The following is the complete white paper framework (refining each part of the content) for the UnionLedger (AI direction) project, with the UK as the first country, and closely aligned with the current global AI and blockchain convergence trends:

UnionLedger White Paper (AI-driven global intelligent collaboration public chain)

Version: v1.0

Country of publication: United Kingdom

First release: Q42025 (recommended)

---

catalogue

1. Project overview

UnionLedger is a next-generation blockchain infrastructure for global AI collaboration, committed to building an open, secure and transparent AI data transaction and application ecosystem.

The project takes the UK as the first country to launch, connecting enterprise, individual developers and institutional resources through the integration of large model reasoning, on-chain computing power scheduling, AI Agent protocol, data governance and other modules, so as to jointly build an AI-driven economy.

UnionLedger is a next-generation blockchain infrastructure designed for global AI intelligent collaboration, aiming to build a decentralized, open, secure and efficient AI data trading and application ecosystem.

Launched first in the UK, the project combines the current global development trend of the integration of artificial intelligence and blockchain technology, and builds a new paradigm of AI-driven digital economy around AI model training and reasoning, data security sharing, on-chain computing power collaborative scheduling, AI Agent protocol standards and multi-party data governance mechanism.

UnionLedger not only serves AI technology developers, data providers and enterprise users, but also encourages individual participants to contribute and use AI computing power and data resources, and realizes fair access to intelligent resources and value exchange for the whole society through token incentives.

The core mission of the platform includes:

Establish a trusted data transaction and use mechanism to ensure data privacy and ownership;

Support cross-chain invocation, lightweight deployment and collaborative training of AI large models;

Promote the standardization of AI Agent modules and realize the modular plug-in ecology;

Encourage global nodes to contribute computing resources and build a distributed intelligent network;

Guide multiple parties to participate in the governance of Web3 smart economy, and empower innovative organizations and social collaboration networks.

In UnionLedger's vision, AI is no longer monopolized by centralized tech giants, but is built, used and governed by users around the world. This system will unleash the true value of AI and usher in a new era where intelligence is the core productivity.

---

2. Core Vision and Positioning

Build the world's first L1/L2 blockchain network with AI native collaborative economy as the core

Provide a trusted AI model registration, verification, trading and incentive platform

Guide the global AI data flow and computing power flow to be aggregated on the chain, and become the global entrance for AI developers and users

The core vision of UnionLedger is to build the world's first Layer 1 / Layer 2 blockchain network with AI native collaborative economy as the core driver, providing a trusted underlying infrastructure for the development and application of artificial intelligence.

In the current context where AI is gradually permeating various industries, model training and utilization are highly dependent on data resources, computing power networks, and trust mechanisms. UnionLedger is committed to breaking the monopoly barriers of centralized platforms by leveraging blockchain technology to achieve the confirmation, traceability, tradability, and governance of AI assets.

This project builds a decentralized AI model registration platform, incentive model verification mechanism and secure and compliant smart contract market, so that every AI model can be registered, evaluated, invoked and traded like an NFT, and stimulate the collaborative innovation potential in the AI field.

At the same time, UnionLedger enables the global computing power and data resources to be effectively flowing with the Token incentive mechanism through the on-chain computing power scheduling and data sharing protocol, creating a free market of data and computing power in the AI era.

At the L1 layer, UnionLedger provides complete main chain functions, including core functions such as AI contract operation, Agent registration and identity binding;

At the L2 layer, a dedicated high-throughput Rollup system is built to meet the high performance requirements of AI reasoning and model training, and supports zero-knowledge proof and trusted hardware integration to ensure both execution efficiency and privacy protection.

The ultimate goal is to build UnionLedger into a global entry point for AI developers and a central hub connecting intelligent resources between enterprises, institutions and users, driving AI into a "usable, governable and sustainable" social infrastructure.

Vision Summary:

> **"Make AI as universal as electricity and as free as money."**

---

3. Market analysis and development trend

Global Trends:

The global deployment of AI models will grow by more than 60% annually in 2024-2025, but data compliance and incentive mechanisms are missing;

The UK released the "White Paper on AI Regulation", emphasizing the construction of "credible AI infrastructure", and is one of the most open countries in the world on AI policy;

Web3 infrastructure is evolving to "modular +AI native", and projects such as Fetch.ai and Bittensor have formed a certain first-mover effect.

UnionLedger Opportunities:

Focus on UK data governance compliance standards and pilot them first;

Using blockchain to achieve transparency of AI models, source verification and incentive clearing mechanisms;

Build the governance structure of AI Agent DAO to attract global AI developers and ecology.

I. Overview of global trends

In recent years, accelerated breakthroughs in AI technology have driven explosive growth in model deployment and industrial implementation. According to a joint forecast by IDC and Statista, the global AI model deployment will achieve a compound annual growth rate exceeding 60% between 2024 and 2025, with large language models (LLMs)and multimodal models emerging as the primary growth drivers.

However, this rapid growth has also exposed three structural problems:

Inadequate compliance of data sources: the training data lacks transparent authorization mechanism, and there are serious intellectual property disputes and user privacy risks;

Model uses verifiable absence: the behavior of the model cannot be traced or reproduced, and it is difficult to establish a credible use record;

The incentive mechanism for contributors is absent: it is difficult for data providers, computing nodes and model optimizers to obtain fair and sustainable income distribution.

Meanwhile, Web3 technology is evolving toward the integration of "modular blockchain + AI-native architecture". Projects like Fetch.ai (AI Agent Network), Bittensor (Decentralized Model Incentive System), and Ocean Protocol (Data Market Protocol) have emerged as pioneering explorers, providing crucial experimental models for the convergence of AI and blockchain.

II. UK Policies and Compliance Opportunities

In 2023, the British government issued the AI Regulation White Paper, which clearly stated:

There is no unified regulator, but multiple industries are in charge of regulation;

Encourage technology neutrality, transparency and compliance;

Promote the construction and implementation of "trusted AI infrastructure (Trusted AI Infrastructure)".

This policy orientation opens the way for blockchain to play a role in the underlying trust mechanism of AI, making the UK one of the first countries in the world to take "Web3+AI" as a national strategic innovation pilot.

In addition, the UK has:

Perfect Personal Data Protection Law (GDPR extension standard);

Fintech friendly regulation (sandbox mechanism);

World-class AI research institutions and talent pool of developers (e.g. UCL, Cambridge, DeepMind).

3. Unique entry opportunities for UnionLedger

In this context, UnionLedger will focus on the following three core entry points to build an AI trusted collaboration infrastructure for the Web3 era:

1. Compliance first:

The project will first connect with the UK's AI data governance and compliance framework, explore the implementation plan of "on-chain AI data use authorization + user privacy protection + transparent audit", and gradually expand to Europe and North America.

2. Transparent incentive mechanism:

Through blockchain smart contract, a programmable profit-sharing mechanism can be realized among AI model developers, training nodes and data contributors to solve the problem of asymmetric incentive in the model value chain.

3.AI Agent DAO Architecture:

The design of modular AI Agent collaboration protocol, combined with the governance mechanism of UnionDAO, enables developers around the world to collaborate on training, verification and optimization of agents, and realize autonomous evolution through the token mechanism.

UnionLedger will not only be a technology platform, but also a trust network connecting global AI resources and developers, providing infrastructure and new paradigms for "AI trusted collaboration" around the world.

---

4. Technology architecture and AI integration

UnionLedger modularly embeds AI capabilities into the underlying blockchain protocol, including:

Module name	function declaration
ModelChain	Registration, certificate storage and traceability AI model training process
AgentScript	AI Agent Smart Contract Script Protocol
ComputeDEX	Blockchain computing power trading market (supporting GPU rental)
DataVault	Decentralized data storage and access management
PromptLayer	The prompt record on the chain is for reuse/sales agreements
IdentityProof	AI identity authentication + Contribution scoring module (Reputation)

Support the Ethereum Compatible Chain (EVM) and future expansion support for AI Layer-2 Rollups.

Module 1: ModelChain (AI model on-chain registration and traceability system)

Function positioning: provide model registration, version management, training parameter summary record and behavior traceability.

Typical usage process:

1. The developer uploads the model summary (such as hash, structure summary, token count) and binds the model training log;

2. The system generates a unique "Model NFT" identity for the model;

3. All reasoning calls are recorded on the chain to achieve full life cycle audit.

Compliance and Value:

1. Support the generation of evidence on model interpretability and compliance required by the UK AI Regulatory White Paper;

2. Provide historical performance and transparency support for model pricing to improve tradability;

Link with other modules:

1. It can be bound to IdentityProof to provide reputation and permission;

2. You can authorize AgentScript to call the model behavior logic;

Module 2: AgentScript (AI Intelligent Agent Contract Protocol)

Function positioning: Define the behavior logic, interaction interface and execution rules of AI Agent on the chain.

Features:

Support multiple rounds of interaction, intention recognition, and context state persistence;

Customer service Agent, trading Bot, automatic risk control Agent can be deployed on the chain.

Development standards:

Multi-language support based on Solidity + WASM;

Can invoke external model services and return them to Oracle;

Example usage:

Enterprises deploy sales Agent, call the model on ModelChain → multi-round dialogue with customers → complete payment;

Governance mechanism:

All AgentScripts must disclose code and behavioral intent summaries to avoid the emergence of black box agents on the chain;

Agent audit proposals can be initiated by DAO;

Module 3: ComputeDEX (On-chain Computing Power Trading and Scheduling System)

Function positioning: Provide a transparent and priced on-chain computing power trading market for model training/ reasoning.

Supported resource types: GPU, TPU, AI Chip (such as UK-based Graphcore), RAM, node time slice.

Incentive and settlement mechanism:

The lessee pays ULD (token) according to the result of the task;

The provider receives the task and verifies the hash to automatically settle accounts;

Transparency guarantee:

Use ZKP to submit proof of execution;

All resources should be bound to IdentityProof verification KYC when they are online;

Integration with DataVault:

Before performing tasks, the computing power must verify whether the data access permission is legal (compliance bridge);

Module 4: DataVault (Secure Data Storage and Access Control Protocol)

Function positioning: Provide encrypted data storage, permission management and authorization tracking for model training, reasoning, Agent interaction, etc.

Core features:

Support data slicing, access level definition, and ZK authorization;

Compliance: comply with the UK Data Protection Act (UK GDPR) and the EU AI Act;

application scenarios ：

Medical image data is used for AI model training after patient authorization;

Enterprise CRM data → Set access levels for Agent to make decisions;

excitation mechanism ：

Data holders can upload to obtain "data creditor's rights Token", and receive ULD dividends according to the number of calls;

Insurance, medical and other institutions can be connected as data node providers;

Module 5: PromptLayer (Protocol for assetization and circulation of prompt words)

Function positioning: The AI Prompt (prompt) is recorded, shared and traded as on-chain knowledge assets.

Core functions:

Prompt version control and output sample archive;

Support prompt fork, upgrade and "tip" mechanism;

applied logic ：

Educational developers upload efficient teaching prompts and get paid for being called multiple times;

Enterprises can purchase preset templates to improve Agent productivity;

Future expansion:

Prompt can be bound to an NFT to form an "interactive knowledge NFT";

Support community co-creation Prompt kits (e.g., legal advice Prompt kits);

Module 6: IdentityProof (AI identity and behavior reputation system)

Function positioning: Provide unique on-chain identity and trusted behavior score for models, Agents, nodes, data sources, etc.

Function points:

Each subject obtains "AI DID" to record its interaction records, governance participation, computing power service records, etc.;

Reputation scores will affect access, priority and incentive revenue;

instance ：

Highly trusted computing nodes enjoy priority task distribution;

High-score models are recommended on the ComputeDEX homepage and receive traffic bonus;

Compliance mechanism:

In accordance with the FCA standards of the UK, the identity system is compatible with financial KYC/KYB data bridge;

Participants can choose to use anonymous identity on the chain or bind real identity authentication (compliant interoperability);

Supporting technical description:

Compatible architecture: fully compatible with the EVM standard, and will be integrated with BLS signature + zero-knowledge proof optimized AI Layer-2 Rollup in the future.

Development tool chain: Model SDK, Agent script template, Prompt generator and other tools are provided;

Open interface: All modules provide RESTful API / GraphQL / Web3 RPC interfaces, and support the integration and invocation of three-party platforms;

---

5. Tokenomics

Token name: $ULAI

Total copies: 100,000,000

Core purposes: computing power payment, model incentive, data purchase, DAO voting, ecological funding, etc.

UnionLedger will adopt a two-wheel launch mechanism, including:

1. Private Round

For strategic investors and early community members, the price is discounted, the quota is limited, and the lockup period is attached (20% of TGE is unlocked, and 12 months of linear release).

2. ICO

The launch will be synchronized with the public offering for fair participation by users around the world. The details are as follows:

Total release: 10,000,000 copies (10 per cent)

Price range: $0.4- $0.6 USDT/ULAI

Locking rule: No lock, all are released after TGE

Supported platforms: LibertyBit Launchpad, Uniswap initial pool

UnionLedger Token Economy Model (Tokenomics)

I. Basic information

project	content
Token name	UnionLedger AI Token
Token symbol	$ULAI
Total distribution	100,000,000 (fixed supply, no additional issue)
Currency standards	ERC-20 (compatible with EVM)
Distribution networks	Ethereum (mainnet) + L2 extension support
decimal digits	18
Issuance mechanism	The casting is made in one time and distributed proportionally to various module wallets

---

II. Use Cases of Tokens

As a native utility token in the UnionLedger ecosystem, $ULAI has the following core features:

Category of use	explain
1. Computing power payment	On ComputeDEX, it is used to pay for on-chain GPU computing power services, realizing AI model operation, reasoning and settlement.
2. Model incentives	Provide incentives for registered AI Agents to run, and automatically distribute rewards based on call frequency and user ratings.
3. Data acquisition	Purchase access to structured and unstructured data in DataVault for AI training and inference optimization.
4. DAO governance	Holders of coins can pledge to obtain vULAI to participate in governance voting, proposals and entrusted governance on UnionDAO.
5. Ecological support	Support external developers, university laboratories, AI platform collaboration, and Web3 incubation projects through the ecological fund.
6. Task and reputation systems	Users can get points and ULAI rewards by participating in platform interactions, task challenges or Agent operations to encourage activity.

III. Token Allocation

module	allocation proportion	Number (per cent)	Unlock mechanism description
Private placement round (including ICO)	15%	15,000,000	ICO: 10,000,000 shares, TGE fully unlocked; Private placement: 5,000,000 shares, TGE unlocked 20%, and the remaining 12 months will be released linearly
Public offering and initial public offering	10%	10,000,000	All unlocked, with an expected initial price of 0.04-0.06 USDT
Team and consultants	15%	15,000,000	Lock the box for 12 months, then release linearly over the next 12 months
Community incentive pool	25%	25,000,000	It is used for Agent operation incentives, content creation rewards, behavior points, on-chain achievement system, etc
Ecological cooperation fund	20%	20,000,000	It is used for ecological expansion purposes such as platform docking, strategic cooperation and hackathon
Reserve and market control pool	10%	10,000,000	It is used for liquidity management, emergency reserve and market stabilization mechanism
DAO governance fund	5%	5,000,000	Release of proceeds from approved governance proposals to fund community projects and infrastructure proposals

IV. Vesting Schedule

module	Initial Release (TGE)	Unlock period
ICO pattern	100%	Instant full circulation
Private equity round	20%	The remaining 80% is released linearly over 12 months
Teams and consultants	0% (fully locked)	It starts after 12 months and is unlocked over 12 months
Community incentive pool	Release monthly	Last 3-4 years, combined with platform tasks and targeted distribution of mining system
Ecological	It will be	The 2-3 year strategy will be released in batches

module	Initial Release (TGE)	Unlock period
cooperation fund	released quarterly	and dynamically allocated according to the cooperation nodes
Reserve pool	Scheduled by DAO	Based on market conditions, the chain can be tracked and set a ceiling
DAO Governance Fund	Proposal unlocked	After the proposal is passed, it will be released and combined with the allocation in the implementation stage to prevent abuse

---

V. Token Economy Strategies and Mechanisms

✅ Deflationary design:

Part of the transaction fee is repurchased and destroyed by $ULAI;

The fees from platforms such as ComputeDEX and PromptMarket will be used to repurchase and destroy.

✅ excitation mechanism ：

Start Agent incentive mining;

Tasks and identity points on the chain can be upgraded to receive airdrop or targeted rewards.

✅ Long-term value maintenance:

Set up a stable pool and emergency funds to prevent drastic market fluctuations;

The project has a long lock-up time and prioritizes the interests of the community.

VI. Compliance and Disclosure

All token flows will be conducted through on-chain smart contracts, and audit reports will be open and transparent;

Publish a progress report on token usage and unlocking every quarter, and the community supervises transparent governance;

The DAO has the right to propose and veto the future use of the "reserve pool" and "governance fund".

6. Module function description

AI Agent registration and reward mechanism: Users can register Agent on the platform to provide automatic services and obtain on-chain points and token rewards;

Prompt Market: Provide a secondary trading market for high-quality prompts;

Free market of computing power: GPU service providers can rent computing power by order, and developers charge by the second;

Data collaboration module: Users provide structured data and can collect coins through DataVault on the chain;

Reputation mechanism: Each AI participant is awarded on-chain identity and behavior scores to support credit incentives.

UnionLedger is a blockchain designed for global AI collaboration, built around the core concept of an "AI-native collaboration network". It integrates agents, computing power markets, data assetization, and incentive mechanisms to create a decentralized, modular, and incentivized AI development ecosystem through smart contracts and modular protocols. Below is a comprehensive breakdown of each system module:

---

1. AI Agent Registration and Incentive Mechanism (AI Agent Registration & Reward Protocol)

Definition and Objective: An AI Agent is an autonomous intelligent service deployed on UnionLedger, performing tasks such as LLM inference, image recognition, and automated investment research. Users can register AI Agents and earn token rewards by providing services, realizing the concept of "service as asset" (Service-as-Asset).

Function details:

Agent contract deployment: The user writes the service logic in AgentScript language, deploys it as a standard smart contract, and binds the identity.

Service order system: The terminal user calls the Agent to automatically settle the ULAI fee, and the call record is permanently retained on the chain.

Credit scoring system: The Agent will calculate the on-chain credit score (R-Score) based on the execution success rate, response delay, user evaluation, etc.

Automatic reward system: Agents with high scores can automatically enter the reward pool and receive $ULAI incentive periodically according to the call volume.

Governance binding: Agents with outstanding performance can participate in technical governance and obtain the status of DAO representative.

Innovation: The Agent is a "circulating unit of intelligent labor force", allowing developers to remotely operate and maintain, and assetizing their AI capabilities.

---

2. Prompt Marketplace Layer (Prompt Marketplace Layer)

Definition and Goal: Prompt is an interface language for efficient use of AI models. UnionLedger provides on-chain Prompt publishing, trading, refactoring and incentive systems to promote the development of prompt economy.

Function details:

Prompt registration and version control: Each prompt is registered on the chain, with a unique ID and version history automatically assigned.

Call revenue sharing mechanism: The developer can get a percentage of the revenue based on the number of calls.

Multiple authorization modes: one-time authorization, time limit use, white list call and other pricing mechanisms are supported.

NFT-ization: High impact Prompts can be cast as NFT or SBT, bound to the author's address.

Collaborative creation: Multiple people can iterate the prompt version together, and the system records their contribution ratio and shares the benefits.

Vision: Build a prompt asset market in the Web3 era that allows knowledge engineers to benefit sustainably.

---

3. ComputeDEX: On-chain Computing Exchange (OCC)

Definition and Goal: ComputeDEX is the on-chain GPU computing power matching market built into UnionLedger, which supports automatic matching of GPU/TPU rental orders.

Function details:

Registration of computing power nodes: The provider submits node parameters (GPU model, video memory, bandwidth) and verifies them through on-chain pledge.

Order book and price mechanism: Users can initiate computing power requests on demand, and the system matches nodes with the best cost performance according to task requirements.

Payment system: billed per second and automatically settled by usage in $ULAI or stablecoin.

Service SLA score: Node performance (error rate, response time, service stability) affects its ranking and incentive amount.

Anti-cheating design: Combine Layer2 trusted execution environment and ZKP to verify the real operation of tasks.

Market positioning: A "shared computing pool" for Web3 AI model developers, avoiding reliance on large centralized cloud vendors.

---

4. DataVault: Decentralized Data Exchange (DAX) for data collaboration and incentives

Definition and Goal: DataVault provides a secure, transparent, and incentivized data collaboration platform that enables authorized use of structured data, contribution assessment, and privacy sharing.

Function details:

Data upload interface: Supports users to upload structured data files such as JSON/CSV and bind metadata.

Access control module: Users can customize data access permissions: open, licensed, and private sales.

Authorization call protocol: Each call is recorded on the chain, and developers pay a ULAI license fee to use the data.

Data scoring algorithm: The system evaluates the data quality, coverage and scarcity, and gives a "data value score".

Privacy protection: Integrated with multi-party secure computation (MPC) and ZK-proofs to ensure that the plaintext data is invisible and support "compute as you use".

Typical applications: privacy data sharing platform in medical, financial, market forecast and other industries.

---

5. Reputation and Identity Layer (on-chain reputation identity system)

Definition and Goal: ReputationLayer builds the behavior history and reputation evaluation mechanism of every address in the AI ecosystem, which serves as the core basis of identity and incentive.

Function details:

Identity binding: All Agents, nodes, and users must be bound to the Soulbound NFT to identify themselves.

Behavior tracking: The system records each task execution, data upload, participation in governance and other behaviors.

Multidimensional scoring system: Score using matrix model, including credibility, participation, performance, user evaluation and other dimensions.

Impact on ecological weight: R-Score affects users' right to propose, vote and benefit.

Blacklist mechanism: Long-term cheating, refusal to do tasks, data fraud and other behaviors will enter the reputation punishment process.

Vision: Build a "Web3 credit scoring system" for the AI world to encourage real participation and quality services.

---

7. Cooperative ecology and application scenarios

Education/research institutions: used for AI model verification, fair evaluation and results on the chain;

AI developer/studio: Publish services, build AI store and app market;

Enterprise: Deploy and invoke AI services on the chain;

Government and compliance: used for AI policy regulatory sandbox testing, trusted AI tracking mechanism.

1. Education and research institutions

Typical partners: university AI research institutes, open data platforms, academic alliances (such as OpenAI Research Network)

apply styles :

The ModelChain module of UnionLedger is used to store the training process of AI model on the chain to ensure that scientific research achievements can be verified and traceable;

Using the IdentityProof module, researchers and institutions are assigned on-chain identities and academic reputation scores to realize on-chain academic credit;

Store experimental data through DataVault, set permission control, and realize collaborative sharing without disclosing the data source;

Create a research incentive mechanism based on DAO, and provide token incentives to researchers who contribute data and models.

anticipated results :

Establish the chain on the right of scientific research achievements and knowledge incentive system;

Support open scientific research value circulation and verification mechanism;

Provide a trusted source of data for AI policy development and ethical testing.

---

2. AI developers and studios

Typical partners: AI startups, individual developers, AI Agents, and independent operators

apply styles :

Deploy AI Agent on UnionLedger and build decentralized applications using AgentScript protocol;

Use on-chain computing power through ComputeDEX to dynamically schedule resources such as GPU and TPU;

PromptLayer sells high-quality prompts and dialogue patterns in the market to realize the copyright realization of prompts;

Access the Reputation module to record developer contributions and user satisfaction, forming a personal credit tag;

Initiate proposals in the AI Agent DAO and participate in the formulation of platform rules and parameter adjustment.

anticipated results ：

Reduce development costs and quickly build commercially available AI services;

Form an incentive mechanism of "service as asset" and build a closed-loop AI business on the chain;

Improve the efficiency of collaboration among AI developers around the world and activate long-term ecological growth.

---

3. Enterprise application scenarios

Typical cooperative subjects: retail, finance, medical, manufacturing enterprises and other traditional industry digital transformation participants

apply styles ：

Encapsulate private or customized AI services as Agents, publish service APIs on the chain for employees or customers to call;

Use ComputeDEX to purchase elastic computing resources to cope with computing demand during peak hours;

Build the prompt system of enterprise internal knowledge base with PromptLayer to realize the deployment of intelligent assistant for employees;

Store compliant user behavior data in DataVault and implement permission management and audit trail;

Access UnionLedger's supported payment and incentive system to reward employees or users who use AI tools.

anticipated results ：

Reduce the introduction threshold of AI, and realize the productization and service of AI;

Enhance data compliance capability and internal collaboration efficiency;

Expand the monetization model of AI services and improve the revenue path of enterprises.

---

4. Government agencies and compliance scenarios

Typical partners: UK Information Commissioner's Office (ICO), National Data Governance Agency, AI regulatory sandbox pilot unit

apply styles ：

Use ModelChain to record the source of model training and data set list, so as to realize "traceable source" of AI model;

Deploy a compliance tracking Agent based on UnionLedger to monitor whether data usage complies with the policies of the AI Regulatory White Paper;

Register the identity of compliant developers in the IdentityProof module to realize the whitelist system of development qualification;

Establish a government-led AI regulatory DAO, and design regulatory rules based on on-chain proposals and community consensus mechanism;

The public service AI model will be registered and the interface will be opened to encourage citizens to participate in co-construction and supervision.

anticipated results ：

Create a trusted AI policy regulatory sandbox to realize dynamic rule testing;

Improve the fairness and compliance of AI use to prevent abuse;

Build a foundation of public trust in the neutrality of AI policies and algorithms.

Ecological synergy summary

participation role	Module path	Main value capture
Educational research	ModelChain + DataVault	Achievements are confirmed, reputation is established, and data value is realized
AI developer	AgentScript + ComputeDEX	Agent income, prompt trading, reputation accumulation
Corporate customers	PromptLayer + ComputeDEX	Internal service optimization and AI implementation cost reduction
Government/regulation	ModelChain + IdentityProof	AI supervision visualization, regulatory sandbox, policy programmable

---

Decentralized governance (UnionDAO)

Each user who pledges $ULAI will be granted governance rights (vULAI);

Support module governance (model/data/computing power/incentive) proposals;

Publish governance reports every quarter, and the platform will give governance rewards according to participation;

Support Delegate voting to lower the threshold of user participation.

The UnionDAO serves as the core governance mechanism of the UnionLedger decentralized network, granting all token holders equal participation in platform decision-making, resource allocation, and ecosystem planning. Designed to foster an open, transparent, and democratic AI infrastructure ecosystem, the DAO ensures the platform consistently aligns with community interests throughout its development while maintaining self-evolving and error-correcting capabilities.

I. Governance right acquisition mechanism: vULAI model

All users who hold and pledge $ULAI will receive the platform governance weight unit —— vULAI (Voting ULAI).

vULAI can be calculated by double calculation of the amount and time of pledge, and the weighting formula is as follows:

Time of pledge	Weight ratio
7 days	1.0x
Ninety days	1.5x
180 days	1.8x
365 days	2.0x

Example: Pledge $10,000 ULAI and select 180 days to lock the warehouse, then you will get 18,000 vULAI voting weight.

---

2. Governance modules and proposal types

UnionDAO supports governance of key operating modules of the platform, which mainly include the following proposal types:

module	Matters that can be governed
Model governance	New model launch/downloading review, model performance evaluation criteria adjustment
data-based approach to governance	Data collection rules definition, data access rights, data label standard update
Computing power governance	Optimize ComputeDEX computing power trading rules, cost ceiling, and rental mechanism
excitation mechanism	Community reward distribution structure, mining reward parameters, task incentive structure adjustment
Ecological cooperation	New platform access proposals, external developer incentive quotas, audit service provider selection
The Token Economy	Token buyback and destruction plan, circulation rate adjustment, additional issuance mechanism proposal

---

Proposal and voting process

The proposal process of UnionDAO is transparent and standardized, and adopts a four-step governance path:

1. Proposal initiation stage

The initiator must have at least 20,000 vULAI or have the joint signature of at least 50 users;

The proposal shall comply with the UnionDAO governed module and be accompanied by a complete explanatory document;

The proposal will be reviewed by the community for feedback and technical security during the preheating period of 3 days.

2. Voting stage

The voting period is 5-7 days by default, and wallet connection governance page (UnionDAO.gov) is supported;

Users use vULAI weighted voting (yes, no, abstain);

Support delegate voting: You can delegate your vote to community representatives/experts, which lowers the threshold for small white people.

✅ **3. Results implementation mechanism**

Voting threshold:

The total participation rate is at least 5%

Agreed by a vote of 60%

If the conditions are met, the proposal will automatically enter the on-chain execution process within 48 hours;

The rejected proposal may be resubmitted with an optimized version after the cooling period.

4. Governance review and reporting

All proposals and implementation data are stored on the chain;

Every quarter, UnionDAO releases a governance transparency report, recording key data indicators and results (such as pass rate, number of active voting users, execution status, etc.);

Communities may propose the establishment of an independent governance audit panel to monitor transparency and efficiency.

IV. Governance incentive mechanism

To encourage broader community participation, UnionLedger has established multiple governance incentive models:

type	Form of reward
Proposal incentives	Successful proposers receive a ULAI reward of $1,000 to $5,000
Highly active voters	Each quarter, the TOP 100 voters are selected and airdrop rewards are given
Governance badges	Create a proprietary NFT governance contribution badge on the chain, which can be used for social display or to deduct fees
Commissioned voting incentives	The entrusting party and the entrusted party share rewards according to governance points
Publish the list	Publish "influence proposal list" and "active voter list" to promote positive feedback

V. Future governance expansion direction

The time period	development direction
Q4 2025	Support governance of NFT identity binding system and introduce diversified weight parameters
First half of 2026	Expand the cross-chain governance interface and coordinate with other AI DAO platforms
The second half of 2026	Establish the "AI policy DAO" and connect with the government regulatory sandbox to realize the compliance negotiation chain governance
2027	The "AI autonomous city" or intelligent community governance experiment field can be realized through the on-chain reputation system

VI. Summary of governance Vision

UnionDAO's vision extends beyond being merely a token governance platform. It serves as a central hub that enables global collaboration, verifiable compliance, and evolutionary development of AI models and data. Through open governance, transparent execution, and behavioral incentives, UnionLedger will pioneer the world's first AI + Web3 federated governance network. This initiative drives standardized development and value democratization in decentralized AI ecosystems.

9. Roadmap

time	Key developments
Q4 2025 (UK)	The test network is launched, and the registration of the model and the creation of the beta Agent are opened
Q1 2026	The main network was launched, public offering started, and the first 30 AI service providers settled in
Q2 2026	Launch a computing power market and data collaboration platform; support NFT proxy chain
Q3 2026	UnionDAO has launched a governance mechanism to pilot AI evaluation standards with British universities
2027	Expand to the EU and Southeast Asia, access the AI RWA project, and release the full chain intelligent operating system (UL-AIOS)

The development of UnionLedger will be carried out in stages, following the evolution route of "technology verification → commercial implementation → governance formation → global expansion", and gradually build a decentralized AI collaboration ecosystem starting from the UK and radiating to the world.

Q4 2025 (UK): Test network launch phase | Infrastructure verification + community warm-up

Key progress:

✅ Launch the UnionLedger Testnet (Testnet v0.9);

✅ Open the ModelChain model registration module to support developers to upload training model metadata;

✅ Start AgentScript protocol test: Users can try to create a simple AI Agent instance;

✅ Community hackathon warm-up: encourage AI developers to try out the platform components and give feedback on bugs and suggestions;

✅ Completed the UK technical compliance filing and entered the initial application process for the FCA sandbox scheme.

Stage objectives:

Verify the stability of the core on-chain modules (model registration, identity binding, and points mechanism);

Accumulate the first batch of developers and model release users;

Prepare security and user experience optimization for the main network startup.

Q1 2026: Main network launch phase | Economic system opening + public offering start

Key progress:

✅ The UnionLedger mainnet (v1.0) was officially released;

✅ Launch the $ULAI public offering (Public Sale) with an initial offering price of 0.04-0.06 USDT;

✅ Core functions of activation token: model reward, Agent points, DAO voting;

✅ The first batch of 30 AI service providers/development studios will be introduced to the ecosystem, including language model, image recognition, intelligent customer service and other directions;

✅ Release platform SDK v1.0 and development documents, providing developer support portal;

✅ The NFT identity binding system is launched, and users get the on-chain identity and reputation score.

Stage objectives:

Establish a Token economic system and a preliminary circulation mechanism;

Form the first-generation AI Agent service ecology and start to accumulate usage data;

Attract a wide range of community users, developers and investors to participate in the construction of the platform.

Q2 2026: Function expansion phase | computing power + data ecology in parallel

Key progress:

✅ Launch the ComputeDEX module to realize on-chain GPU computing power rental and free market pricing;

✅ Start the DataVault module: support structured data upload, authorized transaction, revenue distribution;

✅ Release "Prompt Market" to support prompt trading and reuse authorization;

✅ Launch the UnionNFT secondary agent chain (Sidechain NFT Layer) to improve the interaction efficiency of NFT Agent;

✅ Cooperate with third-party AI data providers (such as data crowdsourcing platforms) for collaborative testing;

✅ Launch the "Computing Power Liquidity Incentive Plan" to encourage small GPU merchants to access the platform.

Stage objectives:

Improve the three core resources (models, data, computing power) needed for AI application development;

Improve the activity of on-chain transactions and promote the flow of real AI tasks;

We will promote the development of the platform economy towards practical and high-frequency scenarios.

Q3 2026: Governance activation stage | Platform autonomy structure takes shape + education collaboration pilot

Key progress:

✅ Launch the governance platform of UnionDAO v1.0, and activate the on-chain governance proposal and voting mechanism;

✅ Introduce governance points vULAI and delegated voting mechanism (Delegate Voting);

✅ Pilot the implementation of AI model evaluation standards on the chain with top British universities (such as Cambridge and Imperial College);

✅ Release the AI Decentralization Compliance White Paper and the Agent Behavioral Space Protocol Draft;

✅ Host the first UnionDAO Developer Conference to collect governance and technical proposals;

✅ DAO capital pool opens the application channel for ecological funds to promote the incubation of new projects.

Stage objectives:

Establish the ability of the platform to evolve itself and reduce dependence on centralized teams;

Integrate AI model/data audit standards into the governance system;

The first "AI community autonomy" model was formed to prepare for global replication.

2027: Global expansion stage | Cross-border collaboration + full-stack AI OS layout

Key progress:

✅ Expand to the EU and Southeast Asian markets (e.g., Germany, Singapore, Malaysia);

✅ Work with the Real World Asset (RWA) platform to chain the results of AI output (such as scores and compliance certifications);

✅ Release the full-chain intelligent operating system —— UL-AIOS (UnionLedger AI Operating System), realizing four-dimensional linkage of model, data, task and identity;

✅ Connect to Chainlink, IPFS, Arweave and other Web3 infrastructure to build a multi-chain data collaboration network;

✅ The launch of a multilingual platform, providing English, simplified Chinese, French, Indonesian and other versions;

✅ Launch a global AI Agent store and module market.

Stage objectives:

To become a global leader in compliance AI on-chain standards;

Build a complete "AI on-chain collaboration operating system" and provide low threshold development tools;

Expand real application scenarios and cooperate with multinational governments, enterprises and educational institutions.

Summary of road map

UnionLedger will follow the strategic route of "technology construction → scenario embedding → governance activation → global replication", and will not only become a blockchain project, but also a global collaborative platform for building new infrastructure for AI digital economy.

10. Safeguards and compliance

The UK ICO/DAO compliance framework is to be connected to the FCA Sandbox pilot;

Adopt multiple signature governance and Chainlink oracle anti-manipulation mechanism;

The contract is audited by Certik or Trail of Bits;

KYC/AML compliance audit integration (user and developer).

As UnionLedger strives to build a global collaborative platform for "AI + Blockchain", the project will face high-frequency capital flows, model calls, and data interactions. To address these challenges, we have developed a comprehensive security framework covering technical safety, compliance, data protection, and governance mechanisms. This ensures stable platform operation, asset security, and policy compliance.

I. Technical security mechanism

1. Smart Contract Audit (SCA)

All core smart contracts (including tokens, DAO governance, model registration, computing power market, data access) will be fully audited by international top security agencies such as CertiK or Trail of Bits before the main network goes live;

Audit scope covers: integer overflow, re-entry attack, permission control, lightning loan risk, time manipulation, etc.;

All audit reports will be publicly released and stored on the chain for the community to query and verify;

A Bug Bounty program will also be launched before the release to invite white hat hackers to test the vulnerabilities.

2. Multisign governance

Project funds and key permission operations are executed by Gnosis Safe multi-signature mechanism;

Multiple signatories, including core project developers, security consultants and independent community representatives, to ensure transparency and checks and balances;

Multi-sign wallet is used for:

DAO fund procurement ;

Contract upgrade management;

Ecological fund allocation and approval;

The emergency pause mechanism was activated.

3. Data and Oracle & Data Integrity

Introduce Chainlink decentralized predictor system to obtain key data such as external computing power price, AI evaluation standard and exchange rate;

Set threshold comparison mechanism for all modules that rely on external data to avoid system misjudgment caused by extreme fluctuations;

The "model signature + backtracking verification" mechanism is introduced to the output results of the AI model to ensure that the behavior of the model is consistent with its registered version.

4. Isolation mechanism between computing power and data module

GPU services, data storage nodes and on-chain execution logic adopt module isolation architecture to prevent attackers from invading the system backbone through boundary modules;

Periodically rotate the key and access permission of computing resource nodes;

Introduce zero-knowledge proof (ZK proof) and off-chain computation verification technology to ensure that the data is not leaked but the results can be verified.

---

2. Compliance design

1. UK FCA regulatory docking

UnionLedger was designed for the UK from the start of the project and follows the UK FCA (Financial Conduct Authority) regulatory framework for digital assets;

It is ready to submit an application to enter the FCA Sandbox (regulatory sandbox) program as a "trusted AI infrastructure and data trading pilot project";

All token issuance, public offering process, DAO governance mechanism and platform economy incentive are structured and authorized according to the 2023 UK Cryptocurrency Regulation White Paper and AI Regulation White Paper;

Future project objective: To obtain FCA registration or regulatory exemption certification and become a UK compliance first representative program.

2. KYC/AML compliance system

The platform will integrate professional authentication service providers (such as SumSub, Onfido, Fractal ID) and connect to KYC (user identification) and AML (anti-money laundering) processes:

Token public offering investors, computing power service providers and data providers must complete a complete KYC process;

Developers publishing models or AI services need to bind real-name subjects or company logos;

Multiple identity levels are divided, lightweight registration options are provided for non-sensitive users, and advanced KYC is performed for large model developers/institutions;

All identity information is protected by the GDPR, stored in an encrypted database, and access audit trails are set up.

3. Contractual and legal framework

Draft legal documents such as Token Sale Agreement, Terms of Use and Privacy Policy in cooperation with local compliance consulting firm;

All data access/training/reuse related activities shall be signed with smart contract agreements, and the platform shall authorize permissions and supervise behaviors;

Provide data compliance statements, liability waivers and codes of conduct for institutional access (e.g., universities/government/enterprise).

---

3. Governance transparency and risk prevention and control mechanism

1. Chain audit and transparent ledger

All platform revenue distribution, token release, governance voting, incentive distribution and other behaviors are implemented on the chain + recorded on the chain;

Developers, users, and investors can view the history through the block browser or governance platform, with data export and verification support.

2. Transparent disclosure system for platform operation

Publish a monthly "Security and Compliance Transparency Report", covering vulnerability handling, regulatory policy response, user data compliance, etc.;

Update the governance and compliance roadmap quarterly, subject to community proposals and voting oversight;

The DAO has set up a "Community Security Audit Committee", which is elected by community members to regularly assess the efficiency of platform governance and security response.

3. Emergency protocol (EP)

Set up an "emergency pause mechanism (Guardian Pause)" for critical systems, which can freeze specific modules under multi-sign authorization;

Build a platform security response team, including development, security, compliance and other functional members, to develop rapid response procedures;

Regularly drill risk scenarios such as "data leakage", "governance attack" and "hacker intrusion" to improve the team's response ability.

IV. Summary

UnionLedger prioritizes security and compliance as its foundational principles in platform development. By implementing UK regulatory interfaces, multi-layered technical safeguards, identity compliance protocols, and transparent governance mechanisms, it creates a trustworthy and user-friendly AI + blockchain infrastructure platform. This commitment not only serves global Web3 AI developers and enterprises but also represents a pioneering exploration into building a compliant digital economy ecosystem for the future.

---

11. Team and consultant lineup

Background of core members:

From the AI Lab of Oxford University, DeepMind engineering team, and Ethereum London core development community;

Experience in blockchain underlying protocol development, AI large model training and decentralized system construction.

Advisory Team:

Including the head of policy research at the UK's AI Governance White Paper and head of crypto venture capital;

The proposed list of members of the advisory board will be available on the Q4 Governance Proposal platform (respect for privacy or right to anonymity).

Operation node setting:

In the initial stage, three international nodes will be set up in London, Germany and Berlin to facilitate community support and resource integration.

The success of UnionLedger is inseparable from a core team with cutting-edge technological vision, compliance governance experience, and global operational capabilities. We are committed to gathering elite talents in the three fields of "AI × Blockchain × Compliance Finance" to build a world-leading Web3 AI-native infrastructure platform.

---

1. Core team members

Core Technology Team for technology development

Dr. Alex Harding (Co-founder & CTO)

Former PhD candidate at Oxford University AI Lab, researcher in natural language processing;

Participated in the development of DeepMind's multi-modal reasoning framework and reinforcement learning platform;

Responsible for the model registration architecture, computing protocol and on-chain intelligent agent design of UnionLedger;

He has published many papers in NeurIPS, ICLR, AAAI and other top conferences.

Li Wei (Co-founder and Chief Architect)

Former member of the Ethereum London research group, focusing on Layer-2 scaling and modular design;

He has led the research on Rollup interactive protocol and on-chain module construction standard;

At UnionLedger, I was responsible for the implementation of main chain architecture, EVM compatibility and AI Layer-2 integration.

Priya Banerjee (Head of Security)

Blockchain security expert, former senior audit consultant at CertiK;

Responsible for smart contract audit, security policy formulation, multi-sign and oracle integration;

Product and Ecosystem

Tom Ellison (Product Lead)

Former product manager of ConsenSys, who has participated in the implementation design of several Web3 platforms;

Good at community driven platform design and modular interactive experience design.

Jenny Zhao (Head of Community and Operations)

More than 10 years of experience in building crypto communities, operating multiple million-level Web3 communities;

Worked for Animoca Brands and the Chinese community of dYdX;

Responsible for global community strategy, DAO organizational structure construction and ecological incentive system.

II. ADVISORY BOARD

UnionLedger has invited a number of experts, scholars and industry leaders with policy understanding, technical foresight and industrial implementation experience to form an advisory committee to provide continuous guidance for the project in terms of technology decision-making, regulatory compliance and ecological expansion.

Core Advisory Members:

Prof. Helen Turner-Professor of AI Governance, University of Cambridge, UK

He has long been involved in the formulation of AI ethical standards by the British government and is a consultant for the AI Regulatory White Paper;

Served as an "AI Governance and Social Impact Advisor" at UnionLedger, leading the interface between projects and regulators.

Jonathan Blake--Partner, digital asset fund Zeta Capital

More than 15 years of experience in traditional finance and crypto asset investment;

Provide suggestions on token economic model, institutional cooperation and financing strategy.

Dr. Linus Becker-Former member of OpenAI European Laboratory

Specializes in AI Agent protocol and distributed learning system;

Assist UnionLedger to build on-chain agent behavior standards and AI interaction protocol.

---

3. Global operation node layout

In order to ensure the global deployment capability and ecological service response speed of UnionLedger, the team plans to set up international operation nodes in the following three core cities:

London Node (Headquarters)

Connecting with the UK government and regulators (FCA, AI regulatory sandbox);

Establish research collaboration with local universities (such as Oxford and Imperial College London);

Serving investors in the European region, AI startup teams and commercial pilot projects.

Berlin node

Gather top European Web3 developers and computing power service providers;

Support open source AI projects and community hackathons;

Connect to the EU digital compliance framework and RWA (Real Assets) integration plan.

Hong Kong node

Covering users and ecosystem developers in the East Asian market;

Participate in the AI Finance pilot program in the Guangdong-Hong Kong-Macao Greater Bay Area;

Connect Southeast Asian computing resources with chain game/metaverse partners.

---

sum up

The UnionLedger team combines senior members from AI research, blockchain core protocols, security audit, compliance and regulation, and ecological growth to form a core team with cross-regional and cross-domain comprehensive combat capabilities.

> Core concept of the project: technology as the cornerstone, compliance as the moat, global vision as the engine of expansion.
>
> On this basis, we will continue to expand our network of professional advisers and localization teams to ensure that UnionLedger can go steady and far.

---

12. Risk notice and legal statement

The price of crypto assets fluctuates greatly, and the project has technical and compliance risks;

All users shall read and agree to the Risk Disclosure Letter;

I. General Risk Statement

Users using the UnionLedger platform or holding $ULAI tokens should fully understand that blockchain and crypto assets inherently have the following major risks:

1. Volatility risk

The price of crypto assets is greatly affected by macro policies, market sentiment, transaction depth and other factors, and the price may fluctuate violently or even return to zero;

The Project Party makes no commitment or prediction regarding the rise or fall of the market price of the tokens.

2. Technical and security risks (T&S)

Although smart contracts have been audited, they are still vulnerable to unknown vulnerabilities, hacker attacks, malicious exploitation and other threats;

Third-party wallets or plug-ins may also have security problems, and users should bear the technical operation risks by themselves.

3. Policy and regulatory uncertainty

There are differences in the regulatory attitudes of countries around the world towards blockchain and crypto assets, which may face policy changes, restrictive laws and other circumstances;

4. Operational risk (OR)

Although UnionLedger is operated by a professional team, it still faces operational uncertainties such as personnel changes, resource constraints and delayed technology implementation;

The objectives and road map described in the project white paper may be subject to change due to market changes or technical assessments.

II. Legal Disclaimer

1. Non-security nature declaration

$ULAI is a utility token (Utility Token) within the UnionLedger ecosystem. It does not constitute any shares, creditor's rights, profit dividends or securities, and does not have the characteristics of an investment contract. The project party will not make any form of commitment or guarantee on the price or returns of the token.

2. Participation Disclaimer (PD)

Users shall, in accordance with the laws of their jurisdiction, independently determine whether access to, possession of or use of the UnionLedger platform and its tokens is permitted;

The project team suggests that users should fully understand the relevant laws and risks before participation to ensure their own compliance operation;

UnionLedger shall not be liable for any consequences arising from the user's illegal operation.

3. Territorial Access Guidelines (TAGs)

UnionLedger does not actively restrict users from any country or region, including the United States, Japan, Mainland China, etc., and welcomes individuals and institutions with legal identity around the world to participate in this project.

However, in order to maintain the long-term and stable development of the platform, we will reserve the right to restrict access to some regions that have been listed as high risk financial fraud or money laundering risk by the international community. For example:

High-risk areas (example)	explain
North Korea, Iran, Syria, Sudan and so on	Comply with international financial sanctions and anti-money laundering standards (FATF)
Countries on a financial blacklist by the United Nations or the European Union	Restrictions are made in accordance with KYC/AML policies
Countries that are listed by the FCA, the EU or international regulatory bodies as "uncooperative jurisdictions" in the future	The Platform will restrict access to its services as appropriate

III. Signing of Risk Disclosure Letter and user obligations

In order to protect users 'right to know and the platform's compliance operation, UnionLedger will require all users to read and sign the Risk Disclosure Statement (RDS) before using key functions, confirming that:

Read and understand this white paper and related risk information;

Make independent decisions and assume all responsibilities for operational behaviors;

Do not consider the project platform or token behavior as investment advice or guarantee commitment.

The contents of the Risk Disclosure Letter will be provided to all users through the official website and product world, and electronic signature and filing will be supported.

IV. Limitation of Liability

The Project party, development team, and advisory group of UnionLedger shall not be liable for any legal or financial liability for:

Loss caused by loss of user's private key, misoperation or risk of third-party platform;

Asset shrinkage caused by market price fluctuations;

Some functions are adjusted, suspended or terminated due to regulatory policy changes;

Service interruption or data damage caused by force majeure events (such as hacker attacks, disasters, wars).

V. Intellectual Property Statement (IP & Content Rights)

The text, charts and architecture contained in the white paper are owned by UnionLedger and protected by British and international copyright laws;

Unauthorized, prohibit modifying, reprinting and commercializing the content of the white paper without authorization;

If the participants of the alliance ecology need to quote, please apply for authorization from the project official.

Conclusion: Legal compliance, transparency first

UnionLedger adheres to the operation principle of "compliance as the fundamental, transparency as the bottom line", and has started the process of docking with the FCA regulatory sandbox in the UK, continuously promoting the platform functions and token behaviors to comply with the global mainstream regulatory requirements.

Tips: Any investment and participation should be carefully evaluated and done within one's capacity. We encourage users to return to the original aspiration

of Web3 by focusing on long-term participation, technological construction and ecological co-construction.

---

13. Contact information and community access points

Official website: [unionledger.libertybit.net]

Telegram English community: @UnionLedger1

Email: unionledger@gmail.com
