensive power to collect, analyze, and utilize user data. Users effectively become passive providers of data, unable to control the use of their own information or share in the value it generates.

1.3 Aevirum's Core Vision

In response to the aforementioned limitations, Aevirum has chosen to build a new paradigm based on decentralized principles.

1.3.1 Foundational Principles

The design of the Aevirum protocol adheres to the following five principles:

1. **100% Fair Launch:** The Aevirum protocol is driven by the community from its inception. The total supply of 2.1 billion AEV tokens has no allocation reserved for the team, advisors, or early investors. All tokens are distributed fairly to participants through their intelligent contributions (PoIC) to the network.
2. **Privacy-First Distributed Intelligence:** The protocol employs federated learning and other privacy-enhancing technologies to build an intelligent training model of "data stays local, value is shared globally." Users' raw data remains on their local devices, with only encrypted and anonymized model parameter updates being aggregated. This is intended to fundamentally resolve the conflict between AI development and individual privacy protection.
3. **Intent-Driven Value Capture:** Aevirum does more than just utilize raw data. User interaction behaviors, such as questions, answers, and browsing, are refined into "intent vectors" that represent their true needs through local AI inference. This is a transformation from unstructured data to structured intelligence, providing a foundation for building personalized AI.
4. **Composable Agent Economy:** In Aevirum, an individual's knowledge and expertise can be encapsulated into a unique "Digital Agent." This Agent is an NFT compliant with the ERC-721 standard, serving as both an intelligent proxy for the user in the digital world and a programmable intelligent asset that can be traded, leased, and composed.
5. **Community as the Protocol:** The key decision-making power of the protocol rests with the community. Every key parameter and major upgrade of Aevirum will be determined by a DAO composed of veAEV holders. The protocol's evolutionary path is dynamically shaped by the collective wisdom of the community.

1.3.2 The Ultimate Goal

Aevirum's long-term goal is to build a decentralized "collective intelligence."

In this network, every individual's knowledge, experience, and judgment can become nourishment for the growth of this collective intelligence. The intelligent outcomes produced by the collective intelligence are, in turn, fed back to every individual in the form of services through an open protocol. It is designed as a continuously learning, shared-outcome intelligence, with its ownership and governance rights belonging to all network participants.

Chapter 2: Analysis of Existing Solutions and Differentiated Positioning

2.1 Limitations of Decentralized AI Projects

Existing projects that combine AI and blockchain have explored various directions, but they often face specific limitations.

Project Type	Core Value Proposition	Main Limitations	Aevirum's Differentiated Design
Decentralized Compute Platforms	Provide a marketplace for GPU computing power rental.	1. Incentivizes "computation," not "intelligent outcomes." 2. Compute power is often used for homogenous tasks, disconnected from AI value creation. 3. Fails to address the sourcing of high-quality training data.	The PoIC consensus directly utilizes computing power for valuable AI training and incorporates content contributions into the incentive model, creating a closed value loop of "data + compute."
Data/Content Monetization Platforms	Allow creators to sell content via NFTs or other means.	1. The value of content is separated from AI model training. 2. Value capture is often a one-time transaction, lacking long-term sustainability. 3. Prone to speculative behavior rather than sustained value creation.	Content *is* training data. High-quality content continuously nourishes the AI model, providing long-term value returns for creators, not just a one-off sale.

AI Model DAOs	Community-driven governance and investment in AI models.	1. High barrier to entry for governance, leading to low participation from ordinary users. 2. Lacks a sustainable, decentralized model training mechanism. 3. Incentive models are not granular enough to quantify individual contributions.	The Agent economy and low-threshold nodes enable ordinary users to participate in value creation. Federated learning provides a continuous and distributed training capability.

The common limitations of these solutions can be summarized as:

1. **Disconnect Between Incentive and Value Creation:** They reward computational resources but fail to effectively reward intelligent outcomes.
2. **Separation of Content and Model:** A direct value transfer mechanism between the content ecosystem and AI model training is absent.
3. **High Barrier to User Participation:** A large number of non-technical users are excluded from the core value creation system.

2.2 The Commercialization Challenges of Federated Learning

Federated Learning (FL) itself is not a new technology, but its large-scale commercial application has been hindered by a "Tragedy of the Commons" dilemma. Open-source FL frameworks lack two key elements:

- **Incentive Mechanism:** The absence of a robust, fair, and reliable economic model to motivate individuals and institutions globally to contribute their data and computing resources continuously.
- **Coordination Mechanism:** In a decentralized environment, effectively coordinating global nodes, verifying their contributions, and distributing value accurately is a complex problem. Centralized coordination defeats the purpose of decentralization and raises questions of efficiency and trust.

Aevirum is designed to provide a complete "incentive and coordination system" for federated learning. Through the PoIC consensus and a dual-token economic model, the protocol quantifies every effective intelligent contribution (content or training) into on-chain assets and distributes value automatically and transparently via smart contracts, thus solving the motivation problem for participants.

2.3 Aevirum's Positioning: A Trinity of Intelligent Ecosystems

Aevirum's positioning is to pioneer a new, integrated track. Its structure can be summarized in three interconnected layers:

```
+---------------------------------+
|  High-Quality Content Eco      |
+---------------------------------+
| (Acts as AI Training Data)v
+---------------------------------+
|  Federated Learning Layer      |
+---------------------------------+
| (Generates Tradable Intelligent Assets)v
+---------------------------------+
|     Agent Economy            |
+---------------------------------+
```

Aevirum is the first protocol to deeply integrate these three domains:

1. **Content is Training Data:** The knowledge hub not only serves users but also produces structured data that directly serves as training material for the AI model.
2. **Training is Value Creation:** Through PoIC consensus, federated learning transforms from a cost center into the core value creation engine of the network.
3. **Intelligence is an Asset:** The outcomes of the AI model are embodied as "Digital Agents" that users can own, trade, and compose, allowing the benefits of AI development to be shared more broadly.

This "trinity" structure forms the core design of Aevirum.

Chapter 3: Aevirum Core Design and Architecture

3.1 Core Design Principles

Aevirum's technical decisions are guided by the following three design principles:

1. **Direct Value-Contribution Mapping:** The protocol must be able to precisely identify and quantify beneficial contributions to the ecosystem, whether it's

creating an insightful answer or completing an efficient round of AI model training. This is the foundation for building a fair incentive system. When contributions can be fairly measured, participants are motivated to deliver high-quality work.

2. **Privacy-Preserving Collaboration:** Users' personal privacy and data sovereignty must receive the highest level of protection. Collaboration must be built on the foundation of voluntary and informed consent. The protocol combines technologies like federated learning and differential privacy to achieve an ideal state: even if other participants in the network are malicious, the data privacy of a single user remains secure.
3. **Permissionless Composability:** All core components of the protocol, especially Digital Agents, must be designed as open, standardized modules. Anyone can permissionlessly call, combine, or build new applications on top of them. An open and composable ecosystem possesses stronger network effects and innovation potential.

3.2 Overall Architecture

Aevirum adopts a layered architecture where each layer has clear responsibilities and works in concert.

```
+-----------------------------------------------------------------+
| Application Layer: Decentralized DApps, Agent Marketplace, etc. |
+-----------------------------------------------------------------+
| Intent Layer: User behavior analysis, Agent generation & mgmt.  |
+-----------------------------------------------------------------+
| Training Layer: Federated learning engine, model aggregation.   |
+-----------------------------------------------------------------+
| Consensus Layer: PoIC mechanism, node mgmt, block production.   |
+-----------------------------------------------------------------+
| Infrastructure Layer: P2P network, decentralized storage.       |
+-----------------------------------------------------------------+
```

- **Application Layer:** The interface where users directly interact, including the official DApp, the Agent Marketplace, and future third-party applications built by community developers.

- **Intent Layer:** The intermediate layer connecting user behavior to AI intelligence. It runs locally on the user's device, analyzes interaction data, and transforms it into standardized "intent vectors" used to train and manage the user's Digital Agent.
- **Training Layer:** The "computational core" of the protocol. It organizes and coordinates global nodes for distributed AI model training via the federated learning engine and securely aggregates contributions to drive the evolution of the global model.
- **Consensus Layer:** The foundational layer of the network. It guarantees transaction security through the PoIC consensus algorithm and is responsible for measuring the "intelligent contribution" of nodes to distribute AEV token rewards accordingly.

3.3 Technology Stack Selection

The technology stack is chosen to balance innovation with engineering maturity.

- **Consensus Mechanism:** PoIC + BFT finality. PoIC is responsible for value creation and incentive distribution, while a BFT consensus (like Tendermint) is used for rapid block confirmation, ensuring fast transaction finality.
- **Smart Contracts:** EVM (Ethereum Virtual Machine) compatibility. This allows Ethereum developers to seamlessly use familiar Solidity language and tools to build on Aevirum, lowering the barrier to ecosystem development.
- **Storage Layer:** A hybrid IPFS + Arweave solution. Frequently accessed data is stored on IPFS for rapid retrieval, while high-value data is permanently stored on Arweave to ensure its durability.
- **Privacy Protection:** Differential Privacy + Secure Multi-Party Computation (MPC). Differential Privacy adds mathematical noise when nodes upload model updates to protect user data. MPC can be used during the model aggregation phase to ensure that even the coordinating server cannot see the original model updates from individual nodes.
- **Cross-Chain:** Native support for LayerZero and IBC protocols. Through integration with mainstream cross-chain protocols, Aevirum aims to achieve asset and data interoperability with ecosystems like Ethereum and Cosmos.

Chapter 4: The PoIC Consensus Mechanism

4.1 Limitations of Traditional Consensus Mechanisms

Mainstream consensus mechanisms have inherent efficiency or fairness issues:

- **Proof of Work (PoW):** Secures the network by consuming vast amounts of energy for hash computations. While secure, this method is energy-intensive, and the computation itself produces no additional value beyond network maintenance.
- **Proof of Stake (PoS):** Significantly reduces energy consumption by linking block production rights to the amount of tokens staked by validators. However, PoS can lead to a Matthew effect where "the rich get richer," as entities with more tokens receive more rewards, potentially leading to the centralization of network power and earnings.

Aevirum requires a new consensus paradigm that can convert the cost of network maintenance into value-creating returns while curbing the excessive concentration of capital.

4.2 Proof of Intelligent Contribution (PoIC)

The core philosophy of PoIC is that the "work" of securing the network should itself be "intelligent work" that contributes to the network's core value—the "collective intelligence."

Under the PoIC mechanism, a node's comprehensive score in the network determines its probability of receiving rewards and producing blocks. This score is determined by the following core formula:

$S_n = w_c * S_c + w_t * S_t$

Where:

- **S_n (Score_node):** The final composite score of the node.
- **S_c (Score_content):** The node's contribution score in the content ecosystem, measuring its ability to provide or maintain high-quality information.
- **S_t (Score_training):** The node's contribution score in AI model training, measuring its effective computational work for the evolution of the global AI.
- **w_c and w_t:** Two dynamic weight coefficients governed by the Aevirum DAO, representing the relative importance of content and training contributions, satisfying $w_c + w_t = 1$.

These weight coefficients are tools for regulating the network's development direction. The DAO can dynamically adjust them based on the network's strategic needs at different stages. For example, during the network's cold start phase, a higher w_c (e.g., 0.7) can be set to incentivize content creation. In the network's mature phase, w_t can be increased (e.g., 0.7) to focus on deepening AI capabilities.

4.3 Content Contribution Scoring Mechanism (S_c)

To ensure the fairness and manipulation resistance of the content contribution score, the protocol has designed a multi-dimensional scoring system.

- **A. Community Voting Assessment:** Quadratic Voting with Reputation Weighting. The protocol employs Quadratic Voting, meaning that the impact of 100 votes from 100 unique users is far greater than 100 votes from a single user. This significantly increases the cost of "vote farming" and reflects broad consensus.
- **B. Content Quality Filtering:** To prevent the pollution of the ecosystem with spam and illegal content, the community will vote via the DAO to select and deploy a "Gatekeeper AI." The responsibility of this AI is strictly limited to filtering out obviously infringing content, without making judgments on the right or wrong of opinions or facts, to protect freedom of speech and diversity of views.
- **C. Time-Weighted Reward Mechanism:** The final reward for a piece of content is not a one-time distribution. It is divided into two parts: one part is distributed immediately based on the initial voting heat, while the other part is released linearly over a future period based on metrics like the content's sustained citation count and valuable update frequency, incentivizing the creation of long-term value content.

4.4 AI Training Contribution Scoring Mechanism (S_t)

Verifying decentralized AI training contributions is a technical challenge. The protocol adopts a phased implementation strategy.

- **A. Phase One: Performance Benchmark Testing.** In the early stages of the network, a pragmatic verification method will be used:
  1. The network will periodically release a standardized training task and a public test dataset.

2. Participating nodes download the global model, train it on their local data, then submit the model and report its performance metrics on the standard test set.
3. A portion of randomly designated validator nodes will quickly re-run the test to verify the authenticity of the report.
4. A node's S_t score will be calculated based on a combination of its verified performance improvement, contributed hardware resources, and network stability.

- **B. Phase Two: Verifiable Computation (Roadmap).** The long-term goal is to introduce Zero-Knowledge Proofs (ZKP), particularly zk-SNARKs, to achieve fully trustless verification. At that point, after completing a training task, a node can generate a concise cryptographic proof to demonstrate to the entire network that it has honestly completed the task, without revealing any private data.

Chapter 5: Technical Architecture Analysis

5.1 Consensus Layer: Operation of the PoIC Engine

5.1.1 Node Types and Responsibilities

The protocol is designed with a tiered node system to accommodate participants with different resource levels:

- **Validator:** The highest security provider of the network. Requires higher hardware specifications and a significant amount of staked AEV. Responsible for running the full blockchain history, participating in BFT consensus, storing the global model, and verifying the contributions of other nodes.
- **Light Node:** The backbone of network contributions. Requires moderate hardware and a medium amount of staked AEV. Responsible for providing content services, participating in federated learning training, and submitting model updates.
- **Content Node:** The edge nodes of the network. Requires low hardware and only a small amount of staked AEV. Focuses on storing and providing Q&A content, offering users fast content access services, and lowering the barrier to participation.

5.1.2 Incentives and Penalties

The AEV rewards generated with each block are distributed according to rules: a portion goes to the block producer, a portion is distributed weighted by the PoIC composite score to all participating validators, and the largest portion enters the intelligent contribution pool, to be precisely distributed to all nodes and users who have made effective contributions, based on their S_c and S_t scores.

The protocol has a strict penalty (Slashing) mechanism: for actions such as double-signing, prolonged offline periods, submitting malicious content, or fraudulent training results, a portion or all of the staked AEV will be confiscated.

5.2 Training Layer: Federated Learning Engine

The training layer is responsible for organizing global nodes to collaboratively evolve the AI model.

5.2.1 Federated Learning Workflow

1. **Model Distribution:** The coordinator (a role rotated among the highest-scoring validators) distributes the latest version of the global model to the light nodes participating in the current training round.
2. **Local Training:** Each light node trains the model on its own local, private data. This process does not require data to leave the local device.
3. **Gradient Upload:** The node computes the local model update (gradient) and adds noise using differential privacy techniques before uploading to protect privacy.
4. **Secure Aggregation:** The coordinator collects the encrypted gradients from all nodes and performs a weighted average based on each node's weight to update the global model. This process will be enhanced with Secure Multi-Party Computation (MPC) in the future for greater security.
5. **Iteration:** The new global model becomes the basis for the next round of training, starting a new cycle.

5.3 Intent Layer: From Data to Digital Agent

The intent layer is responsible for converting the user's digital footprint into valuable intelligent assets.

5.3.1 Definition of "Intent"

"Intent" is an abstract, vectorized representation of the deep-seated needs behind user behavior. It includes explicit intents (like search queries), implicit intents (like browsing preferences), and deep intents (potential needs inferred through correlation analysis).

5.3.2 The Path from Data to Digital Human

User behavior data is analyzed by a local AI model to extract an encrypted intent vector. The user can choose to use these vectors to train a personalized Agent model, which is ultimately minted as an ERC-721 standard NFT. This entire process is fully controlled by the user, who can update, pause, or delete their Agent at any time.

5.4 Application Layer: Content Ecosystem and Agent Marketplace

5.4.1 Decentralized Knowledge Hub

The Aevir Knowledge Hub is a knowledge economy driven by the AC token. Users spend AC to ask questions, and the answers submitted by responders are evaluated by the community through quadratic voting and reputation weighting. High-quality answers share proportionally from a daily reward pool composed of "question fees" and "protocol subsidies." Valuable questions themselves can also earn a certain percentage of the rewards generated from the high-quality answers they attract.

5.4.2 Agent Marketplace Protocol

Users can list their trained Digital Agent NFTs on the marketplace, setting their capabilities, service prices (pay-per-use/subscription), etc. The metadata of the Agent NFT will clearly describe its functions and performance indicators. The market supports the trading and leasing of Agents. More importantly, the protocol supports Agent composability: a complex task can be broken down and cooperatively completed by a "chain of Agent calls," with fees automatically settled via smart contracts.

Chapter 6: Dual-Token Economic Model: AEV & AC

6.1 The Necessity of a Dual-Token Model

A single-token model in a complex economy often faces a dilemma: it must serve as both a store of value (requiring price stability and appreciation) and a medium of exchange (requiring relative price stability). These two needs are naturally in conflict. Aevirum's dual-token model is designed to decouple these two demands:

- **AEV (Aevirum Network Token):** The governance and security token of the network, capturing the long-term value of the protocol.

- **AC (Aevir Credit):** The utility and incentive token of the network, driving high-frequency economic activities within the ecosystem.

6.2 AEV (Aevirum Network Token) Explained

- **Total Supply:** 2,100,000,000 (2.1 billion) tokens.
- **Core Functions:**
    - **Network Security Staking:** To become a validator or light node, one must stake AEV.
    - **Governance Rights (veAEV):** Users lock AEV to obtain veAEV (vote-escrowed AEV), which is used to participate in DAO governance. The amount of veAEV is positively correlated with the lock-up duration to incentivize long-term holders.
    - **Value Capture:** Block rewards are issued in AEV; a portion of network fees and Agent marketplace revenue will be used to buy back and burn AEV, creating deflationary pressure.
- **Supply Mechanism:** 100% fair launch. No private sale, no team reserve. The vast majority will be released linearly over a long period to network contributors via the PoIC consensus mechanism.

6.3 AC (Aevir Credit) Explained

- **Total Supply:** 1,000,000,000,000 (1 trillion) tokens (theoretical maximum supply). The actual circulating supply is dynamically regulated by a mint-and-burn mechanism.
- **Core Functions:**
    - **Interaction Fuel:** All high-frequency interactions within the ecosystem, such as asking questions, answering, and calling Agents, require spending AC.
    - **Incentive Medium:** Rewards for creators and earnings for Agent owners are distributed in AC.
    - **Market Unit of Account:** The pricing, leasing, and trading of Agent NFTs are primarily denominated in AC.
- **Supply and Burn Mechanism:**
    - **Mint:** Users stake AEV to receive a daily distribution of AC. This is the sole source of AC supply.

- **Burn:** All consumed AC is sent to a burn address and permanently removed from circulation.
- **Price Stability Mechanism:** When the ecosystem thrives, the consumption (burn) of AC is greater than its production (mint), causing its market price to trend upwards. This incentivizes more people to stake AEV to mint AC. Conversely, when production exceeds consumption, the price trends downwards, causing some stakers to exit, thus reducing supply. The DAO can also adjust the base minting rate through governance.

6.4 AC Consumption Scenarios and Flow

Scenario	Description	AC Flow
Ask a Question	User poses a new question in the knowledge hub.	100% Burned
Post a Bounty	User adds an AC bounty to a specific question to attract high-quality answers.	80% to bounty pool, 20% Burned
Submit an Answer	User submits an answer, as a cost to prevent spam.	100% Burned
Promote Content	Creator spends AC to buy greater exposure for their content.	100% Burned
Call an Agent	User calls a Digital Agent to complete a specific task.	95% to Agent owner, 5% Burned
Mint an Agent NFT	User pays a protocol fee to mint their trained Agent as an NFT.	100% Burned
Create a SubDAO	Community members propose the creation of a new specialized SubDAO.	Goes to the main DAO treasury to support the initial operations of the SubDAO.
Governance Challenge	User challenges a passed governance proposal, requiring an AC stake.	If the challenge fails, the staked AC is burned.
Mint Reputation SBT	User mints a Soul-Bound Token (SBT) as proof after reaching a certain reputation level.	100% Burned

6.5 Value Accrual Feedback Loops

This economic model is designed to drive three positive feedback loops:

1. **Content-User Loop:** High-quality content attracts users → More interactions consume AC → The reward pool grows, incentivizing creators -> More high-quality content is produced.
2. **AI-Application Loop:** High-quality data improves the AI model → Agent capabilities are enhanced, expanding application scenarios → More calls generate more revenue → Incentivizes the creation of better Agents.
3. **Network-Value Loop:** Ecosystem prosperity (Loops 1 & 2) → Increased demand for AC → Incentivizes more people to stake AEV → AEV staking rate and demand increase → AEV value capture is enhanced → Attracts more resources to join the network → The network becomes more secure and decentralized.

Chapter 7: Decentralized Governance: Community as the Protocol

7.1 Aevir DAO Architecture

Aevirum's governance system is designed to achieve a balance of power and efficient decision-making. Its architecture is as follows:

- **Aevir DAO (Main DAO):** Composed of all veAEV holders, it is the highest authority of the network. It is responsible for voting on all AIPs (Aevirum Improvement Proposals).
- **Emergency Security Committee (ESC):** A small group of technical and security experts elected by the community. Its power is strictly limited and can only execute temporary measures in the event of a severe security vulnerability. Any measure must be ratified by the Main DAO within a short period.
- **SubDAOs:** Specialized governance bodies established for specific domains, such as a "Content Governance SubDAO" or an "AI Model Evaluation SubDAO." They are responsible for conducting specialized research and submitting formal proposals to the Main DAO.

7.2 Governance Scope and Process

The governance of Aevirum is comprehensive. Almost all core parameters can be adjusted by the community, including PoIC weight coefficients (w_c, w_t), node staking amounts, economic model parameters, etc.

Standard Proposal Process (AIP):

1. **Community Discussion:** A proposal idea is initiated on the community forum for public discussion.

2. **Formal Submission:** The proposer stakes a small amount of veAEV to submit the refined proposal on-chain.
3. **Voting Period:** veAEV holders vote on the proposal. The proposal must meet both minimum participation and minimum support thresholds to pass.
4. **Timelock:** After a proposal passes, it enters a timelock queue. It can only be executed after a predefined period, providing the community with a window to react to potentially malicious proposals.
5. **Automatic Execution:** After the timelock expires, the proposal content is automatically executed by smart contracts.

7.3 Hybrid Governance Model: Introduction of a Reputation System

To prevent governance from being completely dominated by capital, Aevirum introduces a reputation system, building a hybrid model that combines "meritocracy" with "capital-based governance."

- **Source of Reputation:** Reputation value cannot be purchased. It can only be earned through long-term, effective contributions to the ecosystem.
- **Role of Reputation:**
  - **Voting Power Bonus:** In DAO governance voting, the veAEV voting weight of high-reputation users will receive a bonus multiplier.
  - **Qualification Access:** Only users who have reached a specific reputation score are eligible to run for the Emergency Security Committee or join SubDAO expert committees.
- **Non-Tradable Reputation:** Reputation scores are bound to a user's address and cannot be transferred. Malicious behavior will result in a significant reduction or clearing of reputation value.

Chapter 8: Development Roadmap

Phase 1: Infrastructure Construction and Network Launch (0-6 Months)

- **Technology:** Mainnet launch, stable operation of PoIC consensus; release of the Q&A system DApp (Beta version); implementation of the Federated Learning engine (Phase 1: performance benchmark testing).
- **Ecosystem:** Attract the first batch of nodes through a fair launch; generate the initial high-quality Q&A data in the community.

- **Governance:** Deploy the basic DAO contract, complete the first community vote on parameters.

Phase 2: Ecosystem Expansion and Network Effects (6-18 Months)

- **Technology:** Launch the Agent Marketplace protocol (v1); release the Digital Agent creation tool; deploy cross-chain bridges to mainstream public chains.
- **Ecosystem:** Expand the user base; list the first batch of functional Agents on the market; see the emergence of the first third-party applications integrating Aevirum.
- **Governance:** Establish core domain SubDAOs; community proposals gain significant weight in governance decisions.

Phase 3: Intelligence Deepening and Composability (18-36 Months)

- **Technology:** Upgrade the Federated Learning engine (initial integration of ZKP for contribution verification); release the Agent composition protocol SDK; support multimodal content.
- **Ecosystem:** The user base and Agent market transaction volume reach a new level; complex applications based on Agent composition emerge.
- **Governance:** The protocol control rights of the core development team are fully transferred to the DAO, achieving mature community self-governance.

Phase 4: Ecosystem Prosperity and Paradigm Establishment (36+ Months)

- **Technology:** Launch federated learning solutions for enterprises and institutions; establish the Aevirum Ecosystem Fund to support developers and researchers.
- **Ecosystem:** Become an important piece of intelligent infrastructure in the Web3 domain; the Agent economy forms at scale.
- **Governance:** The Aevirum DAO becomes a mature example of decentralized autonomous governance.

Conclusion

The Aevirum protocol is not just a technical framework; it is also a social coordination model aimed at more broadly distributing the creative rights and ownership of AI to individuals. We believe that a collective intelligence, connected, nurtured, and shared by global wisdom, will have a development potential that surpasses any single organization.

Aevirum is an open protocol. We encourage developers, researchers, and content creators to review our design, contribute code, and participate in the construction of the network, to jointly build an intelligent future that belongs to all participants.