


# Trestle DeFi Whitepaper

## Trestle DeFi: A Decentralized Marketplace for Digital Assets, Freelancer Services, and Real-World Assets (RWA)

**Version:** 1.0 | **Date:** June 2026 | **Status:** Live on Polygon Mainnet & Amoy Testnet **Mainnet** Core Staking & Liquidity Mining (hNOBT, BroilerPlus, Distributor)  Live. **Testnet** (Amoy): Marketplace Escrow, Dutch Auction, and RWA Infrastructure  Live. **Mainnet** Marketplace:  In Development / Audit Phase.

**Disclaimer: Not affiliated with Trestle Protocol (Celestia Bridge).**

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# Executive Summary

**Trestle Platform** is a **decentralized, community-driven marketplace** that bridges the gap between **decentralized finance (DeFi), freelancer services, and real-world assets (RWA)**. Built on a **battle-tested liquidity foundation** (established in 2021), Trestle creates a **self-sustaining economic engine** where users earn through contribution, liquidity, and governance.

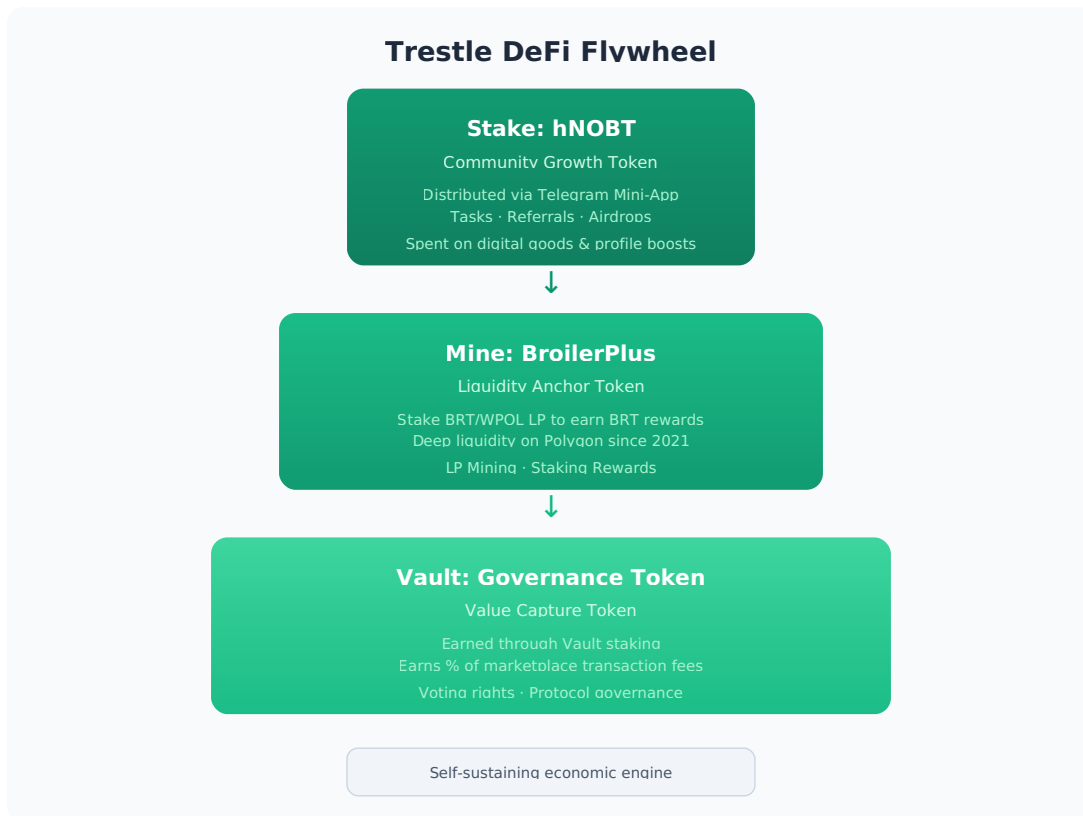
## The Problem

Existing marketplaces are **siloed, complex, and exclusionary**:

- High fees and lack of professional escrow for freelancers.
- High barriers to entry for **Real-World Assets (RWA)**, limiting access to institutional-grade opportunities.
- Most "Web3" projects lack **long-term economic depth**, failing to survive market cycles.

## The Solution: The Trestle DeFi Flywheel

Trestle DeFi leverages a **three-token system** to drive growth, secure liquidity, and capture value:



### 1. hNOBT (Community Growth Token)

- The **gateway token**, distributed via the **Telegram Mini-App** for tasks, referrals, and early-stage engagement.
- Designed to **absorb sell-pressure** by enabling utility (e.g., spending on digital goods, boosting freelancer profiles).

### 2. BroilerPlus (Liquidity Anchor Token)

- The **core asset** (active on Polygon since 2021), providing **deep liquidity** for the marketplace.
- Staked as BRT/WPOL LP through **Mine** to earn additional BroilerPlus rewards and Governance Points.

### 3. Governance Token (Value Capture Token)

- The **premium asset** for stakeholders, earning a **percentage of all marketplace transaction fees**.
- Granting **voting rights** over the Platform's future, ensuring **community-driven governance**.

## Proof of Commitment

To ensure governance remains in the hands of **long-term supporters**, the **Governance Token** is **not sold or easily farmed**. It is earned exclusively through **Vault staking**, requiring a commitment to the ecosystem's liquidity. This protects the Platform from **short-term speculators** and aligns governors with the **long-term health** of the marketplace.

## Key Innovations for 2026

- **Virtual Vault Off-Chain Accumulation:** Users earn and stake **hNOBT points entirely off-chain** via the reward vault worker and Telegram Mini-App. Settlement produces an **EIP-712 voucher** that is submitted on-chain — no gas fees. The Virtual Vault is separate from the main website dApp Vault (which handles Governance Token staking).
- **Telegram-Native Interface:** A **Mini-App** acts as the command center for staking, task management, and marketplace browsing.
- **Secure Milestone Escrow:** Smart contract-based payments for freelancers ensure funds are **only released upon verified work completion**, protected by a **decentralized dispute resolution system** (e.g., Kleros).
- **Fractional RWA:** Providing the infrastructure to **tokenize and trade fractional shares** of real-world assets, bringing **institutional-grade opportunities** to everyday users.
- **Decentralized AI Integration: Open-source AI models** handle dispute resolution, freelancer matching, fraud detection, and RWA verification, operated by community AI nodes earning hNOBT rewards.
- **Queue-Based AI Processing:** AI requests are offloaded to a **Cloudflare Queue** with async job lifecycle tracked in KV — no endpoint timeouts, instant user feedback, and retry tolerance.
- **Auto-Moderation Shield:** Telegram and Discord webhooks process all messages through a **spam pattern matcher + HuggingFace toxicity classifier** with automatic 24-hour mute and admin alerts.

## Development Philosophy

**Security over Speed.** Trestle Platform follows a **milestone-driven roadmap**, utilizing a **dedicated Bug Bounty fund** to collaborate with global developers. By launching staking on **Mainnet** while perfecting the Marketplace on **Testnet**, we ensure a **robust, audited, and community-backed ecosystem**.

Core smart contracts are open source and verified on-chain. Proprietary frontend and backend logic remain closed to protect user data and business logic during the beta phase.

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# Vision and Mission

## Vision

To create a **self-sustaining economic bridge** between the **gig economy and global financial stability**, where **digital labor meets real-world asset ownership**.

## Mission

Trestle Platform empowers **freelancers, investors, and communities** to:

- **Earn** through digital work and contributions.
- **Stake** to secure liquidity and governance rights.
- **Own** fractional shares of **real-world assets (RWA)**.
- **Govern** the Platform's future through **community-driven decision-making**.

## Core Values

### 1. Integrity by Architecture

- Trust is a **feature, not a feeling**. Every milestone and asset is **verifiable on-chain**.

### 2. Velocity of Labor

- Work shouldn't wait for banking hours. **Zero-friction onboarding** via Telegram and **off-chain Virtual Vault accumulation** enable instant earning and staking without gas fees.

### 3. Radical Inclusivity

- Fractional ownership should be a **right, not a privilege**. A freelancer in any country can own a piece of **real estate, treasury bonds, or other RWAs**.

### 4. Anchored Stability

- While markets fluctuate, Trestle remains **grounded**. The **three-token system** creates **deep liquidity and long-term value** for stakeholders.

### 5. Community Stewardship

- The users who **build the platform** are the ones who **own and steer it**. All Platform fees and marketplace directions are **voted on by Governors**.

## 6. Decentralized AI Empowerment

- **Open-source AI models** operated by community node operators enhance efficiency while maintaining decentralization. AI decisions are verifiable, auditable, and governed by token holders.

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# The Trestle Ecosystem

## The Three-Token System

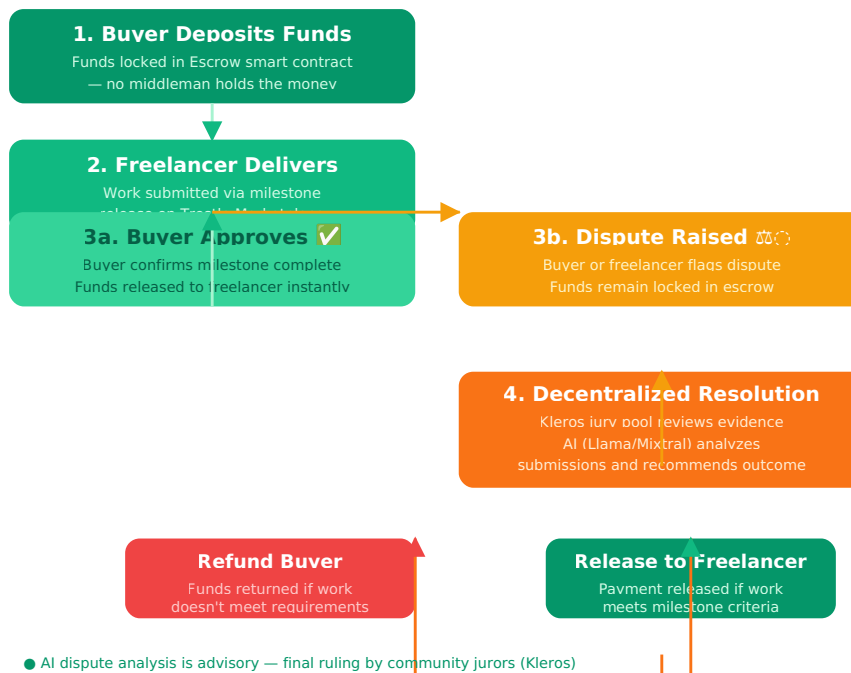
Section	Token	Purpose	Utility
<b>Stake</b>	hNOBT	Community Growth	Distributed via Telegram Mini-App for tasks, referrals, and early engagement. Can be spent on <b>digital goods</b> or used to "boost" freelancer profiles.
<b>Mine</b>	BroilerPlus	Liquidity Anchor	Stake BRT/WPOL LP to earn BroilerPlus rewards and Governance Points. Active on Polygon since 2021.
<b>Vault</b>	Governance Token	Value Capture	Earns a percentage of <b>marketplace transaction fees</b> and grants voting rights. Earned exclusively through Vault staking.

## The Marketplace: Empowering Freelancers and Digital Creators

Trestle Platform is a **decentralized, multi-sided marketplace** designed to empower **freelancers, digital creators, and buyers** with **secure, instant, and low-fee transactions**. The marketplace connects:

1. **Freelancers** (digital labor and services).
2. **Buyers** (digital goods, services, and assets).
3. **Liquidity Providers** (stakers and investors).

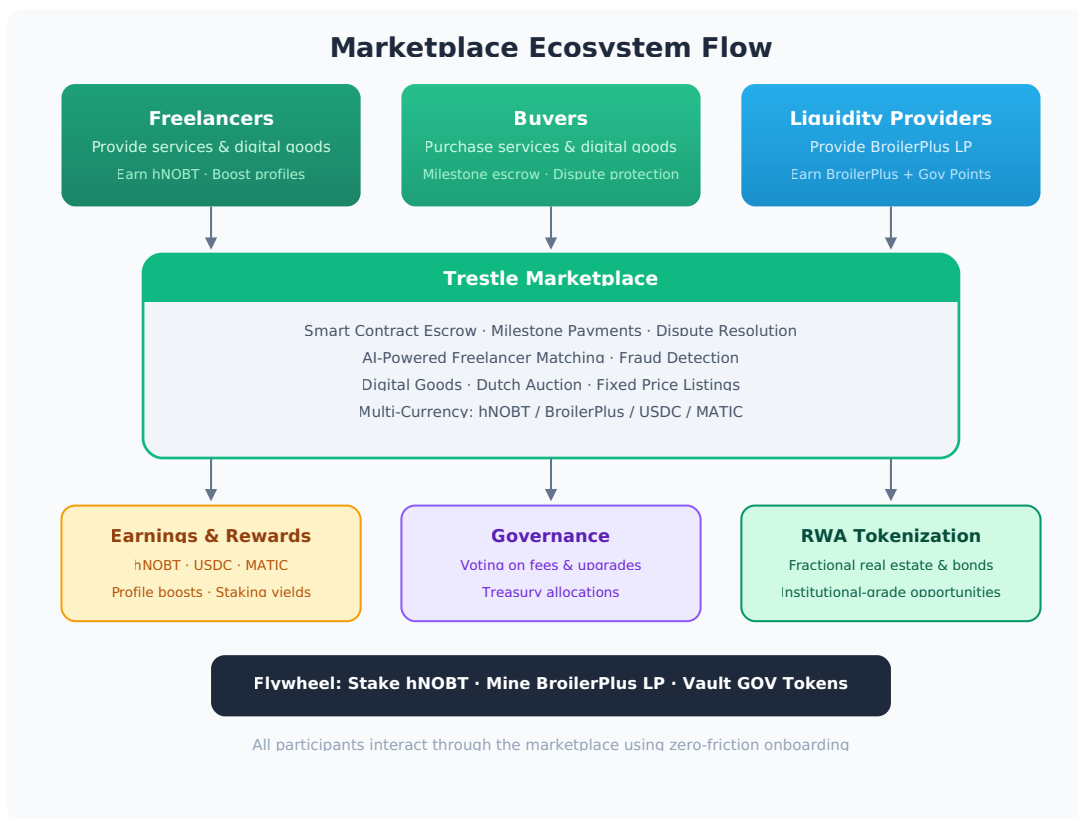
## Milestone Escrow & Dispute Resolution



## Key Features for Freelancers and Digital Goods

- **Secure Milestone Escrow:** Smart contracts hold funds until work is verified, with **decentralized dispute resolution** (e.g., Kleros).
- **Instant Payments:** Freelancers receive payments **immediately upon milestone completion**, with no banking delays.
- **Profile Boosting:** Spend **hNOBT** to boost visibility and attract more clients.
- **Digital Goods Marketplace:** Buy and sell **NFTs, templates, software, and other digital assets** with zero middlemen.
- **Telegram Mini-App:** A **zero-friction interface** for browsing gigs, managing tasks, and receiving payments.
- **Virtual Vault** (reward hub + TMA): Users accumulate hNOBT points off-chain and settle via **EIP-712 signed vouchers** — no gas fees. This is separate from the main website dApp Vault (Governance Token staking).
- **AI-Powered Matching:** **Decentralized AI models** match freelancers to ideal jobs based on skills, reputation, and preferences.
- **AI Fraud Detection:** Real-time monitoring prevents Sybil attacks and fraudulent activities.

## Token Flow



## Why Freelancers Choose Trestle

- **No Middlemen:** Direct peer-to-peer transactions with **minimal fees**.
- **Global Access:** Work with clients and buyers from **anywhere in the world**.
- **Own Your Earnings:** Convert earnings into **hNOBT, BroilerPlus, or Governance Tokens** to secure long-term value.
- **Dispute Protection:** Decentralized arbitration ensures **fair resolutions** for all parties.

## Real-World Assets (RWA): Future Expansion

While Trestle begins with **digital goods and freelancer services**, the Platform is designed to **bridge the gap between DeFi and real-world assets (RWA)** in the future. This expansion will enable users to:

- **Tokenize fractional shares** of real estate, bonds, and other high-value assets.
- **Trade RWA tokens** on the Trestle Marketplace, bringing **institutional-grade opportunities** to everyday users.
- **Earn passive income** from RWA-backed assets, such as rental yields or bond interest.

## RWA Status:

- **Current:** Infrastructure planned (Oracle, AI verification).
- **Launch:** Post-Mainnet Marketplace (Phase 4).
- **Compliance:** Awaiting legal framework finalization.

## Key Features for RWA

- **Fractional Tokenization:** Break down high-value assets into **affordable, tradable shares**.
  - **Chainlink Oracles:** Secure and reliable off-chain data for **RWA valuation and verification**.
  - **AI Document Verification: Open-source vision models** (LLaVA) analyze and verify RWA documentation.
  - **Regulatory Compliance:** Partnerships with **licensed custodians** to ensure compliance with global regulations.
  - **Liquidity Pools:** Provide liquidity for RWA tokens and earn **staking rewards**.
  - **Governance:** Decentralized governance system for RWA proposals and approvals.
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# Tokenomics

## Token Distribution

Token	Total Supply	Distribution
hNOBT	1,000,000,000	Phase 1: Untradable. Dynamic supply via tasks. Utility: TMA rewards and profile boosting (until Mainnet Marketplace).
BroilerPlus	1 Quadrillion (1,000,000,000,000,000)	50% Staking Rewards 25% Liquidity Providers 15% Treasury 10% Team & Advisors
Governance Token	1,000,000	100% Earned via Vault Staking (No ICO, No Public Sale)

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## hNOBT Specifics

- **Phase 1 Status:** Untradable (cannot yet be sold on DEXs).
- **Supply:** Dynamic/Massminted via tasks (no hard cap on issuance, but capped on distribution).

- **Utility:** Exclusive to Telegram Mini-App rewards and profile boosting until Phase 2 (Marketplace) launch.

### **BroilerPlus (BRT) Dynamic Emission Model**

Unlike static projects with fixed halving schedules, Trestle DeFi utilizes a **Governance-Driven Emission Model** to ensure liquidity sustainability across market cycles.

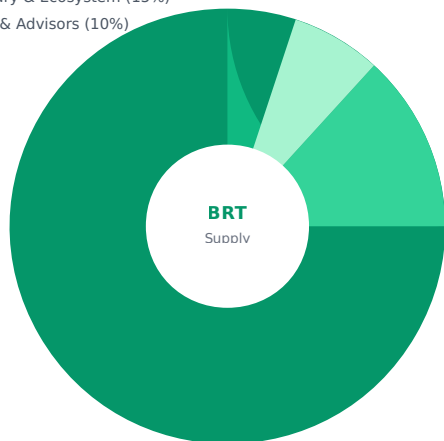
<b>Component</b>	<b>Detail</b>
Total Supply	1 Quadrillion (1,000,000,000,000,000)
Total Mining Pool	60%+ of Total Supply (Reserved for Liquidity Mining & Staking Rewards)
Distribution	50%+ LP Mining & Staking Rewards (Distributed over 4-8 years) 25% Liquidity Provision (Initial Market Makers) 15% Treasury & Ecosystem Growth 10% Team/Advisor
Emission Rate	Dynamic & Adjustable

The reward rate per block is determined by **Governance Token Holders** via on-chain voting:

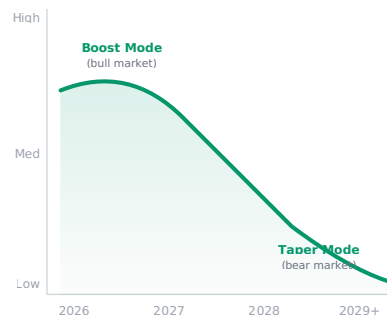
- **Standard Mode:** Rewards distributed based on current LP pool size to maintain target APY.
- **Boost Mode:** Governance can temporarily increase emissions to bootstrap new liquidity pools (e.g., during Mainnet Marketplace launch).
- **Taper Mode:** Governance can reduce emissions as the protocol matures to preserve the mining pool for future years.
- **Safeguard:** The 60% Mining Pool is locked in the Mine contract. Once exhausted, emissions stop until new tokens are minted (via Governance vote) or re-allocated from Treasury.
- **Why Dynamic?** Allows Trestle to react to market conditions — lower emissions to conserve in bear markets, increase to attract liquidity in bull markets, ensuring sustainability for 10+ years.

## Token Distribution & Emission Model

- Staking Rewards (50%)
- Liquidity Providers (25%)
- Treasury & Ecosystem (15%)
- Team & Advisors (10%)



### Dynamic Emission Over Time



Minina Pool: 60%+ of Supply

- Governance adjusts emission rate via on-chain voting
- Pool locked in Mine contract — cannot be drained

## Governance Token Roadmap

- **Current State:** Not yet minted/available.
- **Trigger:** Activated only after Marketplace Mainnet Launch and Fee Generation.
- **Acquisition:** Users must stake BroilerPlus LP (BRT/WPOL) in the Vault to earn Governance Points, which convert to Governance Tokens once the Vault is live.
- **Supply:** Fixed (1,000,000) - No new minting.

## Revenue Model

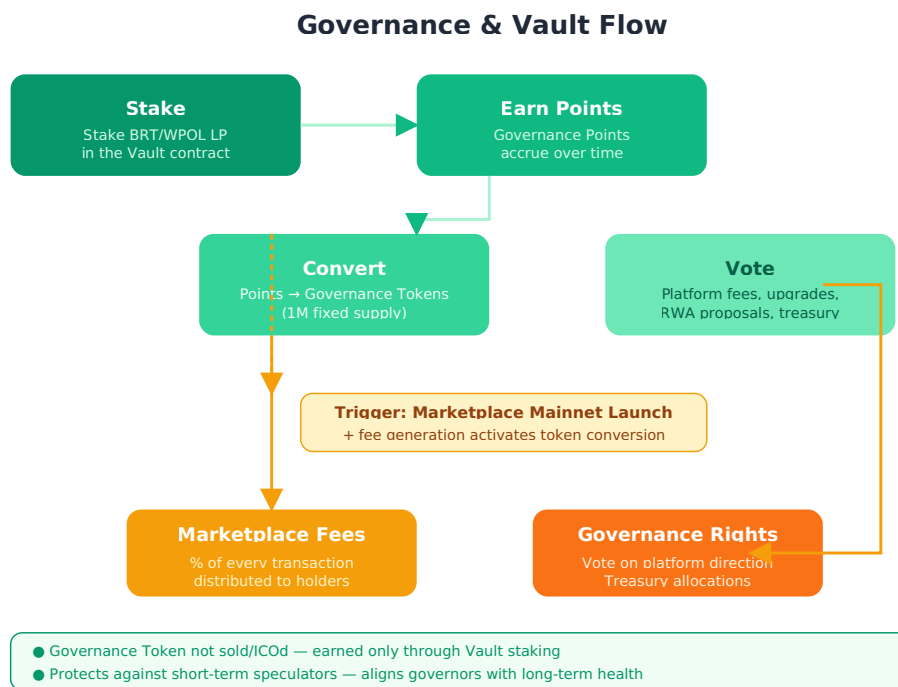
- **Transaction Fees:** A small percentage of all marketplace transactions is distributed to **Governance Token holders**.
- **RWA Tokenization Fees:** Fees for fractionalizing and trading real-world assets.
- **Escrow Fees:** Small fees for freelancer milestone payments.
- **Liquidity Mining:** Incentives for providing liquidity to BroilerPlus pools.

## Marketing Wallet Allocation

The **marketing wallet** (controlled via **Gnosis Safe**) allocates funds as follows:

- **60%:** Trestle DeFi hub LP mining (liquidity incentives).
  - **24%:** Team members and future employees.
  - **10%:** Community and airdrops.
  - **5%:** Bug bounty program.
  - **1%:** Advisors.
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# Governance and Vault Mechanics



## Vault (Governance Token Staking)

- **Purpose:** To earn **Governance Token rewards**, users stake **Governance Tokens** in the **Vault**.
- **Rewards:** Governance Token rewards are distributed based on **staking duration and contribution**.
- **Voting Rights:** Governance Token holders vote on:
  - Platform upgrades.
  - Marketplace fee structures.
  - RWA tokenization proposals.
  - Treasury allocations.

## Decentralized Dispute Resolution

- **Kleros Integration:** A **decentralized arbitration layer** for freelancer escrow disputes.
- **Community Jurors:** Disputes are resolved by a **pool of jurors** selected from the Trestle community.

## Decentralized AI Integration

Trestle Platform integrates **open-source AI models** across all platform sections, operated by community-run AI nodes:

### AI Node Operators

- Earn **hNOBT** for providing AI compute and inference

- Run verified open-source models (Llama 3, Mixtral, StableLM)
- Participate in AI governance and reputation scoring

## AI Applications

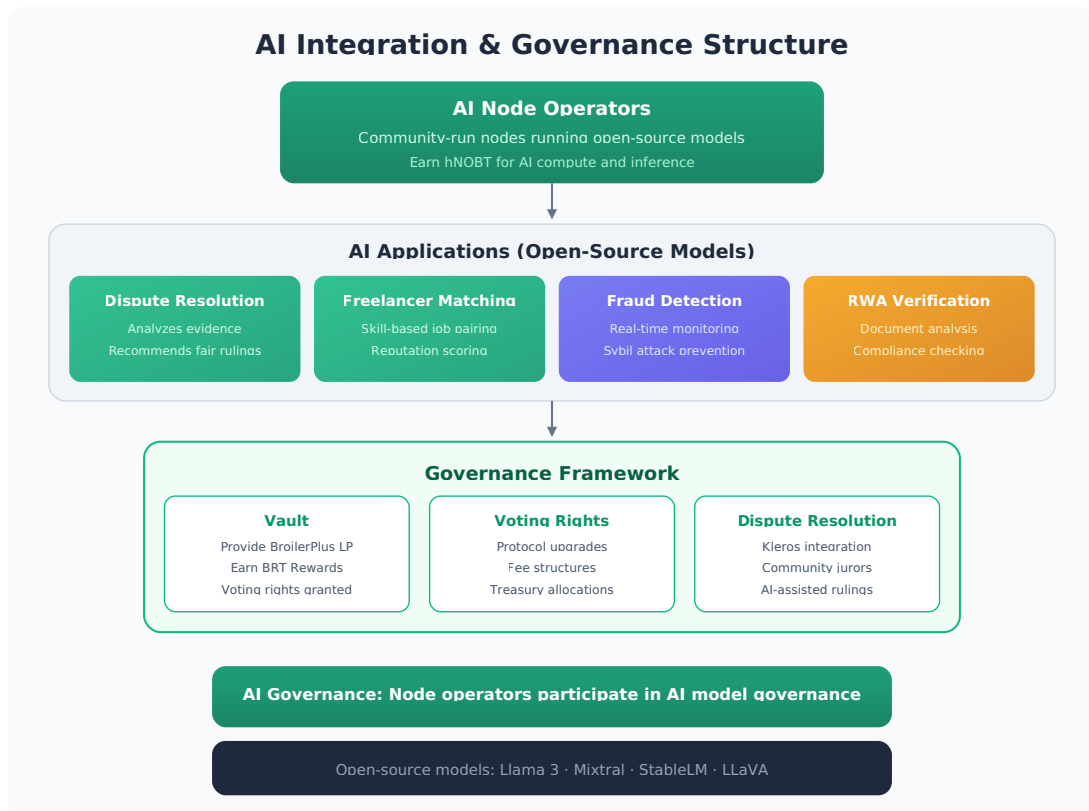
- **Dispute Resolution:** AI analyzes evidence and recommends fair outcomes
- **Freelancer Matching:** Smart job pairing based on skills and reputation
- **Fraud Detection:** Real-time monitoring for Sybil attacks and suspicious activity
- **RWA Verification:** Document analysis and compliance checking
- **Content Moderation:** Automated filtering of inappropriate content

## Benefits

- No central AI authority - community-operated and governed
- Privacy-preserving processing where possible
- Cost-effective through decentralized compute sharing

# Technical Architecture

## Roadmap



## Cloud Infrastructure

Trestle Platform uses **Cloudflare Workers** with a **serverless microservices architecture**:

Component	Technology	Purpose
trestle-reward	Hono.js on Cloudflare Workers	Tasks API, user management, claim issuance
trestle-vault	Hono.js on Cloudflare Workers	Virtual staking, yield accrual, voucher generation
trestle-moderation	Hono.js on Cloudflare Workers	Community management, spam detection, AI chat
D1 Database	SQLite	Shared database for all workers
KV Store	Cloudflare KV	Job lifecycle, AI provider config
Queue	Cloudflare Queues	Async AI processing
AI	Workers AI + OpenAPI providers	Chat, dispute resolution, fraud detection

## Frontend URLs

Component	URL	Status
Reward Hub	<a href="https://reward.trestle.website">https://reward.trestle.website</a>	✓ Live (Mainnet)
Telegram Mini-App	<a href="https://t.me/trestlehub_bot/app">https://t.me/trestlehub_bot/app</a>	✓ Live
Testnet Marketplace	<a href="https://testnet.trestle.website">https://testnet.trestle.website</a>	✓ Live (Amoy)
Mainnet Marketplace	<a href="https://trestle.website">https://trestle.website</a>	🚧 Coming Soon

## Current Projects and Progress

### Deployed Contracts

Contract	Address	Purpose
hNOBT	0xcF51ab7398315DbA6588Aa7fb3Df7c99D3D1F4dD	Community growth token

<b>Contract</b>	<b>Address</b>	<b>Purpose</b>
BroilerPlus	0xeCb4cAc0C9e5cBd42a9Ed36467ce8f96072AD58b	(airdrops, referrals). Liquidity anchor token (staking, LP mining).
Distributor	0xB2225f2e9a26688D43bC01A8Cf7aD4B179154c47	Claimable airdrop contract.
BRT/WPOL Pair	0xc445b18b3ff85e0691fe416ad91e456f8697b166	Liquidity pair
Gnosis Safe	0x64A7ef92229D2D97d1C4fd3DB15Db2d94d3D66F6	Multi-sig wallet for team and marketing funds.
hNobtStaking	0xea905C9B1a0e0c598B8F77107A7Ed03f41F2e093	hNOBT staking contract
BroilerPlusStaking	0x56C3e1d8Fa3723CA2aeb024337C1297167D6F45B	BroilerPlus staking contract

## Liquidity Pools

<b>Pair</b>	<b>DEX</b>	<b>Link</b>
BRT/WPOL	Quickswap	<a href="#">Link</a>

# Dutch Auction Marketplace

## Dutch Auction Price Discovery



Trestle Platform implements an **automated Dutch auction system** for **digital goods, freelance services, and tokenized assets**. Prices decrease linearly over time using `block.timestamp` — no continuous on-chain writes required.

### Price Model:

`getPrice() = startingPrice - (discountRate × timeElapsed)`

### Vertical Markets:

- **Digital Goods** — E-books, licenses, templates: high initial price dropping to floor until claimed
- **Freelance Services** — Milestone escrows: peak rate decreases until a buyer engages
- **Digital RWAs** — Fractional property: auction finds fair market value

### Key Benefits:

- **Gas-efficient** — single on-chain write at listing and purchase; price reads are off-chain
- **No order books** — price discovery happens automatically via time decay
- **Testnet-first** — marketplace operations run on Polygon Amoy with faucet-funded gas

### Frontend Interfaces

- **Reward Hub:** <https://reward.trestle.website> — Task completion, claims, leaderboard, admin dashboard, wallet connection.

- **Telegram Mini-App:** [https://t.me/trestlehub\\_bot/app](https://t.me/trestlehub_bot/app) — Virtual vault staking, marketplace browsing, AI chat, wallet connection.

## Backend Workers

Worker	URL	Purpose
<b>trestle-reward</b>	<code>reward-api.trestle.website</code>	Tasks, claims, users, config, AI endpoints, logging
<b>trestle-vault</b>	<code>vault.trestle.website</code>	Virtual vault staking, yield accrual, EIP-712 settlement vouchers
<b>trestle-moderation</b>	<code>moderation.trestle.website</code>	Telegram/Discord webhooks, spam shield, community AI chat

## AI & Queue System

- **AI Queue:** Cloudflare Queue `trestle-ai-queue` for async AI request processing
- **Job Lifecycle:** KV-backed (`job:uuid`) with 24h TTL, status: pending → processing → done/error
- **Providers:** Cloudflare Workers AI (primary) with configurable fallback pool (OpenAI-compatible APIs)
- **Moderation:** HuggingFace DistilBERT toxicity classifier + regex spam patterns + 24h auto-mute

## Why Trestle?

### For Freelancers

- **Earn instantly** via tasks, referrals, and digital work.
- **Secure payments** with milestone escrow and dispute resolution.
- **Own RWAs** by converting earnings into fractional assets.

### For Investors

- **Access institutional-grade RWAs** with low barriers to entry.
- **Earn fees** from marketplace transactions and RWA tokenization.
- **Govern the Platform** through Vault staking.

## For the Community

- **Zero-friction onboarding** via Telegram Mini-App and Reown AppKit wallet connection.
  - **Self-sustaining economy** with deep liquidity and long-term value.
  - **Community-driven governance** with voting rights for Governors.
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## Audit & Security Status

**Phase:** Testnet (Amoy) Beta **Approach:** Community-Driven Audit & Bug Bounties

### Rewards:

- **Critical Bugs:** Governance Points + "Security Scout" status (priority allocation for future Governance Token airdrop).
- **High/Medium Bugs:** hNOBT points via the Telegram Reward Hub.
- **Reporting:** All vulnerabilities via Discord Security Channel or GitHub Issues (Private).
- **Hall of Fame:** Top contributors listed permanently in the Security Contributors section.
- **Future:** Upon Mainnet launch with TVL, transitions to a cash-based bounty via Immunefi or similar platforms.

## Social Media and Resources

- **Website:** <https://trestle.website>
  - **Reward Hub:** <https://reward.trestle.website>
  - **Testnet Hub:** <https://testnet.trestle.website>
  - **Documentation:** <https://docs.trestle.website>
  - **GitHub:** <https://github.com/Trestle-DeFi>
  - **Telegram Group:** <https://t.me/TrestleDeFi>
  - **Telegram Mini-App:** [https://t.me/trestlehub\\_bot/app](https://t.me/trestlehub_bot/app)
  - **Discord:** <https://discord.gg/4dCCvnJYGT>
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## Conclusion

Trestle Platform is more than a marketplace—it's a **self-sustaining economic ecosystem** that bridges **digital labor, decentralized finance, and real-world assets**. By leveraging a **Stake-Mine-Vault token system, zero-friction onboarding, and community-driven governance**, Trestle empowers users to **earn, stake, and own** their way to financial freedom.

**Join us in building the future of work and ownership.**

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 **Download Resources**

- **Read Online:** [View Whitepaper](#)
  - **Download PDF:** [Trestle Whitepaper v1.1](#)
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