Whitepaper

i3D Protocol
Intelligent Distributed Due Diligence

As Invluencer Ltd builds its networks, there is tension in creating a large inactive network versus an active expert network. This paper seeks to address this tension via the creation of an Intelligent Distributed Due Diligence (i3D) Protocol powered by a unique staking mechanism: i3D Tokens

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Abstract

There is wisdom in the crowd and every person involved in the investment sector wishes to tap into it for increased growth and value. One of the greatest limitations for alpha venture capital (aVC) is the underlying Pareto Principle of 80:20, in which only 20% of investments make a return for the investor. The risk associated with an 80% loss rate makes aVC a very risky prospect for the ordinary investor. The primary assessment protocols of idea, team, product market fit, business model, traction, intellectual property, competition, and ESG are all under financial resource pressure in terms of the due diligence required to assess these components effectively and efficiently.

Invluencer Ltd (Invluencer), in its vision to become the world's first democratised and transparent alpha venture capital network, wants access to collective intelligence via distributed due diligence, in order to effectively increase the upside ratio of the Pareto Principle equation and simultaneously for the network members to be able to profit from doing the due diligence collectively.

In distributed intelligence systems, and particularly in due diligence, both "skin in the game" and reputation management are needed to ensure that workers are doing their utmost to strengthen the network and build its credibility. Invluencer is creating a reputation stakeholder economy based on gamification: the i3D Network powered by i3D Tokens. Stakeholders include investors who subscribe (via a utility NFT) for business intelligence and create a liquidity pool for experts to complete scoring of opportunities, and experts who purchase and lock up tokens to allow them access to opportunities to earn from the liquidity pool. Investors can be both an investor and expert, thus having the opportunity to earn back their subscription.

Methodologies include the triangulation of data points from the products of Invluencer: i3D Arena (an Inner Swarm of Expert analysts), i3D Rapid App (a greater network of Outer Swarm analysts) and a technical component based on studies of success factors. In an ideal scenario the triangulation of data points allows for the technical algorithms to be fully developed into an automated predictive model.

Through its utility i3D Angel NFT for access control, the protocol grants access to investors to the data generated within the protocol and allows for governance based voting on the top projects to invest in through a Upsilon Token (Dry Powder Mining Fund). The Upsilon Token is initially seeded via a TGE (Token Generation Event) of the i3D Token in a public sale with the protocol being the first client of the Fund. Yields are available to the i3D Treasury to pay the network and create growth.

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Introduction

For most ordinary investors, and the majority of crowdfunding platforms, making attempts at predicting successful companies is difficult due to resource constraints. Even the top VC companies follow the distributed investment principle of investing where the odds of early-stage investment failures are stacked 80:20 in favour of failure. These companies overcome the economics of this system by following the General Partner Limited Partner model which pushes the financial failure onto the limited partners. Generally, VC investment takes place from Seed rounds onwards which reduces their risk as the companies are further in their life cycle. This also means that higher risks are taken by ordinary investors who fund companies in pre-seed rounds.

Our vision for Invluencer is to create a new and disruptive system that redefines the inequitably stacked economics of venture capital in favour of the few. We have designed a formula and platform that unites the power of VC investment and the social imperative for collective and inclusive development. Our aim is to remove the barriers to entry into the profitable venture capital market, bringing in the best elements of crowd-funding methodology, and creating a secure, lower-risk environment for intelligent consensus and collective investment initiatives.

An essential part of successful investing is a successful screening process - something usually not available to the ordinary investor due to the poor data environment in which early-stage companies operate. Instead of risking an investment for the fear of missing out, poor intelligence, or reliance on an expensive analysis, we want everybody to be able to access and contribute to our “Intelligent Distributed Due Diligence” (i3D) Network and get paid for doing so.

Our i3D Protocol rewards users for partaking in intelligent due diligence for greater deal assessment. We harness the power of machine learning algorithms to assign components of company assessment in a layered analysis methodology to ensure all the factors identified to prevent failure or success are assessed until equilibrium of score is achieved, thus removing bias and identifying red flags. It also monitors and evaluates those that complete the work, matching the aspects of a company to be assessed with the tools in an individual’s skill set, assigning work to them more frequently as they prove their reputation and expertise within the network.

Venture Capital Problems

The VC world is insular, with high barriers to entry preventing many people from sharing the profits of knowing when a new company will be successful. Early-stage companies exist in poor data environments with less reliable information publicly available, meaning that too often early stage investors only hear about companies once it is too late to invest. Established VCs or friends/family are the entities that benefit most from investing early on in such ventures.

As an individual, it is also difficult to assess how a new company might perform. It usually takes the perspective of multiple experts or access to unique data from an expensive data service provider to decide that it is time to invest in a young company. There are also various other institutional issues that limit the everyday person from participating in VC, including lack of proper accreditation, no access to a strong personal network, and limited funds.

Many VCs become niche or specialised due to the interests and expertise of their management partners. This means that young companies are more likely to receive investment when they fall into these niches. This, in turn, creates self-fulfilling prophecies, where the “hot” industries are heavily invested in, while other promising business models or innovations fall by the wayside.

If a methodology existed for everybody (not just VCs and their limited partners) to be able to contribute their investment, wisdom or perspective, then more promising businesses would receive support and have the capacity to expand as the investments flow beyond the “next big thing” and into any type of young business with the right factors for success. This is the need for lower barriers to entry in the VC world. There exists the need for a better way to assess which types of companies will have the highest chances of growing their revenue or value in a scalable manner.

Invluencer is creating the i3D Protocol to connect the wisdom of the crowd to the infrastructure needed to assess a young company's likelihood of success, and which factors are most likely to indicate the business will do well.

Protocol Components

- i3D Protocol (i3D Arena and i3D Rapid App) for network growth and analytics
- i3D Angel NFT for Access Control to i3D Protocol
- Upsilon Dry Powder Mining Fund for Capital Preservation and Yield Generation

Platform Users

This platform is for two user sets - experts and investors investing in projects.

Experts make up an Inner and Outer Swarm – purchase and stake tokens Experts (or analysts) will sign up and use the i3D platform to earn the right to perform due diligence on behalf of the i3D network.

Initial entrants to the network receive reward i3D Reward Tokens for sign up and for building trust within the network. Building a trustworthy and secure network needs participants to invite and vouch for other participants who they believe will actively and diligently participate in the Network, and complete the work. Building Trust is one of the Innovative ways to secure the integrity of the Network. In addition to the initial sign up reward, users 'earn' i3D Reward Tokens daily by confirming their trust network.

Users also have the opportunity to purchase i3D Tokens on the open market to have a stake in the network and use them to stake to perform the analysis work. Proceeds from token generation events (initial and planned by treasury) are used to increase the i3D Protocol's holdings within the Upsilon Fund.

Users will complete 'randomly' allocated questions from sections on the unique i3D Scoring System in which an algorithmically assigned selection of questions are made to the analyst for answering. Experts, depending on which network Swarm they belong to, need to lock up more than they will earn to win a bid to perform work. Their scores are recorded within the system to monitor and evaluate performance. Experts have a unique reputation score which is earned by successfully completing due diligence. We measure success for smaller tasks via a consensus model, and on unique KPIs for bigger tasks that require specific expertise.

Investors – Subscribers creating liquidity pool

Investors (subscribers), through a unique utility NFT with a smart contract for access control, will use the i3D platform to gain access to pre-screened opportunities that are made robust through our unique reputation economy and work distribution model. At the highest level, due diligence of a young company can cost upwards of $50K and relies on the word of a few experts, as well as the reputation of the firm they are representing. The i3D Protocol is a platform where investors can pay according to a subscription or enterprise model and connect to a network of thousands of

experts that will perform due diligence with a rigour that cannot be matched by traditional DD and to a standard and quality which is enhanced through the reputation economy.

Investors can also be Experts.

Projects
The Projects will be the target companies, or prospective investments, that will be subject to the scoring by the i3D experts. In keeping with the VC model, the i3D platform has been designed to assess entities at various stages of their lifecycle, ranging from concept or seed stage, through to pre-revenue, scaling, or growth start-ups, through to 'older' established companies that might be undergoing refinancing or M&A (merger & acquisition) activity in one form or another.

i3D Angel NFT

Designed to challenge traditional data subscription models, the utility NFT serves as Access Control to the i3D Arena where projects vetted by the network are stored. Initial NFT issuances are designed to raise funds to build the complete Protocol and seed the Upsilon Fund. NFT holders in these phases are also issued i3D Tokens as the pre-sale prior to public launch of the full protocol.

Logging in via the user NFT grants them access to Proof of Data projects that are validated via the Nevermined.io protocol and stored on FileToken, ensuring that data is tamper proof and genuine as at the time they were created within the locking up period of the assessment phase.

The NFT further records via the Nevermined.io protocol the reputation of the analysts involved in creating the report.

Upsilon Dry Powder Mining Fund

The DPM Fund principal funds are generated in Token Generation Events such as the launch of the i3D Token (constitutes a separate account in Upsilon), loaned from VCs, PEs, or Retail Investors and held in a Stablecoin – it can be withdrawn anytime

- APY generated can be fractionalized for investment: 0 to 100% APY return can be invested
- Any invested amount goes directly into buying tokens from startups seeking capital for token launches
- The purchased tokens are put in a Fund reserve contract
- The principal investor receives the "Dry Powder Index" token, representing their pro rata investment in the Fund reserve, minus fee of x% which goes to the DAO

DAO - Dry Powder Governance Token

- Non-speculative Tokens are sold in tranches over time to raise funds and increase total value locked (TVL)
- Purchase of Dry Powder Governance token translates to stake on a pro rata basis
- Staked value provides the minimum TVL for the protocol
- The more stake, the better the APY potential given less slippage, etc.
- Stake translates to conviction voting rights, also on a pro rata basis
- Conviction means staked tokens can never be unlocked for sale

Rewards

- Governors holding Governance Tokens choose what funds are earmarked for which project identified by i3D Protocol which provides a private ranking of the current projects looking for investment
- Governors determine when tokens in the Fund Reserve are liquidated and paid out to Upsilon Index Holders
- Governors receive dividends taken from Index token fee: X - Y%, where Y is determined by the governors

Development

-Remaining DAO fee from investments is used to pay for improvement proposals

i3D Due Diligence Scoring (DDS)

The i3D DDS framework is based on 3 components: an automated algorithmic score from data uploads, an expert score by network members holding a certain reputation within the network, and an 'expert' score by the larger network primarily based on sentiment. With identified triangulation points available in all three components, a consensus score is achievable, with the primary aim being to accurately build a set of data points that allows a fully automated score to be achievable.

In conceptualising such a framework for a distributed due diligence network, the example of Amazon Mechanical Turk (MTurk) can be referenced. MTurk is a marketplace for work that requires human intelligence. Companies use MTurk to tap into a broad network of anonymous workers that can choose from thousands of tasks to complete.

The i3D Protocol uses this logic, enhances it, and applies it to the due diligence process, which also requires human intelligence to complete myriad small tasks. The scoring methodologies reduce the complexity of predictive analytics to simple analysis until consensus is achieved and then reconfigures the data back to an aggregated sectional score.

We use a proprietary scoring platform and work-distribution model to aggregate the perspective of 'experts in our network to help assess the feasibility of the prospective investment in early stage companies. Additionally, the scoring platform enables a collective opinion protocol. Information users of the i3D platform service include aVC companies, or retail investors that want access to affordable and nuanced due diligence services.

Companies are uploaded to the platform and distributed to the experts according to their reputation level within the network based on performance, level of expertise, first come first served basis, etc depending on the level of expertise required. Experts lock up some of their tokens for the duration of the scoring process.

The i3D Protocol has categorised the due diligence into sections including Idea, Team, Product/Market Fit, Business & Financial Model, Competition, Environmental Social & Governance, Intellectual Property, Traction & Timing. Within each section a number of identified factors exist, and these are randomly allocated to experts for scoring. Each section carries a weighting factor that is a default setting. An expert can score on a scale from lowest to highest without the ability to fence sit. In addition to the score a comment for each score is allowable with an outlier score being a mandatory comment or reference to allow for assessment on the part of the requester.

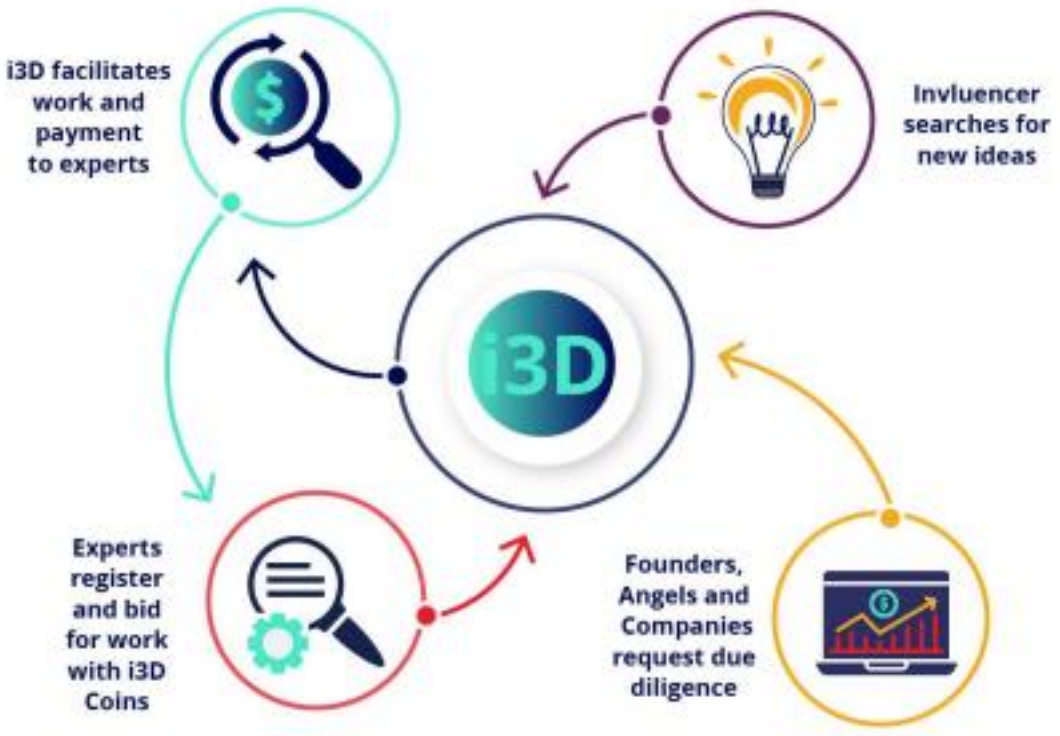
To achieve Equilibrium of scores for each factor, algorithms track scores ensuring that once factor equilibrium is achieved the factor is removed from the process while factors yet to achieve equilibrium are continually assigned to experts until equilibrium is achieved. This ensures a factor is accurately scored and does not become lost or diluted in the overall sectional score.

Once Factor Equilibrium is achieved, the scores are aggregated and weighted according to the relevant section. Commentary is also aggregated with common threads collated into a report that is sent to the platform for access by users. We use sophisticated and self-learning weighting

scores for each response from an expert, so that the i3D Protocol will continuously improve its ability to accurately assess the investment prospects of a new venture.

The platform is powered by i3D Tokens. Further Tokens are then earned for performing work on behalf of NFT holders, by proving reputation to the network and logging into the platform consistently.

An expert purchases i3D Tokens to have a “stake” in the i3D Protocol, and to access the platform to perform due diligence. If these tokens are through a token generation event conducted by the i3D Treasury, these are locked into the Upsilon Fund to create liquidity yields for the i3D Protocol. The experts get paid i3D Tokens for performing the work successfully, as well as earning back their i3D Tokens used to bid for the work. The value of these tokens is determined by the value of the token at time of lock up, and by allocated due diligence fees from the Investor Liquidity pool made up from subscription fees. Excess Liquidity is also used by the protocol to Buy Back Tokens, returning them to the treasury to maintain liquidity for further development. By asking experts to have a stake in our network, we ensure “skin in the game” and we use principles such as loss-aversion and ownership accountability to ensure that experts are performing due diligence to the best of their abilities. Successfully locking up our Tokens and earning them back is how an expert contributes to the network’s strength. See Earning Rewards below.



Rewards and i3D Reward Tokens

An expert can “level up” in the i3D Protocol by successfully completing due diligence requests, increasing their reputation and ability to bid for more lucrative contracts. They will also be able to certify their expertise in specific domains, opening the chance to participate in the ‘Inner Swarm’. Based on validation processes, certain expert communities will have instantaneous access to badges when signing up for the platform.

Initial entrants to the network receive reward i3D Reward Tokens via the i3D Rapid App for sign up and for building trust within the network. Building a trustworthy and secure network needs participants to invite and vouch for other participants who they believe will actively and diligently participate in the Network. Building Trust is one of the Innovative ways to secure the integrity of the Network. In addition to the initial sign up reward, users ‘earn’ i3D Reward Tokens daily by confirming their trust network.

i3D Reward tokens are returned to the treasury every time a user uses them for work in order to allow new to continue to earn i3D Reward Tokens for Building Trust, and to issue to new entrants to the network.

To reward an expert for effort, in addition to token payment, the Protocol offers “Experience” (XP) points for every successful job completed. These XP points correspond with a 10-level system, with every level conferring real-life rewards or benefits such as access to exclusive intel or events. Every 6 months sees the start of a new season or epoch for the i3D Protocol, where earned tiers are adjusted and rewards are updated.

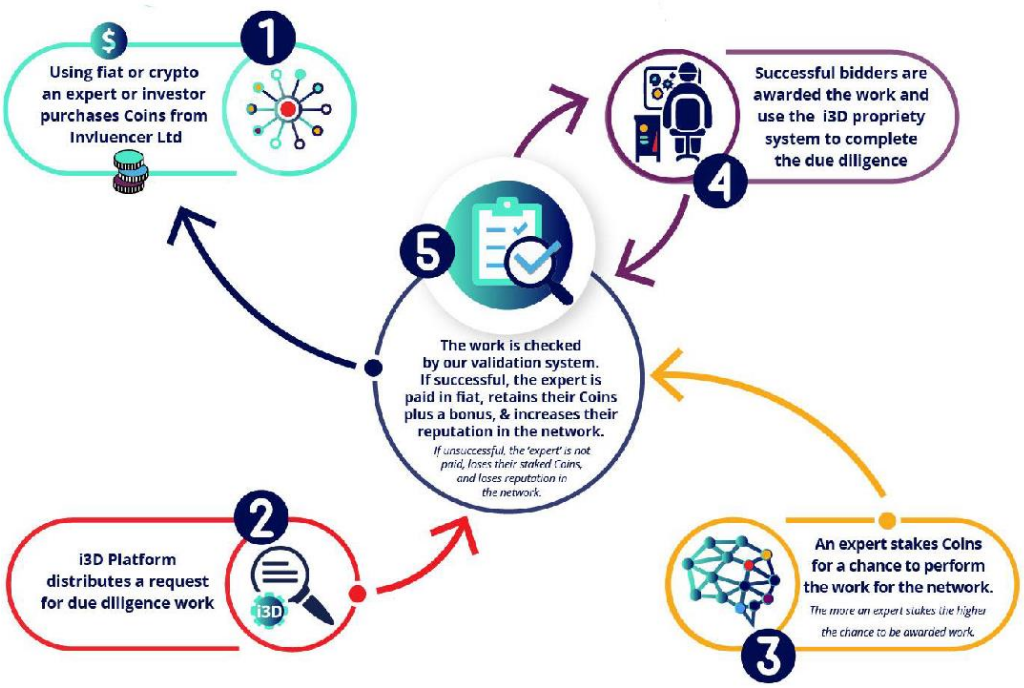
The i3D Token

An Inner Swarm Expert, who values their own expertise, must buy the native i3D Token which they then use as a stake to get paid for participating in our network.

An Outer Swarm Expert who has had their supply of earned i3D Reward Tokens ‘burned’ after staking them, receives i3D Tokens or will also be required to purchase i3D Tokens on the open market in the event they have insufficient tokens to complete bid for work. The i3Dr only plays a role in the i3D Rapid App where it is used to reward for building the network.

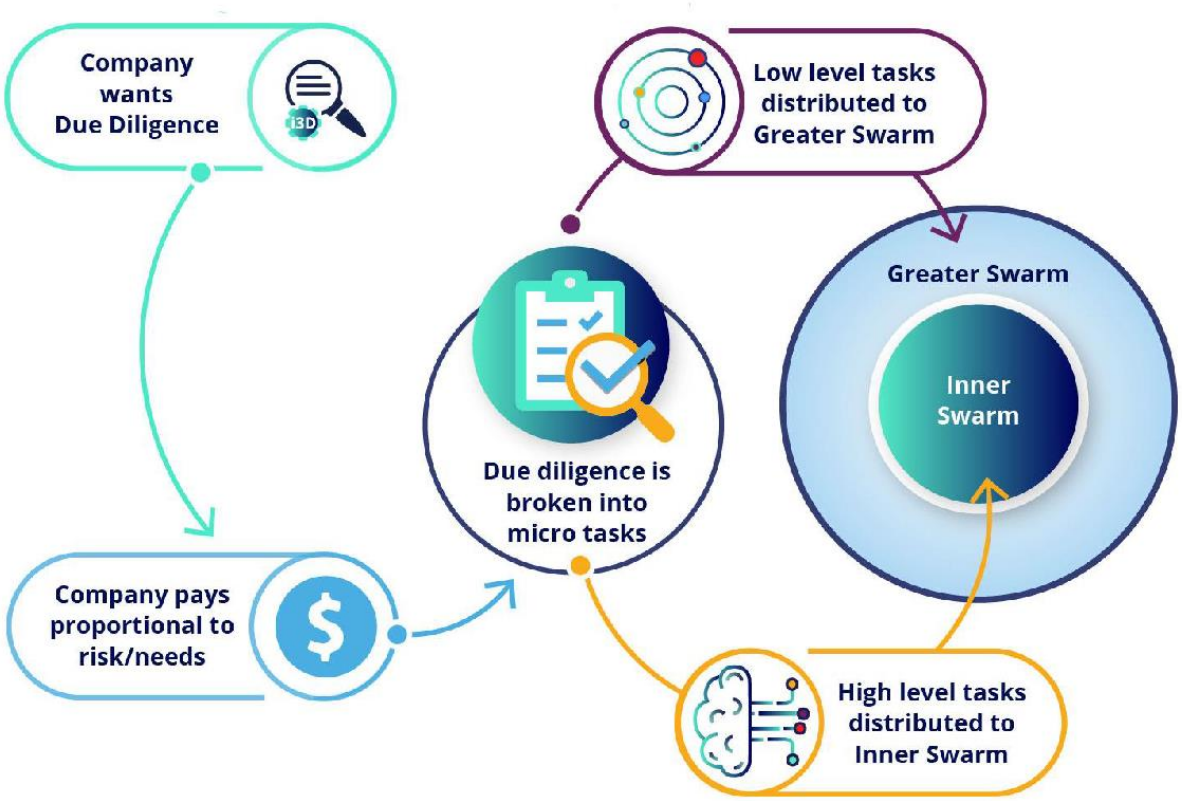
The i3D Token serves as a reputation-management system. This currency represents skin in the game, meaning that an expert is putting their money where their mouth is when they tell the i3D Protocol that they are qualified to complete the due diligence work correctly. It also further ensures the integrity of the due diligence process in the i3D Protocol - it is necessary for there to be reputation management and for experts to stake their Tokens to participate. Owning and staking the i3D Token is how an expert validates to the i3D network that they offer expertise. The work is performed and submitted anonymously to avoid collusion between experts and the gaming of our system.

If an expert’s work is algorithmically validated, then they will earn back their locked i3D Tokens and be issued further tokens according to the value of the work performed, and their reputation ill increase in the i3D Network.



Algorithms also evaluate the successful staking of all those that perform due diligence on the companies the network analyses. If it is found that an expert has made a major error, they risk losing their locked Tokens as well as their reputation.

There are different levels of expertise that are required depending on the level of work requested. Using a layered analysis methodology, the i3D Protocol allocates low-level tasks to the “greater swarm” that require less reputation and high-level tasks to the “inner swarm” of experts with a higher reputation.



Liquidity Pool

Users conducting the analysis work are paid in the i3D Token

A liquidity pool to Buy Back is created from various sources such as:

- subscriber investors,
- project creators and the Upsilon Fund and is used in a buy back mechanism to reduce the supply of tokens.
- i3D Rapid accounts that hold only reward tokens (without payment made during the initial token sale) could be required to watch company Idea pitches & click thumbs up or down - 15 sec snippets for which a company pays a fee

Valuation of the i3D Token

The value of the i3D Token is based on several factors:

- i3D Reward Tokens represent the value of building trust within the network together with the Buy Back and Burn and re-issuance from the pool of i3D reward Tokens for a growing network.
- Speculative Value is based on the reflected intrinsic value of an anonymous network that works not for fiat, but for the i3D Token representing their value to the network. This value is measured by the number of participants within the network, their active participation, and their increasing Reputation Levels.
- The floor value of the i3D Protocol holding within the Liquidity Pool of the Upsilon Fund which is used to purchase from the open market the native i3D Token

Validation of Due Diligence

The i3D Protocol uses several unique metrics to gauge the quality of due diligence in both the short term and long term.

Short term, our algorithms determine significant outliers from experts in our network to “flag” suspect activity, and through **Factor Equilibrium** analysis.

Long term we can use external, publicly available data of how a company is performing to validate whether the experts in our network “got it right”. Such data streams will be supplied by relevant Application Programming Interfaces (APIs) or Oracles in a decentralised and trusted manner and matched to the score the expert assigned and recorded.

Factor Equilibrium

Defined as being achieved when total scores do not vary materially when new 'experts' begin scoring variables.

i3D Arena Platform uses 'experts' who form part of an **Inner Swarm (IS)** to score start-ups for potential based on a scoring methodology that uses wisdom of the crowds or consensus. To perform this work, IS stake tokens. Staked tokens are made up as follows:

- Tokens purchased in Fiat or crypto by the 'expert' when signing up
- Tokens issued when purchasing Analysis Tokens or earned as part of the scoring process

It takes an 'expert' about one hour to score a company in i3D Arena and to achieve FE needs about 5 experts to score the company. It does so according to

- a number of weighted sections (X): Idea & Product, Team, Business Model & Finance, Competition, Market & Customer, ESG. Variable allocation of sections
- with a number of factors (F) (phrased as questions) within each section – approx. 60 factors. Each factor is scored between 1 and 9. An expert must score all factors in an assigned section
- On completion of a scoring round, experts scores are aggregated and weighted to produce a % total.

Current logic

N experts score X number of sections, scoring F factors = weighted aggregated score

Example 1: If 5 'experts' score 6 sections X 60 factors, a score is impacted by 5X60=180 variables on which the score is based. This changes if 'experts' are assigned different sections

Example 2: If 5 'experts' score 3 sections each and another 5 score 3 sections each then score is 10X60/2 = 180 variables

Problem

1. Number of variables scored doesn't change and the only way to increase levels of consensus or achieve equilibrium it to add in more 'experts' which becomes very expensive
2. If one factor scores randomly or poorly without genuine equilibrium being achieved, and it is a material factor then the aggregated score masks the material factor.
3. Not all 'experts' can score each section due to lack of knowledge
4. Current process allows an 'expert' to view the full set of factors creating IP risks
5. Potential bias of a smaller number of 'experts' becomes more prevalent
6. 'Experts' have to be prepared to spend a minimum hour to complete a full analysis – hassle and time factor
7. There is no validation of the scores which potentially allows an inner swarm 'expert' the ability to produce sub standard work

Solution

Create an ***Outer Swarm (OS) algorithm*** using the i3D Rapid App that does the following

1. breaks up the factors into standalone ones in which the OS 'experts' do not have access to the full database of factors to protect IP
2. Assigns a maximum of 3 factors from different sections to an OS 'expert for scoring to allow for rapid scoring and IP Protection
3. Removes a factor from the scoring process as soon as it achieves FE with a minimum [10] scores needed to achieve FE – this number can change
4. Continues to issue the factor for scoring as long as FE is not achieved - possibly a maximum of [20] needed
5. At the end of an OS 'experts' analysis of the 3 assigned factors, 2 random sentiment factors are assigned based on a yes, maybe, no request.
6. The OS FE then matches to the IS FE for validation.

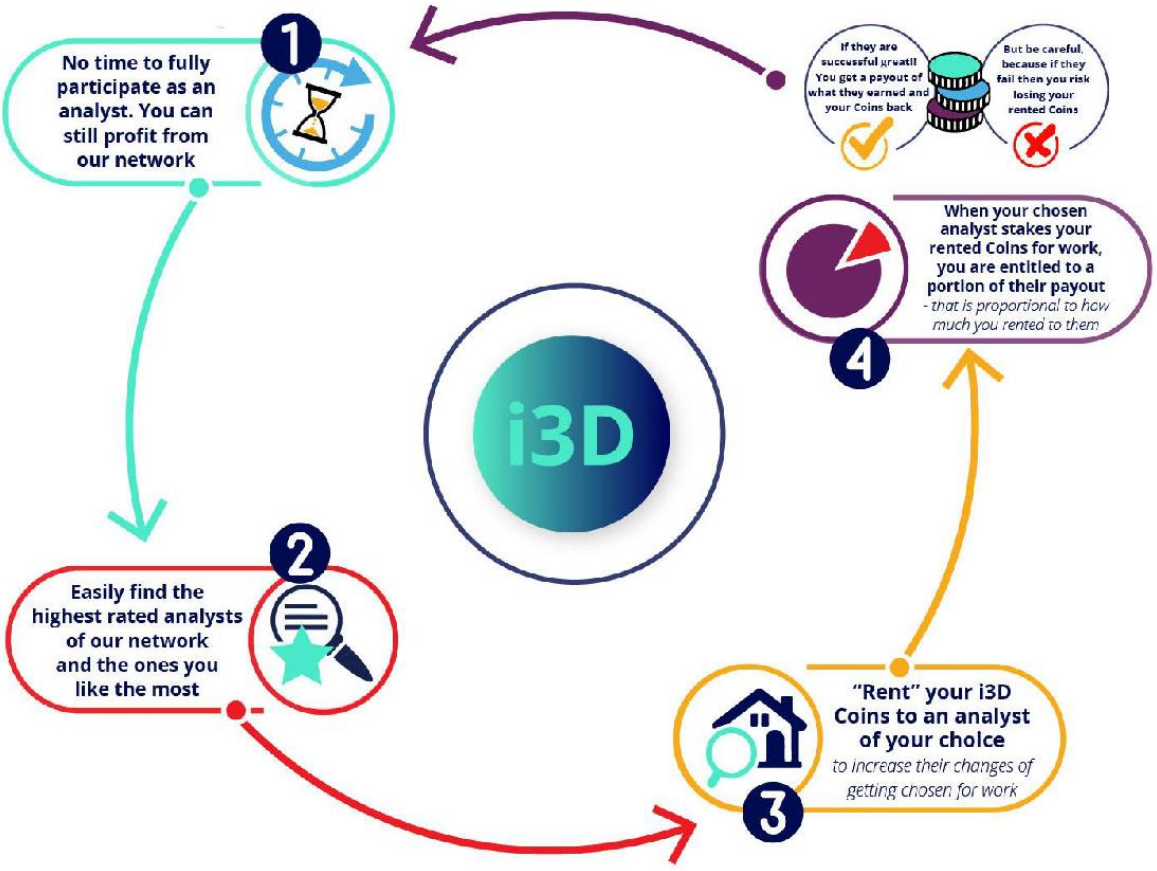
    i. If the score varies by more than X% the OS receives the marginal difference in tokens from those staked by the IS, i.e. a variation on punishment by Schelling Points. The IS is still paid, but their tokens reduce.

This means that there is potentially involvement from several hundred 'experts' to achieve equilibrium, this serves as a validation mechanism, an accounting and rewards system is created, IP protected, etc.

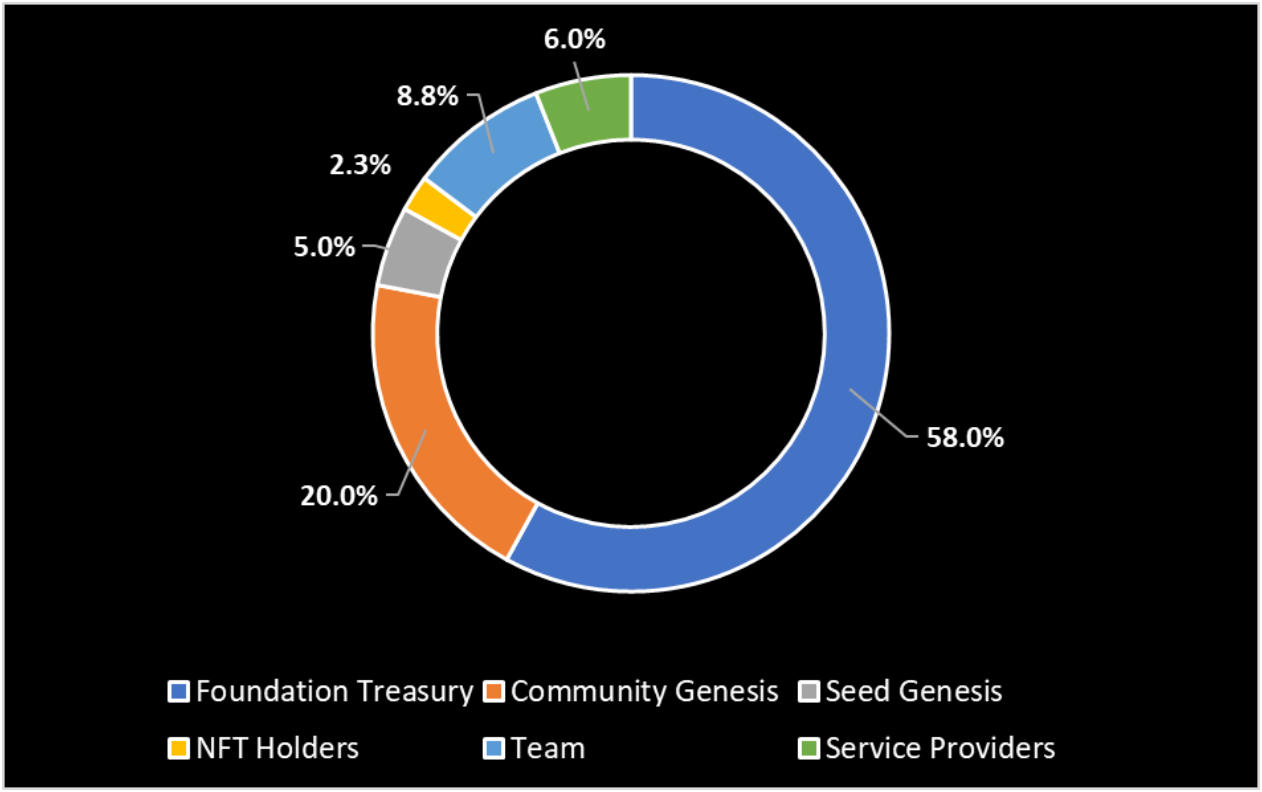
Token Renting

Where an expert has established a significant reputation managed within the Reputation System, they also have the opportunity to create for themselves an enhanced rewards program by accepting Rental Tokens from other experts or investors and agreeing profit splits.

An expert may not always be able to participate in due diligence work due to their own resource constraints. Therefore, we make it easy to share in the profits of the network. A Token owner can “rent” their i3D Tokens to their choice of members of the i3D Network. A dashboard shows the members of the swarm that have the highest reputation/proven track-record. With the click of a button, they can loan some of their i3D Tokens to a reputable analyst in the network, to increase their chances of being allocated the work. When they are chosen to do work and are paid for it, the ‘renter’ receives a share of the proceeds. Tokens rented are locked up for the same period as the expert Tokens when they successfully win a bid to perform work.



Tokenomics & Vesting (Proposed)



Funding and development

Name	% Allocation	No of Tokens	Vesting Schedule
Total supply	100%	2,300,000,000	
Foundation (Treasury)	58%	1,334,000,000	On allocation for work completed by Community
Community Genesis	20%	460,000,000	Immediate on TGE
Seed Genesis	5.0%	115,000,000	10% immediate 2% per month thereafter
NFT Holders	2.3%	51,750,000	Immediate on TGE
Service Providers	6.0%	138,000,000	On allocation for work completed
Team	8.8%	201,250,000	10% immediate 2% per month thereafter

Foundation Treasury - Continuous Token Issue and Buybacks

Name	No of Tokens	% and reason	
Annual i3D Token Buybacks from Market		Up to 10% per annum	Purchased from market and returned to treasury
i3D Reward Tokens for network growth	150,000,000	Reward users for building network - can use for initial staking	Burned as staked and Mint new ones for new users to network
Foundation Treasury holding work tokens	1,334,000,000	Users paid in native token (i3D)	Allocated as work completed

Value Proposition Summary

We offer the following value propositions:

Democratised analysis for venture capital
Anybody can join our network by buying the i3D Token to have skin in the game.

Any person can earn money from our platform
By staking the i3D Token, a person has a chance to receive work and build their reputation in the network.

Earn a passive income from finding your favourite expert in our network
If active work participation in the i3D network is not possible, then a Token holder can make a passive income by "renting" their Tokens to any analyst in the network. When they get paid, so does the renter.

The Swarm approach improves portfolio resilience
Having the due diligence conducted by a large pool of experts greatly improves the chances of red flagging inherent risks in a target business, reduces uncertainty about its performance now and into the future, and enhances overall resilience of a portfolio.

Know what the next big trend might be
By seeing what top experts of the network are thinking about new company prospects, you will be one of the first to know when the i3D Platform determines that a company might be profitable.

Technical Appendix

Workflow

Companies or individuals (network service requester) issue a scoring request to the network via a service contract, denoted as REQUEST-SC. Such contracts serve as “service level agreements” (SLAs) containing the “rules” for interacting on the i3D platform. They also contain the necessary minimum balance of i3D Tokens required to be staked by an expert in proportion to the amount of work staked for. Because this is based on a bidding system, the more that the expert stakes beyond this minimum threshold, the higher the chances are that they will be accepted to perform work.

After the necessary funds have been staked, the REQUEST-SC is delivered to the i3D Platform’s smart interface. The i3D Platform’s interface is by itself a smart algorithmic series of contracts, denoted as i3D-SC. The i3D-SC’s behaviour is informed and determined by three other contracts: an Order-Matching Contract, a Reputation Contract, and an Aggregating Contract.

The Order-Matching Contract takes a proposed REQUEST-SC, logs the SLA parameters, produces the framework that will be used, and collects bids from experts in the i3D network. The Reputation Contract analyses the reputation and track record of the bidding experts and assigns proportional weight to the chances of these respective experts being assigned the work on behalf of the i3D network. After this, the Order-Matching Contract selects the bids using the Reputation Contract and finalises the SLA and due diligence framework to be used.

The Aggregating Contract collates and aggregates all the responses from participating experts, based on the scoring system being used for evaluation, and calculates the final “equilibrium score” of the company that is being analysed. It also feeds key performance metrics from the participating experts back into the Reputation Contract to update their reputation level within the network. i3D contracts are modular, meaning that expert nodes or requestors can propose their own configurations of frameworks or smart-contracts to be used to evaluate the potential of a company.

The on-chain workflow is the following:

- Scoring request
- Expert selection
- Data collection
- Result aggregation
- Reputation update

During a Scoring request, the i3D network service requester specifies the requirements that will comprise the SLA proposal for expert nodes to interact with and subsequently bid on. The SLA proposal comprises every aspect that the network service purchaser needs to do, such as the company to be analysed and the sections to be analysed.

On the i3D platform, there is a distinction between what we denote as the "inner swarm" (IS) and "outer swarm" (OS). By default, all experts are a part of the OS. Experts with the minimum reputation threshold may prove to the network via control mechanisms that they have specific expertise in any domain of due diligence. Once they do so, they become a part of the inner swarm for those specific skills or knowledge they have demonstrated to the network.

The pricing and order matching mechanisms, combined with the equilibrium score methodology imply that tasks can potentially be matched to thousands of experts who will score a company for the network requesting customers.

SLA's contain "micro tasks" and "macro tasks". Micro tasks are elements of due diligence that do not require specialised knowledge and can be completed by any expert in the i3D platform, whereas macro tasks require specific expertise as defined in the SLA. Micro tasks are distributed by the i3D-SC to all members of the OS that the SLA allows for. Macro tasks, which require specialised knowledge, are distributed only to the experts within the IS that have the requisite expertise and reputation as per the SLA.

Once the network service requester has specified the SLA, the SLA proposal is logged as an order-matching contract. Relevant experts in the network are then notified about the new scoring opportunity. The REQUEST-SC's are informed by the reputation contract which ensures that only qualified experts are informed about the opportunity to stake Tokens in return for work. These experts will have access to a platform dashboard to determine how much they must stake for work, as well as how much their anticipated payout for services will be. The expert node then chooses to bid or not on the proposal.

The Order Matching contract allocates tasks according to the specifications within the REQUEST SC as defined by the network requester. Depending on the {n} of experts requested per section of due diligence work and per IS or OS determines the pricing mechanism for the contract. The final number of experts staking for work is dependent on how many sections the expert node stakes for. For example, a REQUEST-SC may specify five sections of work to be completed with an equivalent scoring experts, however, dependant on reputation and staking mechanisms, expert nodes may stake for all sections, or only one or two sections of work, and likewise may only be matched to work dependent of the same mechanisms. The result of this, in this example, is that the number of expert nodes may vary between 50 and 250.

Staking/Bidding on a SLC

Once a REQUEST-SC is sent to the i3D Platform interface, the i3D-SC initiates a bidding period for appropriate experts to bid on. The bidding period remains open until Factor Equilibrium is achieved. Additionally, the REQUEST-SC outlines the work, as per the SLA, that must be performed, as well as the variables that will be used to determine whether the scoring is deemed successful.

When an expert bids on a work opportunity, they are required to stake the minimum amount of i3D Tokens as defined in the REQUEST-SC. The higher the stake above the minimum, the higher the probability the expert node will be selected to perform the work. In addition to the staking mechanism, an expert's reputation, proven expertise, and track record also informs the weighting for selection. This means that an expert node that stakes an amount of i3D Tokens above the threshold may not necessarily be chosen if the Reputation Contract better matches suited candidates that have also staked the minimum amount as defined in the SLA. While not precluding higher bids, this encourages experts to only bid on SLAs that match the expertise they are verified for.

The bids of experts are tuples (c, s), where c is confidence defined as the quantity of i3D Tokens an expert is willing to stake in order to win the equivalent of one dollar, and is the amount of i3D Tokens being staked. After experts have been selected, their staked Tokens are locked in a smart contract some time t (as defined by the REQUEST-SC), s is locked in a smart-contract which is accessible to everyone, including Invluencer. After {t} has passed, a smart contract is used to determine the payouts.

Bids for being selected are accepted for the time defined in the SLA until Factor Equilibrium is achieved. Once the bidding window has ended and the REQUEST-SC has received the requisite bids to perform the job, the requested number of experts that the reputation contract accepts are now locked in to perform the due diligence within the time frame specified in the REQUEST-SC. Staked i3D Tokens that were offered during the bidding process are returned to experts that were not selected.

Reputation

Each account holding i3D Tokens is assigned a reputation score based on their track-record of success and proven expertise. These scores are not easily bootstrapped, as it is easy to create a new account. In other words, it takes significant time and effort to build a reputation in our system. This helps us mitigate the risks of collusion by making it extremely resource-intensive to attempt to run multiple i3D accounts.

The reputation contracts use a confidence interval to consider the past successes and failures of an individual expert in order to assess how they may perform again in the future. We first calculate the lower bound of the binomial proportion confidence interval as calculated by the Wilson score interval. The lower bound, c1, is defined by the below algorithm where ˆp is the fraction of positive task completion s, n is the total number of task completions, and zα/2is the (1−α/2) quantile of the standard normal distribution.

$$c_1 = \frac{\hat{p} + \frac{z^2_{\alpha/2}}{2n} + z_{\alpha/2}\sqrt{\frac{\hat{p}(1-\hat{p})}{n} + \frac{z^2_{\alpha/2}}{4n^2}}}{1 + \frac{z^2_{\alpha/2}}{n}}$$

We use Schelling Points and crowd attestation to determine the agreement of the work outcome for tasks distributed to the outer swarm, where successfully executing the task maximises the odds of being in consensus. Thus, our system rewards experts (especially in the outer swarm) for being in consensus, and “punishes" those that are significant outliers. Punishment in the context of the i3D platform means a loss in reputation, as well as losing a percentage of the i3D Tokens staked in order to perform the work. Since there is a clear economic incentive to be in consensus, and since experts cannot reasonably and aggregately communicate their scoring to each other prior to submitting, our reputation management protocol ensures that experts are doing their best to perform due diligence properly.

This is a unique solution for more mechanical tasks that do not require specific expertise. We determine outliers using an Interquartile range (IQR) of 1.5 for every individual score submitted by experts in the outer swarm.

The layered reputation analysis methodology also ensures that an analyst only scores that part of the analysis that they are qualified to complete. In order to reach final consensus on the validity of an analysis, the assessment may therefore have to move through different layers of cross sectional analysis experts in order to reach Factor Equilibrium. For example, an outer swarm expert with less reputation may stake to complete a level {n} financial analysis of a venture. The analysis may then be bumped up to a {n+1} level to validate the work of the level {n} expert. A favourable validation thus improves the reputation of the level {n} expert. The {n} expert issues a request to the network for a qualified {n+1} expert to validate their work. To reward the level {n+1} expert, the level {n} expert will be required to offer x % of their fee to the level {n+1} expert. If an expert is unable to complete parts of the section bid, they have the option to request assistance from other experts in the network by issuing a Request for Assistance which follows a similar process in terms of allocation of payments as in the ‘renting of Tokens’ process.

Tasks

Each SLA from a REQUEST-SC contains a variety of microtasks and macro tasks to be completed. These tasks are in the form of modular “scoring templates" which are used to perform due diligence on companies via a variety of factors. Initial SLAs will contain the templates that Invluencer has created, but eventually, experts with enough reputation can propose their own as well.

After an expert wins a bid to perform work, they are given the areas that they need to evaluate the company on (team, market, customer-product fit, etc.). Their subjective reputation and expertise determine which tasks they must complete.

The SLA contains the factor analysis that an expert must perform within the given time period {t} to perform the due diligence to the level of their verified reputation.

There will be some revision period r as set out in the SLA that determines how long this process will be. If an expert does not complete in time for r, they lose the chance to modify their scores, which may end up costing them their reputation or staking i3D Tokens. If an expert does not complete within t, they will automatically lose their stake and have their reputation decrease. As such, experts are incentivised to only bid on SLAs that they can complete in a timely manner.

After the scores are completed and times t and r have passed, respectively, the aggregating contract will analyse the weights of all answers to come up with a holistic report for the Requester of the i3D platform’s services. The aggregating contract uses algorithms to do so and looks for significant outliers of responses. These outliers are indicated by the reputation contract. When conditions c pass, these are the accounts that immediately are affected if they were either right or wrong.

Payout Conditions

Payouts are determined by the number of experts in the inner and outer swarm that are working on a specific project. Our reputation economy ensures that experts will only accept work if their potential earnings outweigh what they must stake to perform such work. As such, the Investors/Requester that uses our platform must ensure that they are subscribed in order to create the liquidity pool to get the optimal number of experts onboarded to participate in the process.

Analysis of Staking

Let p be the probability that an expert does x. A low p would indicate a high probability that the expert does not actually have the skills or expertise to carry out the required task of the REQUEST-SC. Let s be the total amount of i3D Tokens staked by an expert for the chance to do work. Let e be the buying price of i3D Tokens per dollar, and c the total confidence that an expert has in their ability to do proper due diligence. An expert will stake i3D Tokens if the expected value of staking is positive. If they fail to achieve x, they will lose s/e dollars. If they succeed, they will earn s/e dollars. Therefore, the expected value of E(in dollars) of staking s with some confidence c is:

$E(c,s)=p_{sc}$ -(1-p)$_{se}$

An expert will stake if:

$E(c,s)\geq 0$

$psc-(1-p)se\geq 0$

This implies:

$p\geq cc+e$

In other words, experts will only stake on the opportunity to do work if they believe it will be profitable for them to do so. This results in experts conveying their self-conviction that they have what it takes to perform the task that is being requested from the SLC. Over time, reputation and track-record will also reinforce the decisions that experts make when deciding to bid for the opportunity to perform work.

Since having higher confidence implies that an expert really does have what it takes to perform the due diligence, the following is implied:

The higher the p, the higher the s that the expert will participate in an auction to perform work, leading to a high chance they will be selected.

For a fixed p, a confidence that is too high produces E(c, s) < 0, which will ensure that p levels and c levels are proportional. This ensures that confidence of an expert reaches an equilibrium with their ability to perform due diligence on behalf of the network

Token Renting

If an expert wishes to make passive income rather than actively participate in a bidding process or do due diligence work, they can easily “rent” their i3D Tokens to an expert of their choosing. This increases the chances that those experts will be chosen to perform work on behalf of the i3D network.

There will be an on-chain database of top-performing experts as well as their usernames. Experts that are open to receiving rented Tokens will indicate so in their i3D account. This initiates a renting contract, denoted here as RC. Each RC is tied to the unique hash of the user that is prompting it.

If an expert wishes to rent their Tokens, they can interact with the RC of their chosen expert by transferring Tokens to that contract. In this case, the expert receiving the Tokens never actually has access to them; rather, their RC collects Tokens on behalf of the respective experts that have delegated their i3D Tokens to them.

When an expert that has initiated an RC successfully completes due diligence and is paid, those that rented their Tokens to them have their Tokens returned, as well as fiat earned from the due diligence proportional to how much they respectively rented.