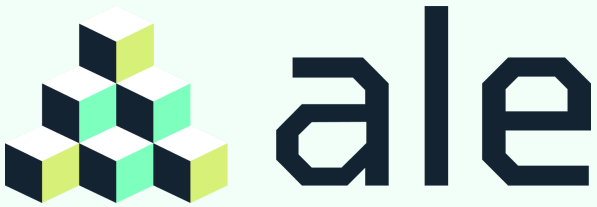

AI Learning Ecosystem (ALE)

White Paper 1.0

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Executive Summary

ALE is a blockchain-based project that brings together AI companies (and companies in other fields) that need human intelligence resources to label and categorize data, thereby training AI models, with people who are looking to perform micro-tasks such as categorizing the subject of a photo in return for compensation.

The ALE protocol uses crypto-incentives whereby participating end-users can earn the $ALE token for performing micro-tasks, while companies using the protocol use the $ALE token, in addition to other cryptocurrencies, to post and promote micro-tasks to the community of users. Moreover, a consensus logic is leveraged to protect the quality of the work performed by only rewarding micro-task performers once a certain number of others agree with their labeling, disincentivizing inaccurate work and improving the quality of the output data compared to traditional labeling methods.

ALE Communities are formed of micro-task workers that share in knowledge and skills around particular domains, and micro-task workers gain reputation scores in those ALE Communities based on their performance of micro-tasks.

Finally, staking rewards are distributed according to the relative network participation of each ALE Community, and to each individual relative to their reputation within each community, directly aligning earning capability with active and honest network participation.

Benefits for the Client AI Company

The Client AI Company (or other company looking to train a model) currently relies on going through centralized outsourcing platforms such as UpWork, Crowdflower, and Amazon Mechanical Turk. Here, they pay a significant overhead to the intermediaries, and the worker pool is limited to people from certain jurisdictions, and those people meeting certain prerequisites, such as having access to the financial system (having a bank account etc.), which excludes billions of potential micro-task workers worldwide.

Additionally, these current centralized micro-task platforms don't provide sufficient quality controls, which necessitates massive job duplication. Job performers are paid for their time, regardless of whether the labels they apply to data are accurate or not.

Using the ALE protocol:

- Companies have access to the global workforce. In any jurisdiction. Including the nearly 2 Billion people worldwide who are "unbanked" (ie. have no bank accounts)
- Quality is improved by applying crypto-incentives to reach consensus
- Moreover, the unique ALE governance community design allows for significant economies of scale in decentralized micro-task work by bringing the duplication cost of Mechanical Turk (15x duplication of dataset) down through reputation staking and community audit logic in micro-task work.

Benefits for the Micro-Task Worker

Currently, workers seeking opportunities to perform micro-tasks to supplement their income, are limited to registering with platforms such as UpWork, Crowdflower, and Amazon Mechanical Turk. These registrations are limited to certain geographies, and cumbersome with prerequisites such as connecting payment methods, etc. Many potential workers do not meet these prerequisites, and/or are turned off from registering because of the hassle involved, or the need to give a third party access to their personal information. Discovering micro-task work

opportunities that match the Worker's unique and diverse skill set, is difficult because their skill-specific reputation isn't considered in these platforms.

Using the ALE protocol:

- The opportunity to perform tasks for compensation is available to anyone around the world
- A worker can start working/earning immediately and doesn't have to first have to register through a complicated process with a centralized intermediary, provide their personal information to a third party, or have access to the financial system to be paid.
- Workers can build reputation in specific skills and domains, resulting in more and repeated micro-task work jobs and higher compensation as they gain reputation.

Scaling Equity

ALE aims to create a significant social impact by leveraging its innovative AI learning platform to address two major issues: enabling the unbanked to participate in the economic benefits of the AI era and transforming the micro-task environment to eliminate exploitative practices. By providing a platform that offers choice, fair compensation, and an engaging work experience, ALE is poised to make a significant positive impact on society while advancing the capabilities and reach of AI technologies.

1. Empowering the Unbanked through AI and Data Growth

ALE is dedicated to providing opportunities for the unbanked population to engage in the AI-driven economy. By facilitating access to micro-task work related to AI data production, ALE enables individuals who are typically excluded from traditional financial systems to participate in wealth generation. This inclusion not only promotes financial independence but also allows for broader societal engagement in the rapidly expanding AI sector, resulting in the incorporation of more diverse perspectives into AI data production.

2. Transforming Micro-Task Work Environments

ALE is committed to optimizing the micro-task work environment, traditionally marred by sweatshop conditions and associated negative externalities such as poor working conditions, low wages, and lack of worker autonomy. By replacing these exploitative environments with a platform that prioritizes choice, flexibility, and fair compensation, ALE aims to support improvements in the micro-task industry.

The ALE platform incorporates gamification elements to create an engaging and motivating experience for workers. This approach not only incentivizes continued participation but also ensures that workers can progress in their tasks, increase their reputation, and receive higher compensation. The gamification features are designed to make the work experience enjoyable and rewarding, thereby improving worker satisfaction and productivity.

Roadmap

The roadmap for the ALE platform is designed to engage users in a progressive series of tasks that contribute to AI model development, while simultaneously building a community around micro-task work. The ALE platform's roadmap cleverly integrates user engagement, quality control, and community building into a cohesive strategy for enhancing AI development. Through a structured yet flexible approach to user progression, ALE aims to harness the collective intelligence of its community to tackle the complexities of AI learning and optimization. This approach leverages a gamified user experience, to enhance participation and data quality. Here's a breakdown of the roadmap and its implications for the ALE platform:

User Experience

- **Interactive Task Engagement**: Users engage with the platform through a simple, interactive interface where they perform specific tasks such as identifying whether an image contains a cat, discerning bots from humans, or evaluating AI model outputs. This swipe-left-or-right mechanism simplifies the process, making it accessible and engaging.

- **Reputation Score Visibility**: After completing a set number of tasks, users gain access to their reputation score, which reflects their accuracy and contribution level. This score incentivizes quality and consistency in task completion.

- **Progress Towards Rewards**: Users can track their contribution towards the collective goals, such as the completion of datasets for which the $ALE token pool will be distributed as compensation according to their Reputation Score. This transparency motivates continued participation by showing users the direct impact of their efforts.

Sequence of User Graduation

1. **Bot or Not**: Users begin with tasks that involve distinguishing bots from humans. Successfully identifying a predetermined number of bots correctly allows users to graduate to more complex tasks. This initial stage serves to familiarize users with the platform and establish baseline engagement. In addition, it facilitates the onboarding of (exclusively) humans at scale to the ALE platform.

2. **Image Recognition**: Graduating to image recognition tasks requires users to accurately categorize images, hone their attention to detail, and contribute to datasets vital for training AI in visual understanding.

3. **User-Generated Communities**: Client AI Companies can deploy their own Project Communities, and Users can join them in order to perform micro-tasks for Client AI Companies, if they have gained reputation in the skill set(s) required by the respective Client AI Company. For example, a Client AI Company may want human labeling of images containing foreign language text, and require that participating Users have a minimum reputation in the relevant language, or go through a specific set of on-boarding tasks in order to achieve reputation.

4. **RHLF and More:** The roadmap indicates an openness to future expansions, where new tasks and challenges can be introduced as the platform evolves. For example, advanced users who demonstrate proficiency in previous tasks graduate to evaluate RM models. This involves assessing and comparing outputs from AI language models based on specific criteria, contributing to the refinement of AI through human feedback. This flexibility allows ALE to adapt to the changing needs of AI development and incorporate new research and methodologies.

Implications and Benefits

- **Progressive Learning and Engagement**: The graduation system ensures users are continuously challenged and learning, which improves the quality of contributions over time and keeps the community engaged.

- **Quality Control**: By requiring users to achieve a certain level of accuracy before advancing, ALE ensures that only reliable data feeds into the development of AI models, enhancing the overall quality of the ecosystem.

- **Community Building**: The roadmap fosters a sense of progression and achievement among users, encouraging a vibrant community around AI dataset creation and optimization.

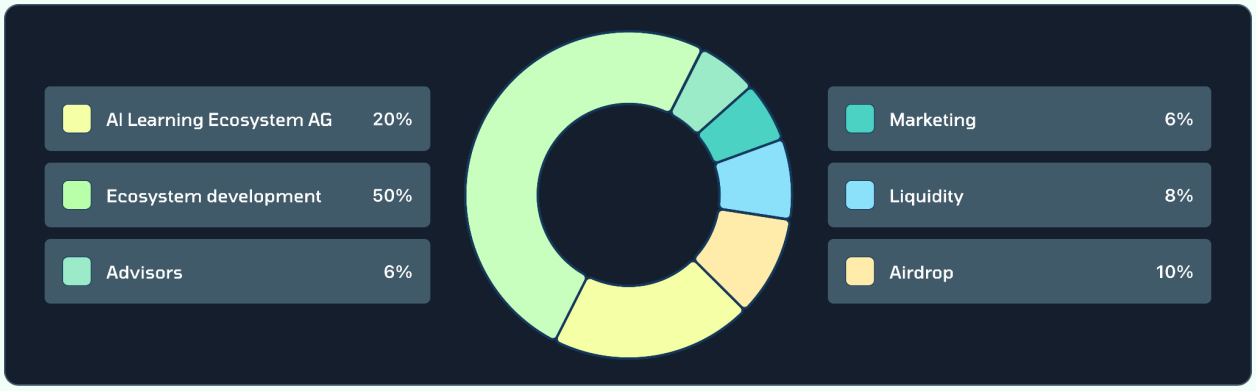
Phase 1: Foundation and Workflow

Core Features:

$ALE Token

$ALE is used as a payment token for the ALE ecosystem including individual contributors and communities. It is an inflationary token where users can stake $ALE tokens to participate in the 8% inflation per year of the circulating supply. 4% of the annual inflation is shared pro rata with the amount staked,and 4% is split pro rata based on the relative network activity of each Project Community, and with each Project Community Member based on their relative reputation scores. $ALE is used as a payment token for the Project Communities. Yet, the Project Communities are internally governed according to their own reputation scores.

There will be 5,000,000,000 $ALE, and initially an 8% per annum inflation rate. These tokens will be allocated as follows:



Project Communities

Groups formed around specific skill sets or interests, where members can perform tasks related to their expertise, obtain reputation tokens in their respective communities, and be compensated in $ALE tokens.

Job Posting Interface

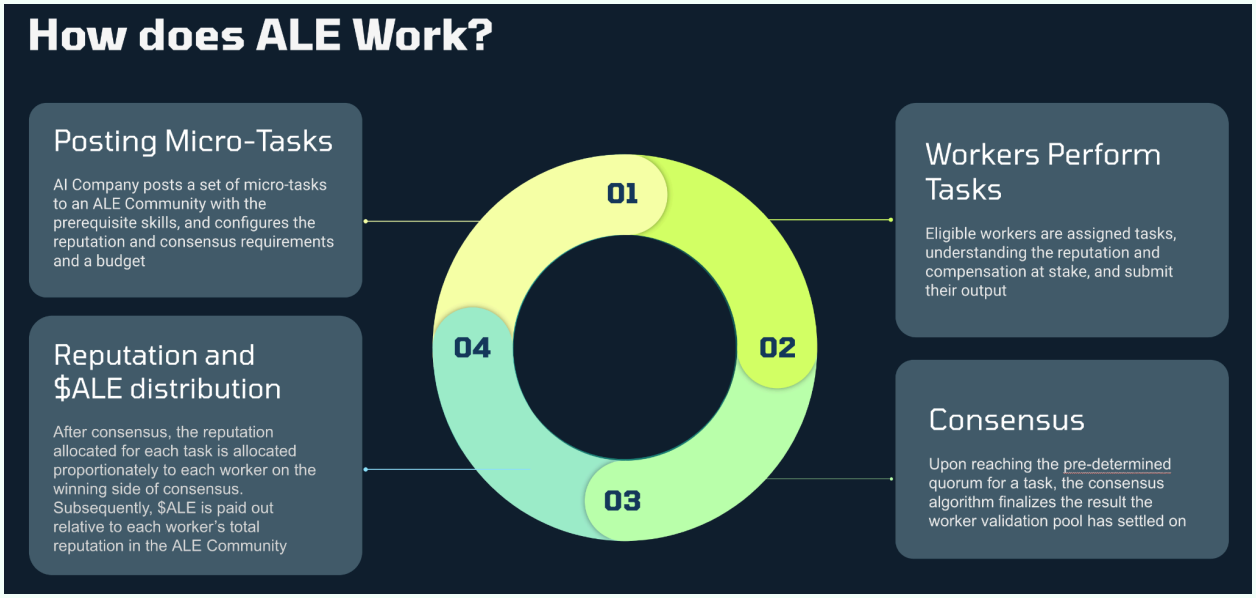
A user-friendly UI that guides job posters to easily publish tasks, specifying which ALE community or guild is best suited for the job, alongside an API that allows for automated Job Posting.

Community Formation

Tools to facilitate the creation of new Project Communities via template smart contract designs with customizable parameters directly from the ALE UI, encouraging growth and diversification of the ecosystem.

Micro-tasking and Consensus

Tasks are broken down into micro-tasks and assigned randomly to community members, who complete them blindly to avoid bias. A consensus mechanism, based on reputation stakes, is used to determine the quality and correctness of completed tasks.



Compensation and Incentive Structure

"Proof of Good Work" Based Compensation

All participants in Project Communities are paid in $ALE. For each sub-set of micro-tasks, participants are paid pro-rata to their reputation in the respective community. This ensures that participants are both focused on diligence and accuracy, as well as active participation, as increased reputation directly translates to increased compensation as well as increased influence within their respective communities.

Reputation Mechanism

For each task, participants can earn reputation based on the accuracy of their work. Correct submissions result in a credit of reputation, fostering a high-quality output and fairness in compensation.

In a given community of micro-task workers that means, for example, if 4 people swipe right in the UI to suggest that the picture of a cat is a cat, and 1 person swipes left to suggest it is not a cat, then the 4 people gain the available reputation tokens for that particular task, whereas the 1 person does not, and therefore ends up with less reputation than the others, if any. Moreover, users are ideally paid out immediately after they win the validation pool consisting of a minimum number of participants to reach a consensus on the label cat for the image in this example. At

that point, the reputation gets recalculated and the new reputation state for each user who participated is immediately visible to each user. Once the new reputation is calculated for all who worked, the system automatically pays everyone in $ALE tokens from the job pro rata to their new reputation scores. Those who don't work, or fail to win validation pools (i.e. are on the losing side of consensus) keep their prior reputation. The natural accumulation of reputation for the system will dilute those who do not work, or work with poor quality.

Gamification

To maintain engagement and make the micro-tasking process enjoyable, gamification elements are integrated, offering a dopamine rush upon task completion and token payout, while also encouraging competition and dedication among community members. Since micro-tasks are short and are tied to both reputation (akin to "XP" in a gaming environment) as well as frequent compensation events, there are many proven ways of gamification that can be easily applied within the AI Learning Ecosystem.

Demand Side for $ALE Token

While the ALE platform is working on creating several layers of demand for the $ALE token, in Phase 1, the demand side for $ALE consists of the following:

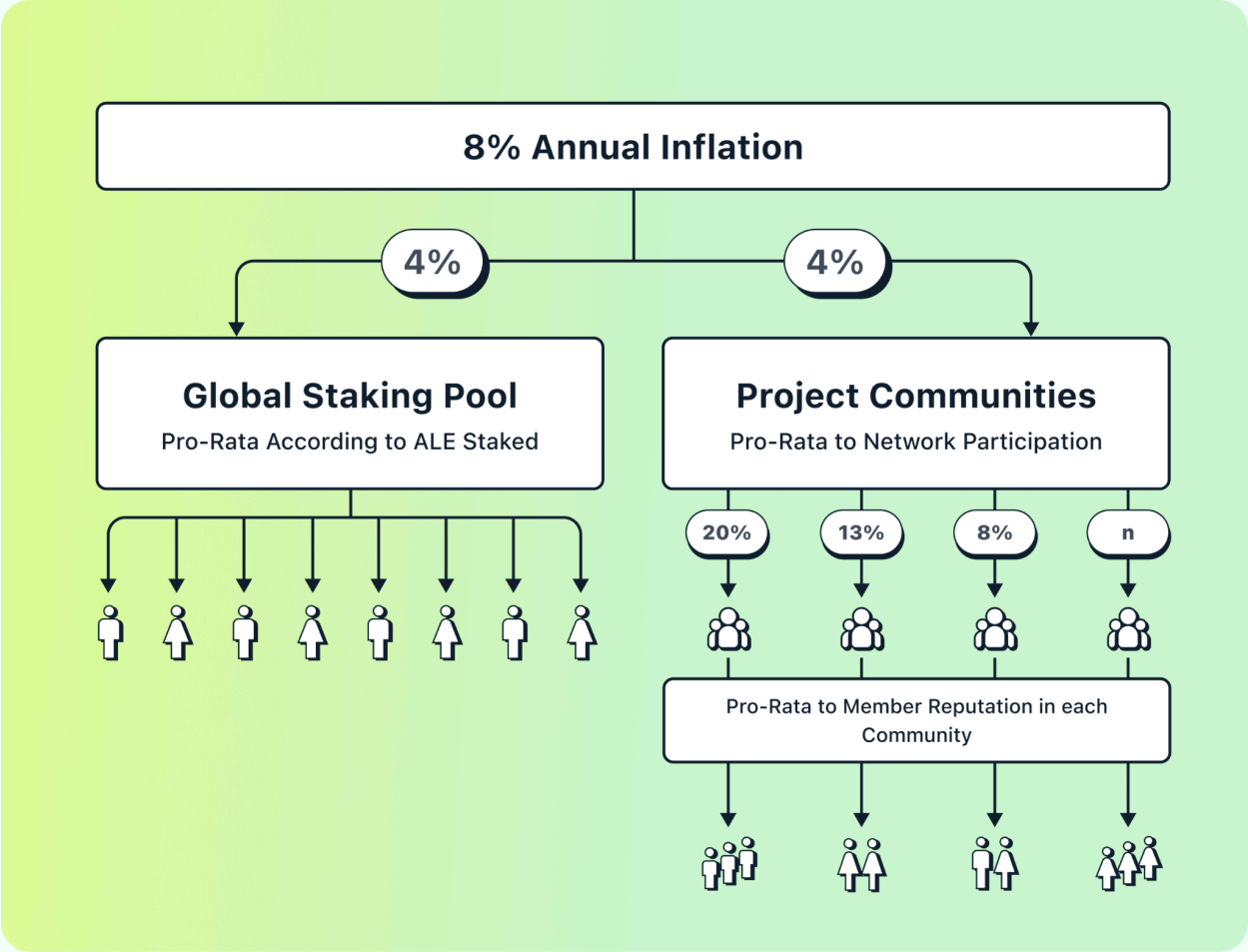
$ALE Staking Program

The ALE platform inflationary minting of $ALE tokens at 8% annually forms the foundation for the $ALE staking program. Each $ALE holder has the right to stake their $ALE to participate in the 8% annual inflation. The inflation is paid out in two equal buckets:

1. Any $ALE holder that stakes participate in half (4%) of the inflation, relative to their stake compared to all staked $ALE. Since not all $ALE will be staked at a given time, this means that the effective APY will be higher than 4%. For example, with 50% of all outstanding $ALE staked, the effective APY would be 8% for this bucket.
2. All ALE Project Community Members who have earned a reputation and also stake their $ALE, are eligible to participate in the second half (4%) of the inflation. This bucket is first spread amongst all Project Communities, pro-rata to each Project Community's share in the network (measured in paid micro-task work). This means that Project

Communities that bring in more paid micro-tasks to the network, participate more in the staking revenue. Subsequently, within each Project Community, the members participate in the inflation pro-rata relative to their reputation score within that community. This means that an active and highly-accurate micro-task worker will earn a larger share than an inactive, or often inaccurate worker.

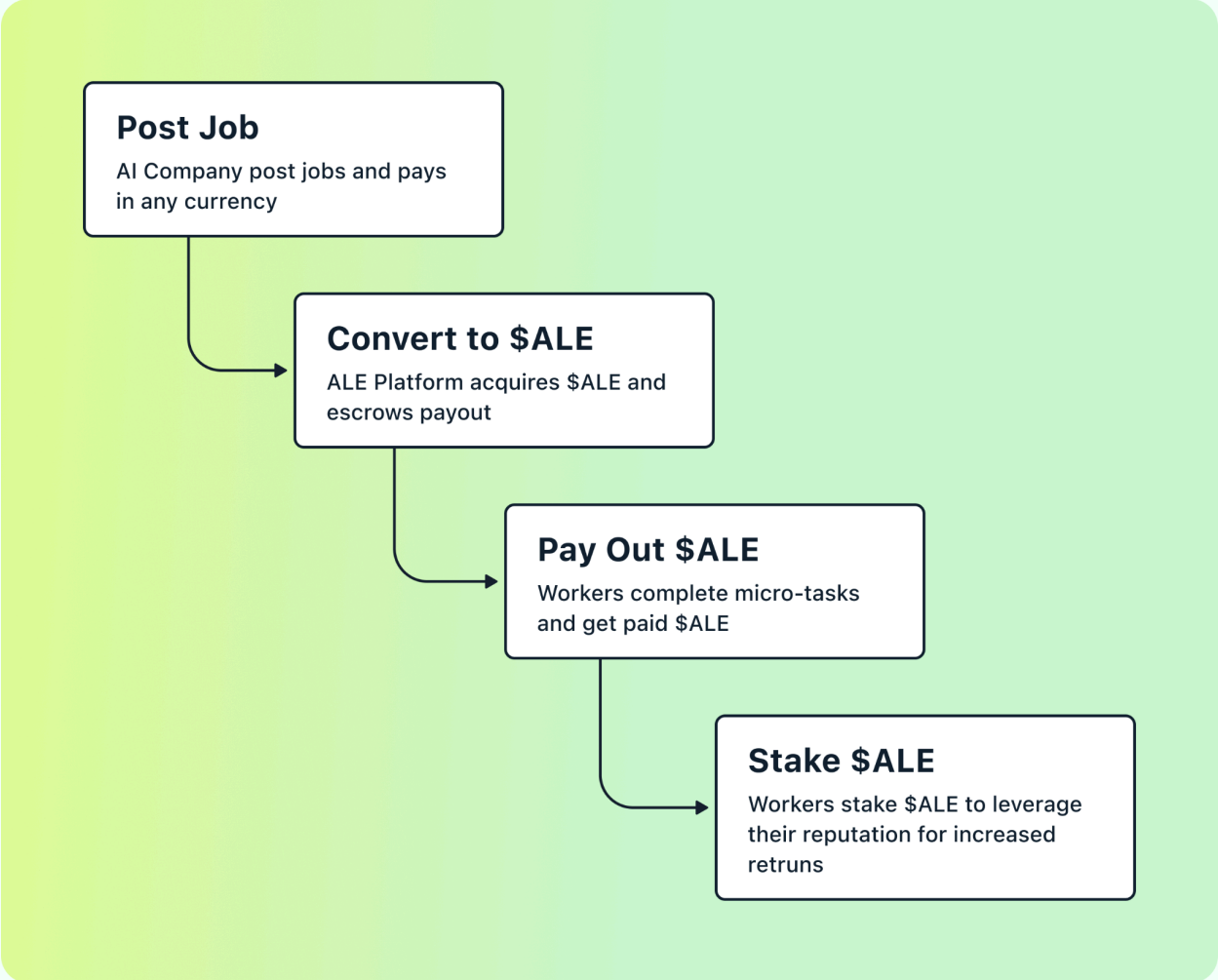
Through the combination of these incentives, $ALE network participants are maximally incentivized to stake their $ALE, to grow and engage their Project Communities, and to be active and accurate micro-task workers and community members.



ALE Platform Job Revenue Conversion

Each job that comes to the ALE platform in any of its micro-task communities can be denominated in all major cryptocurrencies and even fiat. Upon payment, funds get automatically

converted into $ALE on the open market, since micro-task workers are eventually paid out in $ALE, which they can subsequently (and potentially automatically) stake. This ensures constant demand for and conversion into $ALE tokens.



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