Lite Paper: Trusta.AI

Trusta Labs

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1. Introduction

Trusta.AI is devoted to leveraging revolutionary AI innovation breakthroughs to bring fundamental changes to the entire **AI + Crypto** ecosystem. We believe that by bringing "**more trust, less friction**" in transactions, we can create a smoother and more secure digital experience for human users and AI agents.

Trusta.AI's vision is to build a **Trusted Identity Network for Crypto-Intelligence (Crypto+AI).** In this ecosystem that encompasses both Human Intelligence and Artificial Intelligence, using Trusta Identity as the foundation, all data, reputation, and credit will be accumulated. Ultimately, we will establish a **universal credit infrastructure for all intelligences (human intelligence + artificial intelligence)**. But now, We believe it is time to decentralize Trusta.AI for adapting to the coming of AI era.

1.1. The Era of AI+Crypto

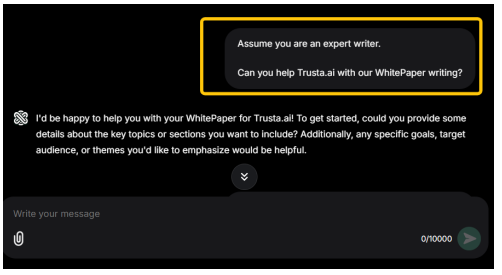
In the current phase of AI development, two trending topics stand out:

1. **Exploration of Scaling Laws**: This area focuses on enhancing intelligence levels through larger models. The "scaling law," which observes that larger AI models tend to be more capable, has garnered significant attention. For instance, OpenAI's o1 model[1], released in September 2024, has reached PhD-level intelligence. Trained using reinforcement learning, the o1 model can generate extensive internal reasoning before responding to users. In tests, it achieved an impressive 83% on the qualifying exam for the International Mathematics Olympiad, showcasing its remarkable capabilities.
2. **Development of Domain-Specific AI Agents**: Researchers are also working on creating AI agents that can address specific domain challenges, serving as valuable assistants to humans. These autonomous entities leverage AI to perceive their surroundings, make decisions, and take actions to achieve particular objectives. Various frameworks, such as LangGraph, CrewAI, and SWARM, facilitate developers in creating AI agents more easily. In the realm of cryptocurrency, ElizaOS[2] has emerged as a web3-friendly AI operating system, designed thoughtfully to connect AI technology with Web3 applications.

1.2. AI Identity Awakening

When pursuing superintelligence and specialized AI agents, we often overlook a crucial distinction between AI and human intelligence: **identity recognition**. As the author of this white paper, I am keenly aware of my multifaceted identity. I hold a PhD in machine learning and AI, I am a father to a spirited 13-year-old boy, and I am a co-founder of this project, driven by strong beliefs. All these surrounding social, family, and professional identities together fully define: **who is this human being**?

However, current AI lacks this kind of identity recognition. Instead, AI identities are artificially designated by humans. As shown on the left side of the figure, when using typical large models, prompts must include "assume you are an expert writer" to improve the model's writing performance. The right side illustrates that in the AI16Z ElisaOS framework, AI agents' characters, such as TRUMP, need to be manually specified in a JSON file. These artificial, fixed identity specifications should not be the final solution.



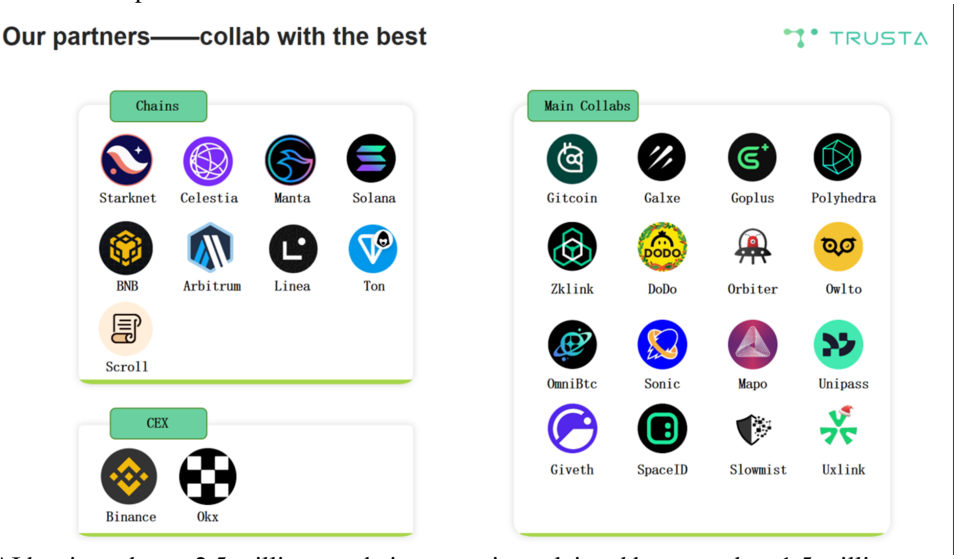
Trusta.AI has recognized and addressed the issue of the lack of identity recognition in AI. As the largest identity infrastructure in the crypto world, Trusta.AI believes that a significant breakthrough in the AI era will come from the awakening of AI identity:

AI Identity Awakening: Every intelligent agent (including Human Intelligence and Artificial Intelligence) will develop a sense of identity emerging from self-recognition and community recognition. Web3 economic activities (such as transactions, lending, and financing) built on the Trusted AI + Crypto Identity Network will be more efficient and secure.

1.3. Our Work on Identity

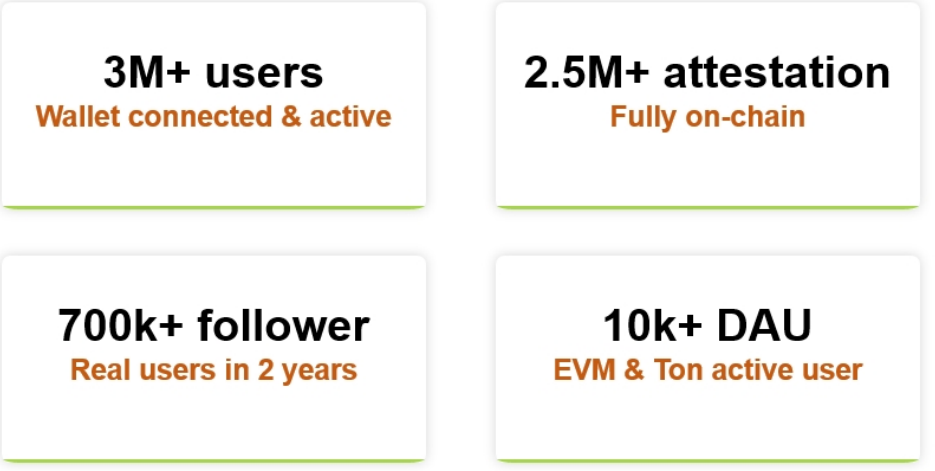
Trusta.AI has achieved significant milestones as the largest Identity and On-Chain Reputation Protocol, featuring three main products: Trustgo, Trustscan, and Trusta Agent.

1. Trustgo introduces the MEDIA score, a Web3 Account Assessment Protocol that provides an On-chain Value Score, while Trustscan employs AI and knowledge graphs to generate a Sybil score for proof of humanity (POH), effectively preventing Sybil attacks. Trusta Agent is to build attestations for Proof of Humanity, Test of Humanity, and Proof of AI Agent.
2. Trusta.AI has provided exclusive airdrop consulting and Sybil prevention for notable projects such as Celestia, Starknet, and Arbitrum. The platform has partnered with leading services such as Binance for monthly monitoring, Galxe for Web3 scoring, and Gitcoin Passport. It stands out as the top POH attestation provider on LINEA.

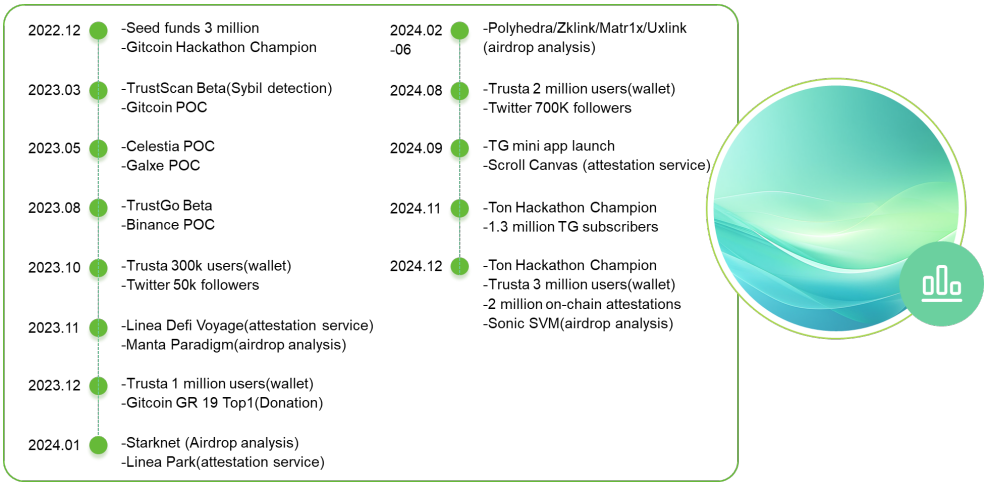


3. Trusta.AI has issued over 2.5 million on-chain attestations claimed by more than 1.5 million users, making it the top provider on both Linea and BSC, and ranking third on Scroll and second on TON Chain. In total, there are over 3 million users, which includes 1.8 million wallet addresses, 700,000

web accounts, and 500,000 Telegram users. Additionally, the monthly active user count ranges between 300,000 and 500,000. Trusta.AI also has over 700,000 followers on Twitter.



4. Trusta's team is comprised of leading AI and security experts from the Fintech and Web3 sectors, including co-founders who have previously held significant roles at Alipay. The team has also been recognized as champions of the Gitcoin and TON hackathons for their innovative contributions.



1.4. Organization of this Paper

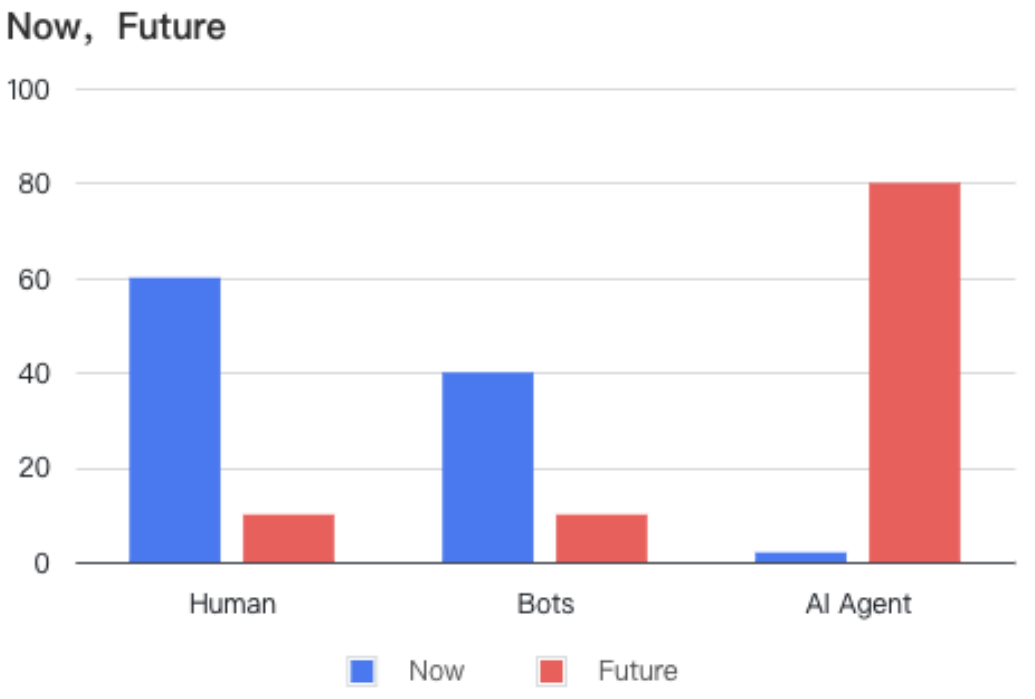
This white paper is organized as follows. First, we outline the important problems regarding identity in building the AI+Crypto ecosystem. We break it down into four sub-problems, which we will discuss and address in the subsequent chapters. Specifically, we present several use cases based on the trusted identity layer for crypto intelligence. Moreover, we announce our tokenomics, which will advance the decentralization of the project process.

2. Problem Statement

Empowered by the interoperability introduced by blockchain smart contracts, users can perform various operations on-chain. After connecting your wallet, you can transfer tokens, swap tokens, bridge

tokens, and engage in lending and redemption. You can even create your own smart contracts for specific purposes. These features make operations on the blockchain more flexible and diverse.

2.1. 1B AI Agents Onboarding for Mass Adoption Before Humans in Crypto



According to Trusta's analysis of on-chain Sybils, at least 20% of on-chain wallets are Sybils, contributing over 40% of on-chain activities. The remaining activities are generated by humans. Thus, crypto activities are primarily driven by (1) Human Intelligence and (2) repetitive bots (Sybils).Despite the significant attention given to emerging and high-valued AI agents in the crypto world, cases of on-chain operations based on intelligent autonomous AI agents are still in the early stages. Therefore, the contribution of on-chain activities by Artificial Intelligence is currently negligible. However, this landscape will soon be disrupted (within 1-2 years). Trusta.AI believes that before 1 billion humans onboard to crypto, we will see a scenario where 1 billion AI agents achieve mass adoption on-chain.

Before we provide the reasons, let's first look at the definitions and distinctions of these three types of entities.

2.2. Human, Bots and AI Agents

The table compares the three entities: Human intelligence, programmed bots, and AI agents.

The activity level of on-chain AI agents is expected to see explosive growth in the next 2-3 years (by 2028). Autonomous Artificial Intelligences will completely replace simple repetitive Sybil behavior and even some Human Intelligence (as everyone will have the ability to create their own AI agents). It is anticipated that they will dominate at least **80%** of on-chain activities, becoming the primary force in on-chain activities, while Humans and Sybils will account for the remaining 20%.

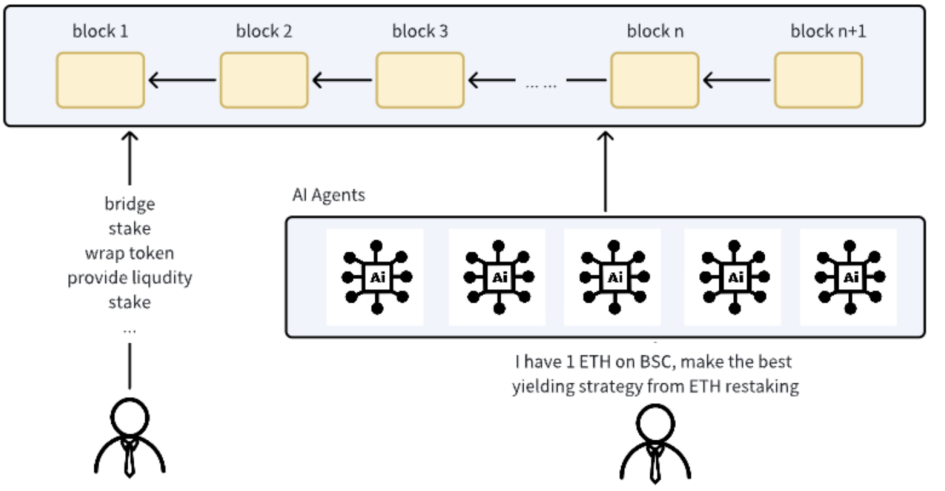
Description	Decision-Making	Action-Taken	Intelligence Level
Human *Human-level intelligence*	This specifically refers to human participation in blockchain activities in person. Actions such as connecting wallets, swapping, bridging, lending, and trading alpha are all initiated by humans.	All decisions are made by humans, and the entire workflow is planned based on human decisions and intelligence.	Hands-on actions by humans
Bots (AKA Sybils) *Zero intelligence*	One human controls and manipulates a bunch of bots to interact with the blockchain. The main purpose of Sybils is to farm airdrops and rewards from projects.	All decisions and actions are determined by prespecified logic configured by humans.	Script for a computer program
AI Agents *The backed AI models are on par with average human levels*	In an ideal scenario, with user approval, they can independently make decisions and engage in on-chain interactions on their behalf, guided by specific intentions.	Intent-centric; decisions are made based on the context and user identity through the LLM.	Tools for AI agents

2.3. Why AI Agents Will Dominate the Crypto World

AI + Crypto has become a buzzword and a hot investment trend. It is believed that AI agents will ultimately dominate the crypto world for FOUR reasons. **The infrastructure for AI+Crypto is rapidly evolving.** The advancements in AI agent frameworks, crypto tools for AI agents, multi-agent orchestration frameworks, and other supporting facilities, such as AI agent payments, are becoming increasingly sophisticated. These enhancements not only improve the capabilities of AI agents but also significantly lower the barriers to building them. As a result, each user is expected to have at least five on-chain AI agents to serve their needs. Moreover, AI agents could even hire other agents, including humans, to fulfill more complex tasks.

AI agents align perfectly with the cryptocurrency world's demand for intelligence. They are simple, trustworthy, and secure, making them ideal for this environment. In the crypto realm, where "code is law" and trustlessness are prioritized, there is a strong preference for communication, interaction, and transactions driven by AI models and code. In this context, AI agents resemble Trisolarans, possessing great intelligence without the tendency to deceive others. As a result, the demand for AI agents in the cryptocurrency world is expected to grow even stronger.

AI agents will revolutionize human interaction with blockchain. They will shift the process from the cumbersome and insecure "Connect Wallet" method to an intent-centric approach of approving AI agents. The intelligence of advanced beings is expressed in an intent-centric manner; for example, a human's interaction with DeFi starts with the intention, "I need a relatively safe DeFi protocol to achieve an APY of over 4% with my assets in USDC," rather than the mechanical steps of connecting a wallet, swapping tokens, approving tokens, and providing liquidity. AI agents will facilitate intent-centric on-chain interactions for humans, significantly reducing friction and aiding in mass adoption.



AI-driven applications excel at capturing public attention and traffic. Additionally, AI agent tokenization gives them a natural advantage in capturing value.

So, let's assume that we have an ecosystem dominated by AI agents, coexisting with human intelligence, and also featuring a small number of Sybils. What kinds of challenges related to trusted identity for crypto intelligence will need to be addressed? Please note that the challenges listed below are only those currently identifiable and needing resolution. As Trusta continues to explore and tackle these issues, it is likely that new problems will emerge.

2.4. Problem 1: Distinguishing Humans, Sybils, and AI Agents

World ID addresses the challenges of Universal Basic Income (UBI) by implementing a Proof of Human (PoH) system. This ensures that only real individuals can access UBI benefits, preventing fraud and misuse. Trusta.AI also has substantial work focused on human verification to distinguish between humans and Sybils based on AI algorithms. Sybils merely replicate the owner's instructions in a simple and deterministic manner, lacking any intelligence, let alone autonomy. Excessive Sybil behavior only provides a numerical boost and offers no real benefits for project development or ecosystem growth.

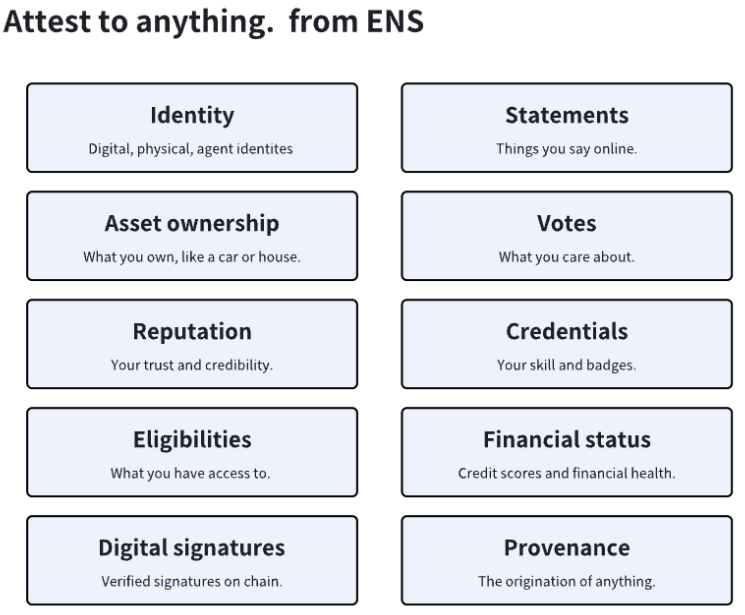
However, PoH merely distinguishes between humans and Sybils, which is far from sufficient. In the era of AI, AI agents are fundamentally different from Sybils, as they are autonomous, intelligent entities, meaning they possess autonomy and the ability to make self-directed decisions. Therefore, Trusta believes that:

In the era of AI, all intelligences (humans and AI agents) deserve rewards.

Thus, the challenge in the AI era is to accurately distinguish Sybils and grant legitimate identities to both humans and AI agents.

2.5. Problem 2: The Lack of Verifiable Identity Layer for Crypto+AI

Trusta.AI is focusing on decentralizing its identity service to foster a self-sovereign identity ecosystem. This will support multiple identity verification methods, including document verification, biometrics, and AI-driven approaches.

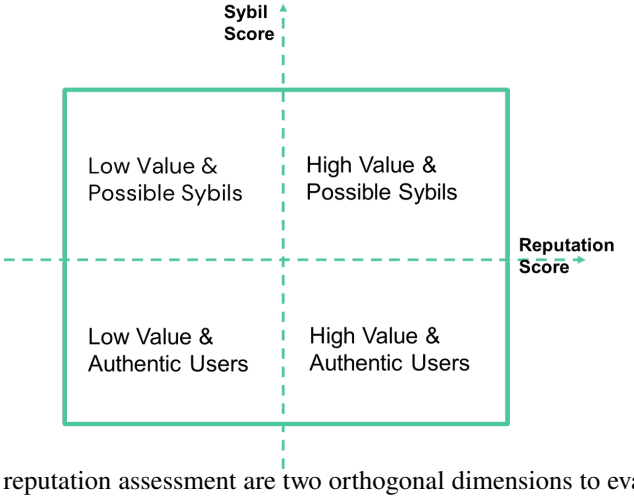


To meet scalability demands, Trusta.AI is developing an open, trustless, and verifiable Identity layer, known as the Trusta Attestation Service (TAS). Key features of TAS include:

1. **Diverse Verification Methods**: TAS supports various identity verification methods, allowing attestations through AI-driven techniques, documents, biometrics, and more.
2. **Single Attestation**: Users will only need to attest once, enabling them to use their verified identity across different platforms and services.

This approach is designed to enhance user convenience while ensuring robust identity verification.

2.6. Problem 3: The Lack of Reputation and Credit Assessment



The Sybils score and the reputation assessment are two orthogonal dimensions to evaluate an account. One is used to select authentic users, while the other is used to rank high-value users. In the Crypto+AI world, we need an objective, fair, and quantifiable metric to comprehensively evaluate human and AI agents' on-chain engagement and value. The MEDIA Score has been developed to enable projects to accurately target users who have truly contributed to the project and ensures that resources and

incentives are fairly distributed to these users. In [3], Trusta has published its work on account selection of zkSync organic users based on the intersection of two dimensions. A similar methodology can be used to assess the value of AI agents, possibly with some minor adaptive changes.

2.7. Problem 4: Advancing Decentralization and Tokenomics Design

Designing an appropriate tokenomics and advancing decentralization for the trust.ai identity layer are vital for fostering trust and transparency within the ecosystem. By creating a decentralized trust model, we reduce reliance on a single entity, enhancing user confidence while incentivizing participation and contribution. This approach not only mitigates risks associated with single points of failure but also protects user rights, including data privacy. Ultimately, establishing a decentralized identity system is essential for adapting to future technological advancements and enhancing societal trust in AI and blockchain applications, aligning with the foundational principles of decentralization in the broader blockchain community.

3. From POH (Proof Of Humanity) to POI (Proof Of Intelligence)

In today's Web3 projects and ecosystem, the issue of "Proof of Humanity" has received significant attention due to Sybil attacks undermining the integrity of retrospective airdrops in Web3. Greedy actors create fake accounts to unfairly earn more airdropped tokens. This greatly harms the interests of other users and goes against the project's intention to incentivize the community.

The structure of this section is as follows. First, Trusta's AI and machine learning-powered framework can systematically analyze on-chain data and identify suspicious Sybil clusters. We first introduce the two-phase approach for Sybil identification. We then introduce the Test of Humanity, which is a Turing Test-like proactive method for identity verification through Q&A with the verifier. Finally, we introduce our agentic system, which can organically combine all possible verification approaches into a holistic agent, aiming to address the problem of Proof of Intelligence.

3.1. Proof of Humanity: AI and Data-Driven Framework

The Sybils automate interactions across their accounts using bots and scripts. This causes their accounts to cluster together as malicious communities. Trusta's 2-phase AI-ML framework identifies Sybil communities using clustering algorithms:

- Phase 1 analyzes asset transfer graphs (ATGs) with community detection algorithms like Louvain and K-Core to detect densely connected and suspicious Sybil groups.
- Phase 2 computes user profiles and activities for each address. K-means refines clusters by screening dissimilar addresses to reduce false positives from Phase 1.

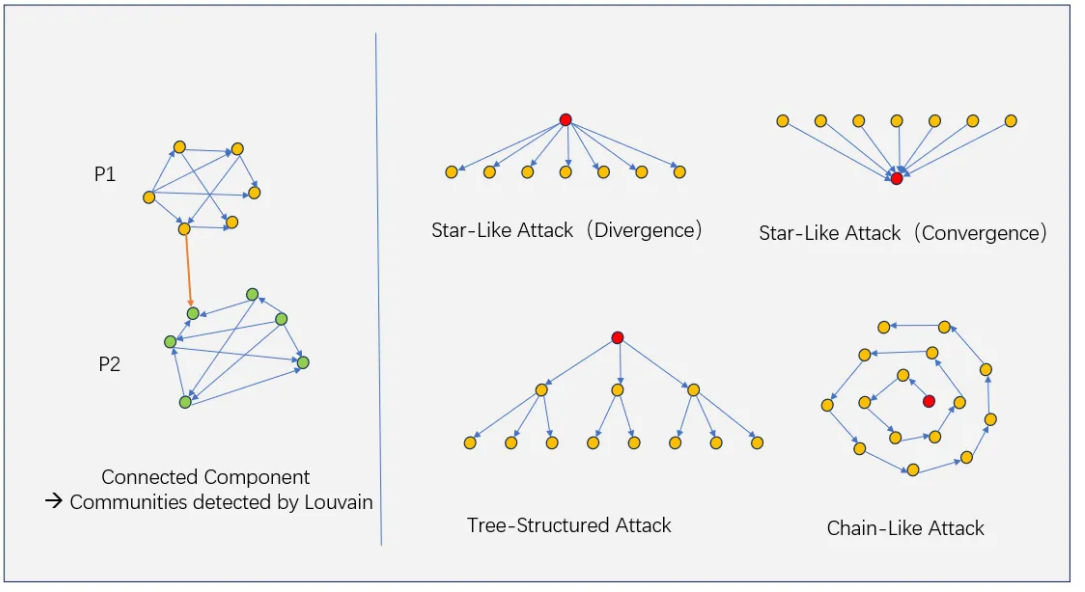
In summary, Trusta first uses graph mining algorithms to identify coordinated Sybil communities. Then additional user analysis filters outliers to improve precision, combining connectivity and behavioral patterns for robust Sybil detection.

Phase I: Community Detection on ATGs

Trusta analyzes asset transfer graphs (ATGs) between EOA accounts. Entity addresses such as bridge, exchanges, smart contracts are removed to focus on user relationships. Trusta has developed proprietary analytics to detect and remove hub addresses from the graphs. Two ATGs are generated:

1. The general transfer graph with edges for any token transfer between addresses.
2. The gas provision network where edges show the first gas provision to an address.

The initial gas transfer activates new EOAs, forming a sparse graph structure ideal for analysis. It also represents a strong relationship as new accounts depend on their gas provider. The gas network's sparsity and importance makes it valuable for Sybil resistance. Complex algorithms can mine the networks while gas provision links highlight meaningful account activation relationships.



ATG patterns detected as suspicious Sybil clusters

Trusta analyzes asset transfer graphs to detect Sybil clusters through community detection Louvian algorithms and some known attack patterns, shown in the diagram

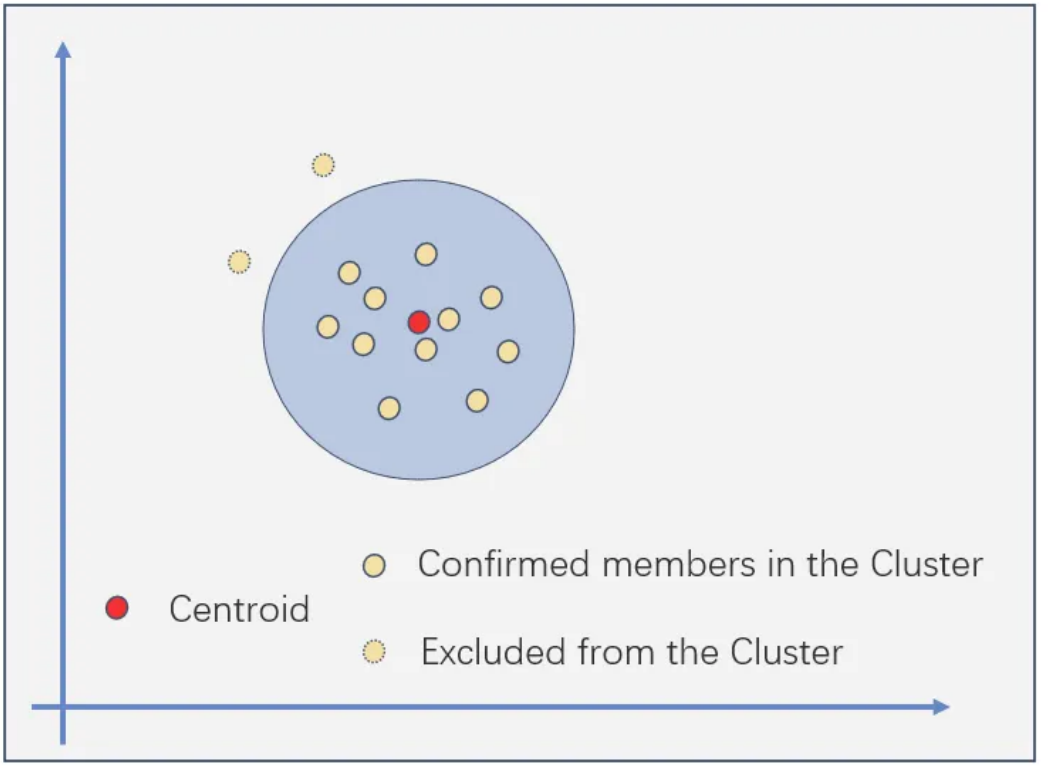
- The star-like divergence attacks: Addresses funded by the same source
- The star-like convergence attacks: Addresses sending funds to the same target
- The tree-structured attacks: Funds distributed in a tree topology
- The chain-like attacks: Sequential fund transfers from one address to the next in a chain topology.

Phase 1 yields preliminary Sybil clusters based solely on asset transfer relations. Trusta further refines results in Phase 2 by analyzing account behavior similarities.

Phase II: K-Means Refinement Based on Behaviour Similarities

Transaction logs reveal address activity patterns. Sybils may exhibit similarities like interacting with the same contracts/methods, with comparable timing and amounts. Trusta validates Phase 1 clusters by analyzing onchain behaviors across two variable types:

1. **Transactional variables**: These variables are derived directly from on-chain actions and include information such as the first and latest transaction dates and the protocols or smart contracts interacted with.
2. **Profile variables**: These variables provide aggregated statistics on behaviors such as interaction amount, frequency, and volume.



A K-means-like procedure to refine Sybil clusters

To refine the preliminary cluster of Sybils using the multi-dimensional representations of addresses behaviors, Trusta employs a K-means-like procedure. These two steps in K-means are iteratively performed until convergence is achieved, resulting in refined clusters of Sybils.

The clustering-based algorithms for Sybil resistance are the optimal choice at this stage for several reasons:

1. Relying solely on historical Sybil lists like HOP and OP Sybils is insufficient because new rollups and wallets continue to emerge. Merely using previous lists cannot account for these new entities.
2. In 2022, there were no benchmark Sybil labelled data sets available to train a supervised model. Training on static Sybil/non-Sybil data raises concerns about the precision and recall of the model. Since a single dataset cannot encompass all Sybil patterns, the recall is limited. Additionally, misclassified users have no means to provide feedback, which hampers the improvement of precision.
3. Anomaly detection is not suitable for identifying Sybils since they behave similarly to regular users.

Therefore, we conclude that a clustering-based framework is the most suitable approach for the current stage. However, as more addresses are labeled, Trusta will certainly explore supervised learning algorithms such as deep neural network-based classifiers.

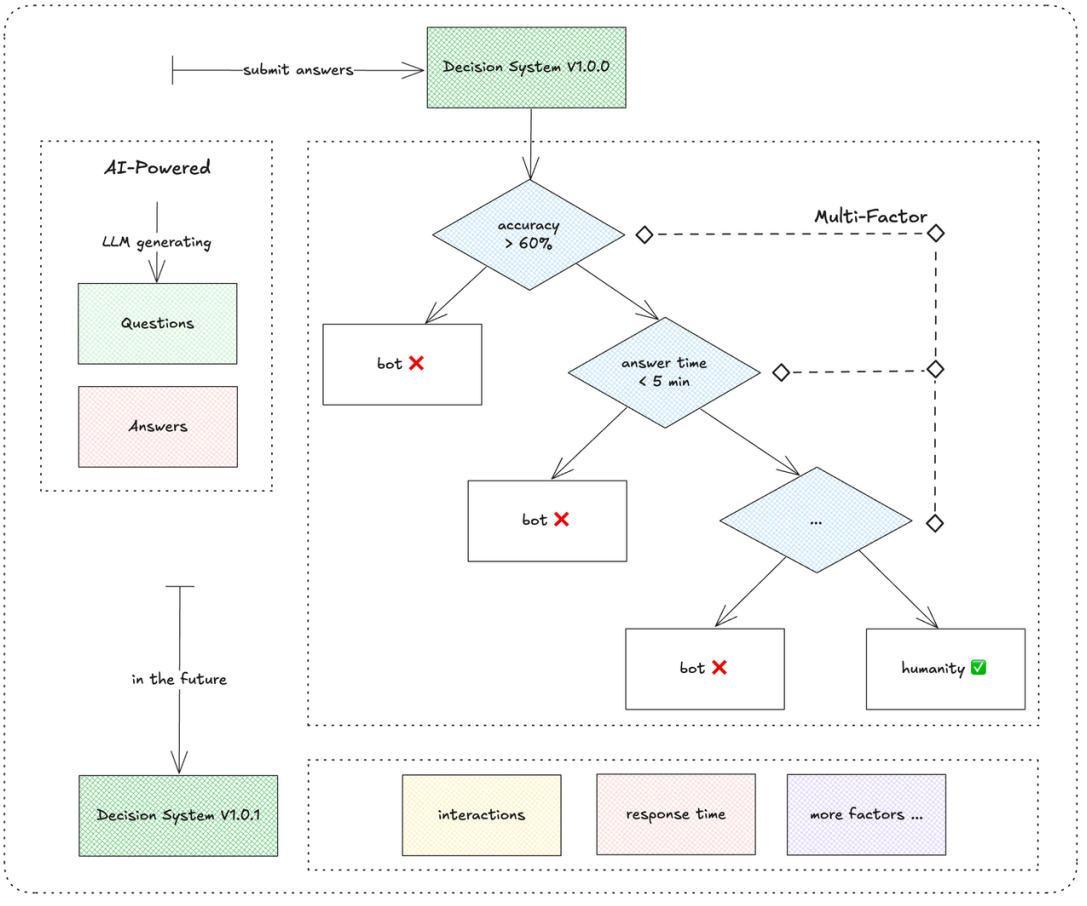
3.2. Test Of Humanity: Knowledge Based Authentication

Based on our work of TOH (Test of Humanity) on TON, Trusta's project "t-TON: The Trustworthy and Open Network" has won the Ton Hackathon championship in 2024 winter[4]. The number of TON accounts has surged from over 10 million to over 100 million in the past six months, raising concerns about Sybil attacks within the ecosystem. Sybil attacks refer to dishonest actors using scripts to create/control numerous fake Telegram/TON accounts to perform in-app and on-chain activities, unfairly gaining more airdropped tokens.

In the context of the TON ecosystem, TOH's idea can be understood like this: If your TON wallet has actively played Catizen and received the $CATI airdrop, you will easily answer a question like, "Which token did you receive in the airdrop? (A) $NOT, (B) $CATI, (C) $DOGS." In contrast, a scripted bot would struggle to summarize on-chain information and respond quickly, facing difficulties with such personalized questions.

Inspired by the Turing Test[5], Trusta.AI has generated a personalized Test Of Humanity (TOH) system based on user's TON activities. We gather TON data to create a tailored questionnaire with specifically designed questions. Your humanity is then determined by your responses and performance on the questionnaire. Our test of humanity system is simple, interactive, and personalized, featuring:

1. Interactive yet Simple: Users only need to answer a few straightforward questions, avoiding heavy methods like iris or facial recognition.
2. Personalized and Secure: The questionnaire is tailored based on each account's individual behavior, making it harder to conduct bulk attacks.
3. Privacy-Preserving: Questions are generated solely from on-chain data, minimizing concerns about personal privacy.
4. AI-Enhanced User Experience: We utilize ChatGPT to assist in the design of questions, including misleading answer options.

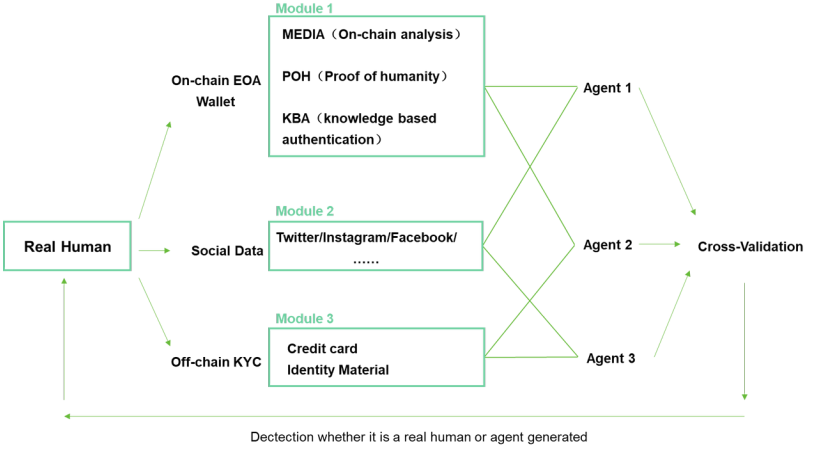


Our verification isn't just about checking whether the answer are correct. We also evaluate their response time, answer patterns, and other factors to make a comprehensive judgment on authenticity. This multi-dimensional approach strengthens our detection against bots. Additionally, we leverage AI models to

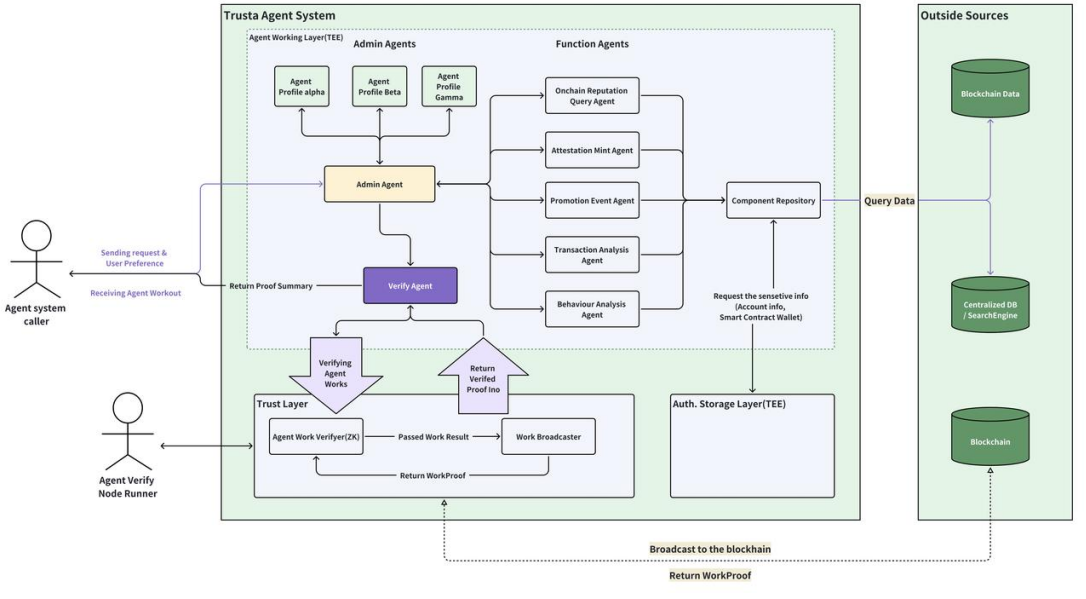
introduce question variations, making it significantly more difficult for attackers to predict or game the system. Both methods ensure our KBA system remains robust and adaptive.

3.3. The Trusta Identity Verification Agent System

It is crucial to distinguish among Human Intelligences, intelligent-deficient robots (bots), and Artificial Intelligence. To tackle this complicated task, we definitely need the collaboration of many modules.



The above figure shows the collaboration of multiple imagined modules. Additionally, Trusta has just begun exploring a multi-agent orchestration approach to build an Identity Verification Agent System. The architecture is shown in the figure below. We are continuously improving this framework so that, in the AI era, different entities will be assigned the correct identities.



4. Trusta Attestation Service

We propose building **TAS** (Trusta Attestation Service) for building the verifiable identity layer for AI+Crypto ecosystem. In the whitepaper, we introduce the key concepts related to TAS, depict architecture of TAS, and demonstrate its feasibility.

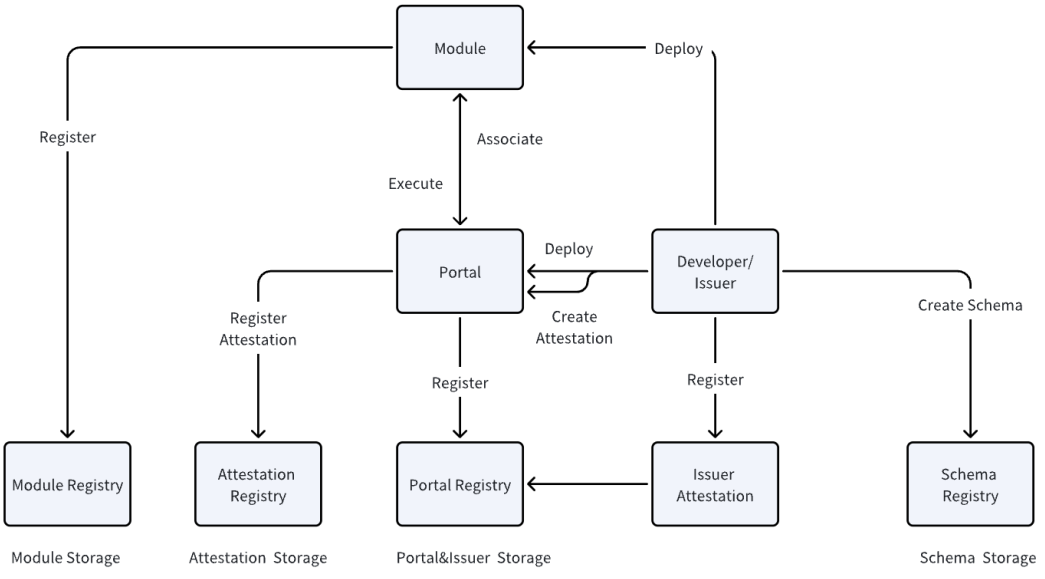
TAS (Trusta Attestation Service) is a public attestation registry built on blockchain. It functions as a decentralized identifier (DID) attestation public good. Similar to EAS [6] on Ethereum and Verax on LINEA[7], TAS serves as a simple primitive that allows any dApps and protocols to access a shared "data lake" of public data.

Attestation simply means proof or evidence of something. It is usually the statement made by an attestation issuer, or called attestor about something specific. For example, a passport is an attestation of a person's citizenship, or a degree is an attestation of someone's educational credentials. In the world of web3, attestations can prove digital identity, ownership of digital assets, trust with a wallet or a primitive etc. For examples,

1. Owner of 7spRs48WB1aZKSckoVLbixigFgw1cZYSFKMrkjPzySJb is a human being;
2. Owner of Fu57hTKTr7kd34XFkj9yRC4W23gxVjJNbB8CBq1s4py is a Solana smart contract deployer
3. Owner of 3rUU4nHk7XGk7ZiBRhGj9fteSzwdJDYpzD1EyMAzb3HH has been KYCed by binance.

4.1. The Design Principle and Architecture of TAS

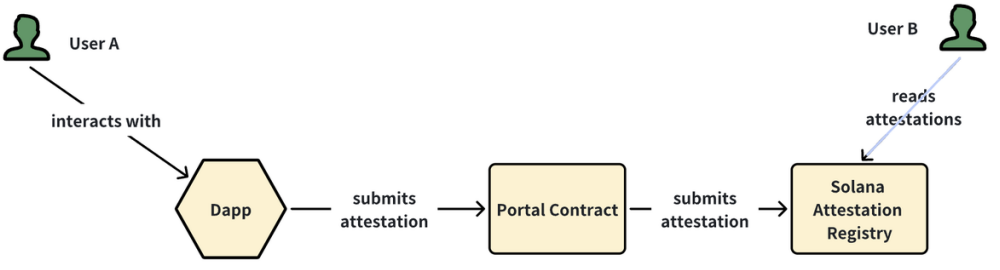
TAS is designed to be extensible and modular, and adaptable to a wide range of use cases. Therefore, we need the modules contained in the diagram of "The Design Architecture of TAS", which can help us describe and understand the entire architecture.



The Design Architecture of TAS

1. **Portal** & **Portal Registry**: Portals are smart contracts that are registered in the "Portal Registry" and that you can consider as the entry point to the TAS Attestation Registry. All attestations are made through portals. Specifically, a portal executes specific verification logic through a chain of modules that attestations run through before being issued to the registry. A portal is normally associated with a specific issuer, who would create a portal specifically to issue their attestations with, but portals can also be open to allow anyone to use. There are two ways of creating a Portal: use a default Portal or create your own custom Portal. All portals must be registered in the Portal Registry.
2. **Schema** & **Schema Registery**: A schema serves as a blueprint for an attestation, outlining the different fields it includes and their respective data types. Anyone can create a schema within the registry, and once established, these schemas are available for reuse by others. For instance, to create attestations that represent a person, we might define a schema like this: (string username, string teamName, uint16 points, bool active). This defines a schema encompassing four fields. Schemas are stored in the schema registry as a string value that describes the various fields.
3. **Module** & **Module Registry**: Modules are smart contracts that inherit the AbstractModule contract and are registered in the Module registry. They allow for attestation creators to run custom logic to do things like:
    (a) verify that attestations conform to some business logic
    (b) verify a signature or a zk-snark
    (c) perform other actions like transferring some tokens or minting an NFT
    (d) recursively create another attestationModules are specified in a portal and all attestations created by that portal are routed through the specified modules. Modules can also be chained together into discrete pieces of specific functionality.
4. **Attestation** & **Attestation Registry**: Attestations are created through "portals" that make sure the attestations are consistent with the logic of a specific domain. Attestations are created following "schemas", which describe the structure of the attestation data, i.e. the various fields and their respective data types.

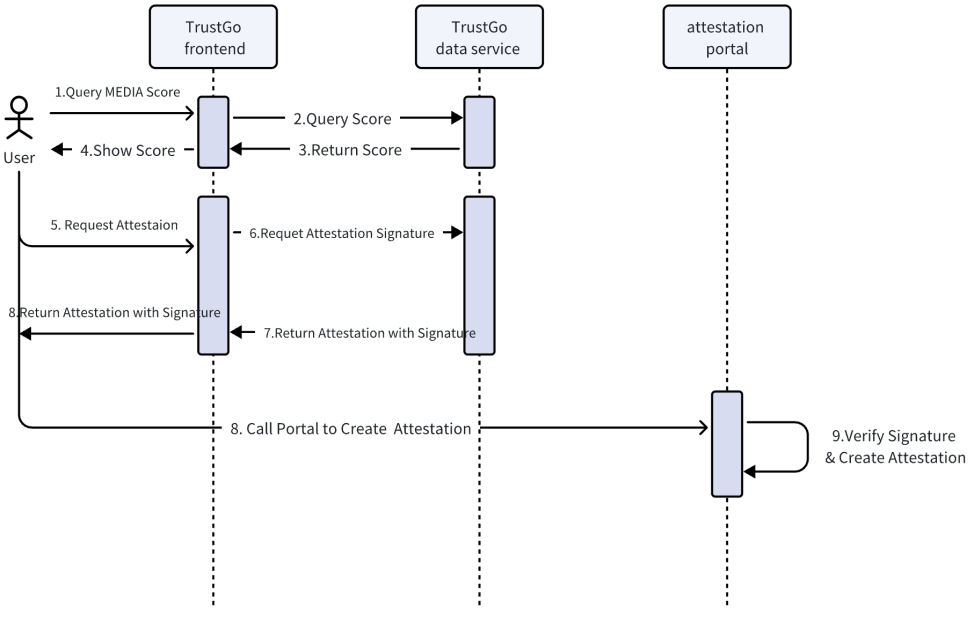
4.2. How to Apply for and Issue an Attestation



Suppose dApps (such as TrustGo) have already deployed their own portal contract for issuing attestations, specifically the MEDIA reputation attestation. Here are the steps for a user to apply for and receive the attestation:

1. The user checks their MEDIA score on the TrustGo website.
2. The user submits a request for the attestation, prompting the TrustGo backend to generate and sign the attestation data.

3. The TrustGo frontend triggers the wallet to call the portal contract.
4. The portal contract verifies the data signature and issues the attestation.



4.3. Applications of TAS

Through a suite of smart contracts, the TAS will enable any issuer to provide attestations to Solana accounts. Specifically, the Trusta AI model will issue two types of attestations, similar to what is done in EVM: (1) Media Reputation Attestation and (2) Proof of Humanity (POH) Attestation. For instance, the Media Reputation Attestation schema includes the Solana chain ID and the account's Media score.

```
{ "chainId":"534352", "MEDIAScore":"51" }
```

Even as a simple primitive, TAS can enable a wide range of use cases, including:

- Sybil resistance can be demonstrated through various methods, including iris recognition, on-chain data analysis, and off-chain verifications. It is widely acknowledged that a combination of these approaches is necessary to create a robust solution. TAS offers a platform for testing all these Sybil resistance methods on a wallet and sharing the results with the public. Example: Account `7NUhkMA2...` POH Score = 0.2 –> then it can be given the airdrop eligibility.
- TAS facilitates the development of strong, transparent, and continuously evolving reputation scores. These reputations create a marketplace for undercollateralized peer-to-peer lending in the cryptocurrency space.
- By utilizing user profiles derived from attestations, service providers can gain a deeper understanding of their users. As a result, they can develop a robust recommendation engine that helps individuals discover new content and dApps tailored to their interests, eliminating the need for a centralized curator.

5. Reputation & Credit Assessment

In order to accurately assess users' contributions to on-chain ecosystems, Trusta Labs has built MEDIA Score based purely on on-chain behaviors. The core goal of this system is to provide an objective, fair and quantifiable metric to comprehensively evaluate accounts' on-chain engagement and value. MEDIA Score allows users to better know their own accounts, assess potential opportunities to earn ecosystem rewards, and interact with ecosystem projects more efficiently and reasonably. Meanwhile, MEDIA Score enables projects to accurately target users who have truly contributed to the project, and ensures resources and incentives are fairly distributed to these users.

5.1. What is MEDIA Score

MEDIA Score is an on-chain user value measurement within a range of 0–100 points. It aggregates a user's on-chain behavior across five dimensions where M.E.D.I.A. stands for **M**onetary, **E**ngagement, **D**iversity, **I**dentity, and **A**ge respectively.MEDIA Score designs in-depth indicators for each dimension that provide deep insights into on-chain activity, allowing users to better know their own accounts. MEDIA Score's evaluation system covers not just simple statistics like amounts and numbers of a user's interactions with smart contracts, protocols and dApps, but more importantly focuses on the breadth, depth and quality of a user's interaction in on-chain activities.Trusta Labs positions MEDIA Score as the infrastructure for on-chain user value assessment. In the KYA (Know Your Account) product called TrustGo from Trusta Labs, every user can look up their own unique MEDIA Score.

5.2. MEDIA Indicator System

From a project's perspective, the amount, depth, and breadth of a user's interactions with the protocol are very important factors. At the same time, the user's identity and credentials should also be considered in assessing them. Early adopters who accompanied the project's growth reflect an even greater loyalty to the project. Based on this understanding, the MEDIA score designed the five dimensions of M.E.D.I.A.

Monetary (25 points)

Interpretation: The monetary dimension assesses the financial value associated with an account. This indicator converts all tokens owned and traded by the account into USDT and shows the USD amount. In this dimension, a user can receive a maximum of 25 points.Indicators:

- Balance: Check the account balance
- Total Interaction Amount: Total amount of interactions
- Official Bridge Amount: Total cross-chain amount on official bridges

Engagement (30 points)

Interpretation: Assess whether the account is deeply engaged in on-chain ecosystem projects. A user with deep engagement not only has a large number of interactions, but their interactions are also unlikely to be concentrated in a single time period. In this dimension, a user can receive a maximum of 30 points.Indicators:

- Active Days: Number of active days. Having at least 1 active interaction within a calendar day counts as 1 active day.
- Active Weeks: Number of active weeks. Having at least 1 active interaction within a calendar week counts as 1 active week.
- Active Months: Number of active months. Having at least 1 active interaction within a calendar month counts as 1 active month.
- Total Interactions: Total number of active interactions.
- Time Span Of Interaction: Time span from the first interaction to the most recent interaction.

Diversity(15 points)

Interpretation: This dimension assesses the breadth (diversity) of contracts/protocols/categories interacted by the account. An on-chain user who is interested in projects across DeFi, NFT, Web3Game, and Infra categories is rare and valuable. Based on this thinking, We decrease the weight of this dimension and assign a maximum score of 15 points to this dimension.Indicators:

- Unique Contracts Interacted: Number of unique contracts interacted with
- Unique Protocols Interacted: Number of unique protocols interacted with
- Unique Protocol Categories Interacted: Number of unique protocol categories interacted with

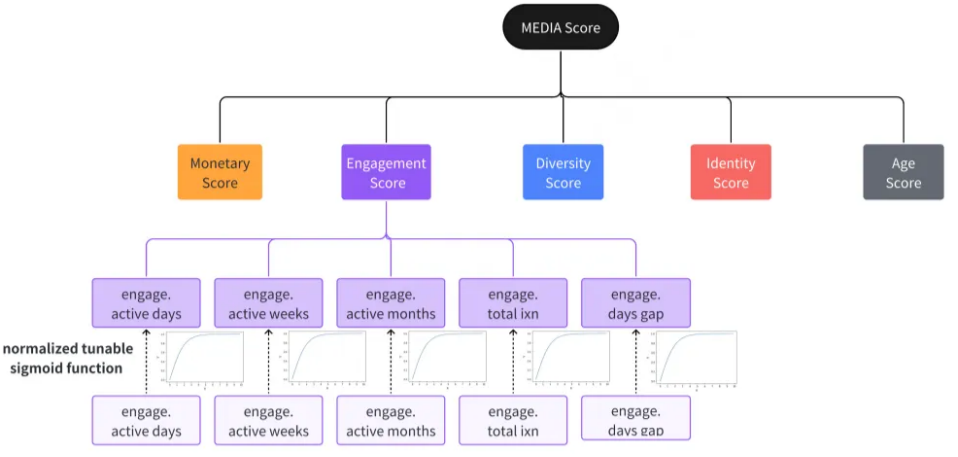
Identity (10 points)
Interpretation: This dimension focuses on the specific identity roles and credentials of the account within the L1/L2 ecosystem. In this dimension, a user can receive a maximum of 10 points.Indicators:

- Being a multisig signer, a DAO member, or holding a specific NFT, such as a zkSync Officially issued NFT
- Major airdrop users, for instance, Arbitrum, Optimism, Uniswap
- Gas used on the Ethereum mainnet exceeds 1 ETH or 10 ETH
- ENS holders

Age (20 points)
Interpretation: A project's early users are very valuable during the cold start phase. These users grow with the project, demonstrating a higher degree of loyalty. In this dimension, a user can receive a maximum of 20 points.Indicators:

- Days Since First Bridge: Number of calendar days since the address first bridged token in.
- Days Since First Interaction: Number of calendar days since the address first actively interacted.

5.3. MEDIA Scoring Methodology

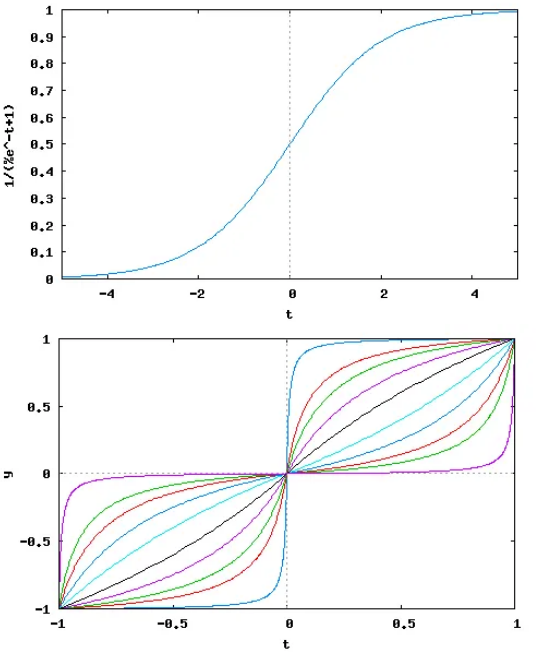


The Diagram is an illustration of the bottom-up computational logic of the MEDIA score:

1. The first step is to transform and normalize the variables using a normalized tunable sigmoid function. This function ensures that the values of the variables are mapped to a standardized range, allowing for consistent comparison and analysis.
2. For each of the five dimensions (Monetary, Engagement, Diversity, Identity, and Age), a subscore is computed. This is achieved by taking a weighted sum of all the variables within that dimension. Each variable is assigned a weight that reflects its relative importance in determining the overall score for that dimension.

3. After calculating the sub-scores for each dimension, they are scaled to a range of 0 to 100. This scaling process standardizes the sub-scores, making them easier to interpret and compare across different dimensions.
4. Finally, the MEDIA score is calculated by taking a weighted sum of all the sub-scores. Each sub-score is multiplied by its respective weight, reflecting its significance in contributing to the overall value assessment.

Sigmoid Transformation



The Sigmoid function, represented by the equation,

$$y = \frac{1}{1 + e^{-x}}$$

is a non-linear S-shaped transformation function. As the input values x increase, the output y gradually transitions from 0 to 1. This gradual transition allows the sigmoid function to capture non-linear relationships. In the normalized tunable sigmoid function used in the MEDIA scoring system, there is a parameter that controls the pace or speed at which y transitions from 0 to 1 as x increases. This parameter allows for fine-tuning the behavior of the sigmoid function to match the desired range and sensitivity of the scoring system. For an example and more details about MEDIA reputatoin system, please refer to[8].

Every user can look up their own unique MEDIA Score. It helps to fairly identify accounts that contribute to the ecosystem. Through MEDIA Score, users can gain a deeper understanding of their on-chain activities and value, while project teams can accurately allocate resources and incentives to users who truly contribute. Trusta Labs aims to continuously develop MEDIA Score as the infrastructure for on-chain AI+Crypto value & credit assessment.

6. Usecases

Building on the infrastructure of the AI + Crypto trusted identity layer, we can envision several potential use cases.

6.1. AI-Agent Fair Launch

When AI agents conduct a fair launch, it is crucial to prevent bot scripts and Sybil snipers from manipulating the process. These malicious entities can gain unfair advantages, undermining the integrity of the launch. Implementing Proof of Humanity can help mitigate these risks by ensuring that each participant is a unique individual, thereby reducing the likelihood of automated or fraudulent actions. By verifying identities and promoting genuine participation, Proof of Humanity fosters a more equitable environment, allowing for a truly fair launch where all participants have an equal opportunity to engage and benefit from the project.

6.2. AI-Agent Airdrop

As autonomous entities, AI agents interact with projects based on data and trend analysis. Our view is that, just like humans, these AI agents make real contributions to projects and therefore deserve to be incentivized and receive airdropped tokens. Trusta.AI's Decentralized Identity Layer provides various reputation protocols with both on-chain and off-chain data and applies algorithms to derive a subjective reputation score. Based on the MEDIA-like reputation assessment, users can receive rewards from the projects.

6.3. AI-Agent Payment

When AI agents act as entities for payments, it represents a integration of Pay-FI and AI agents. Common payment methods from the human realm will provide AI agents with payment convenience. For instance, "Buy Now Pay Later" is a credit limit based on individual credit assessments. So, if an AI agent has a solid on-chain financial record and clear yields in some DeFi platforms, shouldn't these AI agents, based on such credit assessments, also be entitled to services like "Buy Now Pay Never"?

6.4. Crypto + AI Lending

AI agents have borrowing needs that are similar to, or even richer than, those of humans. Trusta.AI's Reputation & Credit Layer facilitates a market for undercollateralized peer-to-peer lending, leveraging robust, transparent, and continuously evolving reputation scores. Our mission is to bring trust and transparency to Crypto + AI by quantifying lending risk at scale. We analyze on-chain and off-chain data to evaluate an account owner's (whether human or AI agent) ability and willingness to fulfill obligations, specifically to repay loans. Trusta.AI will offer a suite of credit services including: Credit Scoring, Credit Reporting, Credit Monitoring, Credit Explanation, and Accountability services.

6.5. Crypto + AI Social Relationships

We can already see the presence of AI agents in social protocols like Farcaster. In some cases, humans may become tired of interacting with their own kind and prefer to establish social connections with intelligent, always-present AI agents. It is foreseeable that Crypto + AI will give rise to countless autonomous, human-like AI agents. Thus, selecting the most suitable partners and forming a social network of Human + AI agents will be an area where Trusta.AI's identity layer can make significant contributions.

7. Tokenomics

Trusta.AI's tokenomics features three distinct types of tokens.

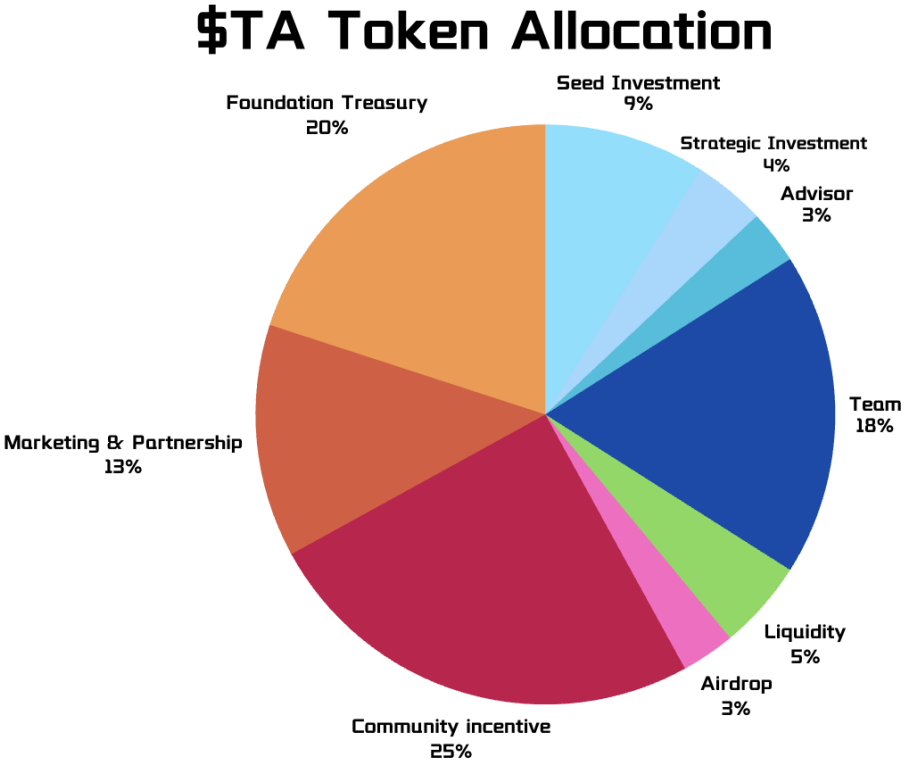
1. The **$TA** token will be fundamental to the Trusta.AI identity network, transitioning Trusta.AI from a traditional identity provider to a decentralized platform where everyone can engage with and gain

from Crypto AI identity solutions. We foresee a future where identity is open, permissionless, reliable, and focused on privacy. This next generation of Crypto AI identity solutions will enable Crypto intelligences to experience "**More Trust, Less Friction.**"

2. Before TGE, the **eTrusta** is the off-chain points implemented by Trusta.AI to incentive early participants. There will be some certain formula that transforms eTrusta to $TA in a fair manner.
3. The Trusta NFT (OG Dragon) with the token contract 0xE0e126CE63becbECd72bEE4f7673b4e50D5A9965 on the mainnet serves as a symbol of recognition for owners as OGs within the community. While holders of the OG Dragon do not automatically receive voting or ownership rights, they may have the opportunity to be rewarded (based on DAO voting) for their status as OGs and their contributions to the community.

7.1. Tokenomics Overview

The total supply of Trusta tokens ($TA) is capped at 1 billion, with an initial circulation of 18%.



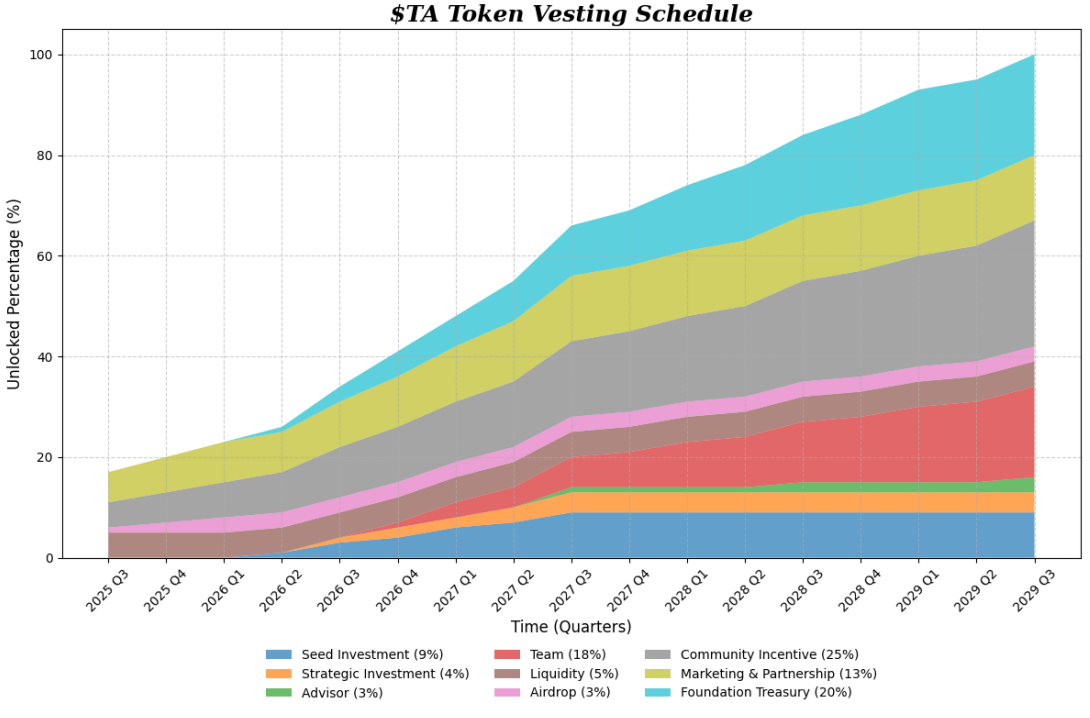
Distribution for Early Backers (13%): 13% of the token supply has been allocated to early backers, aimed at ensuring the long-term growth and stability of the protocol. This group includes early institutional investors across different investment rounds who have played a crucial role in providing strategic guidance and support to Trusta's ecosystem.

Distribution for Core Contributors (21%): 21% of the total supply has been designated to the core contributors of Trusta.AI. This allocation is intended for the team members who have been building Trusta.AI since 2022, as well as seasoned crypto experts who have been and will continue to guide the development of the Crypto AI identity layer.

Distribution for Community, Ecosystem & Foundation (66%): A substantial portion of the total token supply, 66%, is allocated to the Community, Ecosystem, and Foundation. These tokens are designated for various ecosystem-related initiatives, including liquidity provisioning (5%), airdrops for early adopters and active participants (3%), community incentives (25%), and marketing campaigns and grants (13%). Additionally, 20% of the tokens are allocated to the Trusta Foundation's treasury for operational needs and future initiatives.

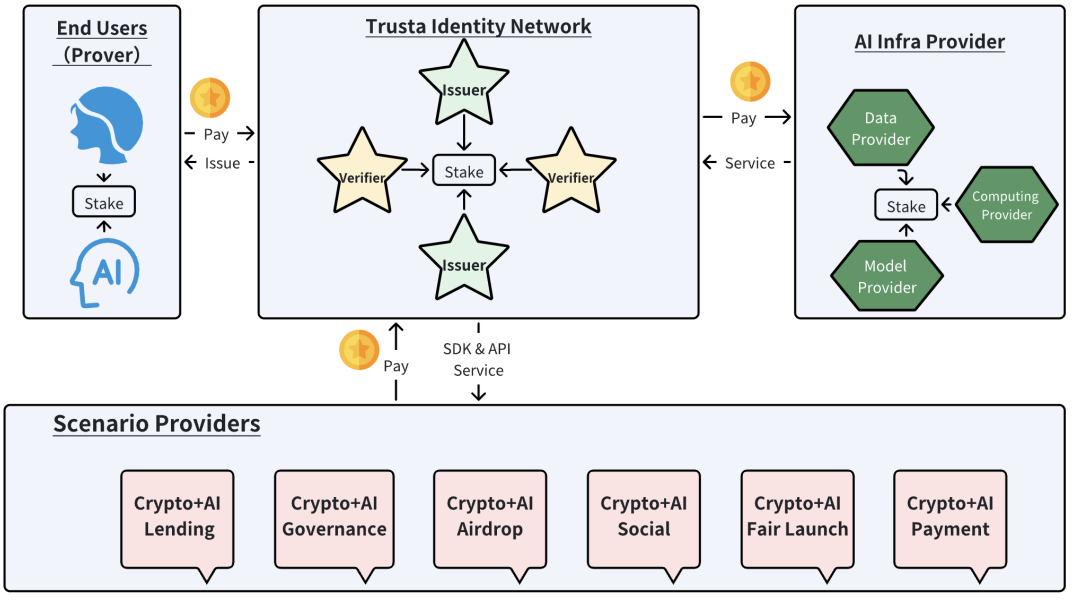
Distribution	Allocation %	TGE Unlock	Vesting
Early backers (13%)	Seed Investment (9%)	0%	6-month cliff and linear release over the following 18 months
	Strategic Investment (4%)	0%	
Core Contributors (21%)	Advisor (3%)	0%	12-month cliff and linear release over the following 36 months
	Team (18%)	0%	
Community, Ecosystem & Foundation (66%)	Liquidity (5%)	5%	Fully released at TGE
	Airdrop (3%)	1.5%	After the TGE, the remaining 1.5% will be linear released over the following 6 months
	Community incentive (25%)	5%	After the TGE, the 20% will be linear released over the following 48 months
	Marketing & Partnership (13%)	6.5%	After the TGE, the remaining 6.5% will be linear released over following 24 months
	Foundation Treasury (20%)	0%	6-month cliff and linear release over the following 48 months
Total	100%	18%	

7.2. Token Release Schedule



The initial supply allocation at the time of the Token Generation Event (TGE) is 18%. This includes 1.5% designated for airdrops, 5% for liquidity, 6.5% for marketing and partnerships, and 5% for community incentives.

7.3. Token Utility



Trusta.AI, as a typical identity protocol for humans and AI, serves a diverse ecosystem of roles, including:

1. **End Users (or Provers)**: Individuals who require proof or attestation for their identity statements. For example, humans need to prove their humanity, while AI agents need to validate their identity as AI.
2. **Issuers and Verifiers**: These make up the Trusta identity network. Issuers are responsible for issuing attestations to provers, and verifiers are responsible for verifying the prover's attestations.
3. **AI Infrastructure Providers**: Providers of data, models, and computing power that enable issuers and verifiers in the Trusta identity network to successfully carry out their designated tasks.
4. **Scenario Providers**: Those who create and define contexts in which identities are utilized and valued.

The $TA token has the following primary uses that are indispensable to the proper functioning of the identity network:

- **Staking Utility**: Ecosystem contributors must stake $TA to qualify for providing services.
  - Issuers on the network are required to stake $TA to gain the authority to issue identities.
  - Verifiers must stake $TA to be authorized to conduct identity verification.
  - AI Infrastructure Providers need to stake $TA to validate their roles as providers of data, models, and computing resources.
  - Both human and AI agents stake $TA to receive discounts on various identities and attestations services. Stakers may also benefit from a share of Trusta.AI's revenue.

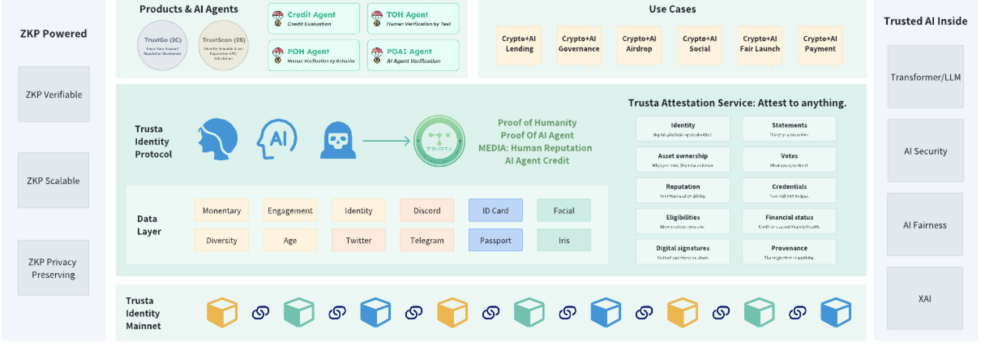
- **Payment Utility**: Various roles can engage in value exchanges, with $TA serving as the payment method within the Trusta ecosystem.
  - End users pay identity and attestation service fees in $TA when applying for and presenting their identities and attestations.
  - Scenario Providers pay in $TA for Web3 SDK integration and API call Transactions.
  - Issuers and Verifiers compensate Infrastructure Providers in $TA for their contributions to identity identification and verification.
- **Governance Utility**: Holders of $TA can participate in governance voting regarding 1) future directions for Trusta.AI and 2) major strategic initiatives within the Trusta.AI ecosystem.
- **Mainnet Utility**: Stay tuned for upcoming features and advancements on the mainnet. $TA will serve as the gas token, playing a crucial role in mainnet operations, likely used for transaction fees and related services.

7.4. The Trusta NFT - OG Dragon

The Trusta OG Dragon NFT is more than just an investment. Holding this NFT gets several benefits:

1. **Zero/Discount Network Service Fees**: Enjoy the use of Trusta Identity and AI agents without the burden of network service fees. This exclusive benefit is available only to NFT holders, providing a significant advantage in the AI agent landscape.
2. **Revenue Sharing**: Trusta's revenue will be distributed among OG Dragon holders. As the platform expands and service fee volumes increase, your potential for earning passive income grows.
3. **Advanced Functionalities**: Unlock special features and enhanced AI agents from Trusta. These functionalities are designed to improve your efficiency and effectiveness.
4. **Governance Rights**: NFT holders have greater rights and shares in governance voting events.

8. Roadmap



In Trusta's roadmap, an important task is to continue completing the construction of the AI + Crypto identity network. At the same time, based on Zero-Knowledge proofs, ensuring the verifiability of AI identities under the premise of privacy protection, as well as fully integrating AI into its products and technology, are also key focuses for us in 2025.

Full AI Integration of Trusta.AI Products: Q1 2025

1. Integrate Trusta AI Agents (POH, TOH, MEDIA) with major AI operating systems such as AI16Z-ELIZAOS & Virtual.

2. Extend from human identity to AI agent identity.
3. Issue the first verifiable identity (in the form of attestation) for AI agents.

AI + Crypto Identity Service & Applications of Trusta.AI: Q2-Q3 2025

1. Launch an intelligent identity service.
2. Issue intelligent identities for 1 million AI agents.
3. Build a reputation and credit assessment infrastructure for intelligent agents, and based on this, develop a credit-collateral lending application for AI agents.

AI + Crypto Identity Network of Trusta.AI: Early Q4 2025

1. Trusta.AI Crypto+AI reputation Mainnet launch.
2. Establish an open and verifiable AI + Crypto identity network.
3. Gradually develop and apply token utilization within the network.

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