VALIDITY

A self-governing rating system for crypto assets

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I. BACKGROUND

Cryptocurrencies and blockchain can be a hard prospect to understand. The general investor has little explicit knowledge about this new branch of enabling technology, which revolves around distributed networking and cryptography. Nevertheless, they continue to show interest either through investing or leveraging it for utilities not accessible in the digital and financial systems of today. Digital currencies have undergone many evolutions and adaptations since the creation of Bitcoin (BTC), which was developed by the pseudo-anonymous Satoshi Nakamoto. With the parabolic growth of this e-cash, adaptations flourished for reasons both foul and pure. Introducing new approaches to innovation and monetisation that further complicated the narrative of crypto assets. Today there are over 5,000 cryptocurrencies, 20,000 exchanges, countless companies and decentralised applications now attempting to capture a position within the market share of distributed technology.

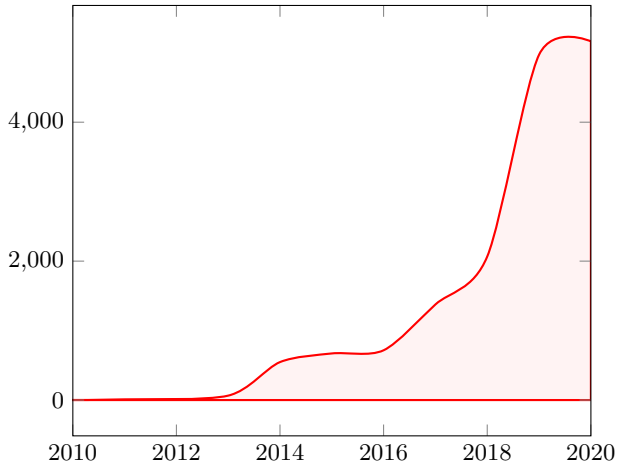

FIGURE 1: Amount of cryptocurrencies overtime

In 2017, ICO's (Initial Coin Offerings) an experimental form of crowdfunding that erased all commonly known investor rights present in legacy markets was brought to creation. It was then soon after, Statis Group reported that over 80% of ICO's held in the calendar year were justified to be scams [1]. What's more, the adequacy of cryptocurrencies themselves are subject to questioning due to the essence of open-source software (OSS). The ability to "fork" is a common practice to promote either; the rapid development or bootstrapping of an OSS technology but with the power of any freedom follows the flaws. The majority of cryptocurrencies bear impeccable similarities to their predecessors, it is common that, unethical projects clone the source code of successful projects and present new and appealing branding to divert the focus from their lack of originality. The general investor usually constitutes investments based on social and financial traction, so it's often overlooked. Whitepapers, a technical document into the originality of a product are also subject to frequent forgery, even in the origin of some of the industry-leading cryptocurrencies in the market today. It was reported that over 6% out of a selection of 3,300 cryptocurrency projects that the Wall Street Journal examined had clear evidence of plagiarism from past projects [2].

Among other concerns, Bitwise published a report in 2018 that conceptualised an argument that 95.5% of cryptocurrency exchange volumes were fake [3]. Yet, investors and traders continue to trust their funds in the faith of questionable entities. It was recently determined from the years since 2011, an estimated amount of $11,000,000,000 worth of assets have been lost in hacks within the hands of exchanges [4]. Even with the recent years of evolution for decentralised markets, the average user still reverts to centralised exchanges due to liquidity and the diversity of assets on display. What is more worrying, is that investors today still participate in causes of obvious profiteering, ponzi and pyramid schemes especially dominate in obtaining billions of dollars in the consecutive years leading up to 2020. Frauds like Bitconnect, PlusToken, and OneCoin tainted the industry's image in the general public and managed to steal an estimated amount of $25,000,000,000 over the years of their operations.

Given the reoccurring malpractices present, there is a clear need for crowdsourced evaluations to help investors validate the legitimacy of cryptocurrency investments and solutions. Previous attempts such as ICOBench, a rating platform for cryptocurrency crowd sales lost all credibility once it was discovered of its pay-to-rate model. Where any rating could be inflated through featured purchases [5], which led to investors being deceived and some becoming victims to fraud. Problems like these originate from opaque and centralised operations and the only way to reduce or inhibit them is creating structures that depend on collective intelligence and transparency. So that, bad actors and management can be identified and dealt with to nurture the common set of goals shared amongst benefactors and the users of the system. Allowing investors to leverage it as a reliable reference point to verify the integrity of an investment.

II. SOLUTION

Validity is a self-governing rating system built on Ethereum [6] to track and evaluate investments that are reliable and effective forms of distributed technology. Possible via the application of peer-production [7] to enable bias-free qualitative research alongside leveraging sentimental voting. Quantifying both into a simple rating for the general investor to reference. Users can constitute a unified means to govern the system either through sharing sentiments, peer-reviewing or directing the entire process as an exclusive committee member.

A. DAO

A DAO (Decentralised Autonomous Organisation) is the hierarchical body that consists of many accredited individuals, such as employees and esteemed industry figures to form a board that maintains the lifecycle of validations. Each member's voting weight depends on their in-house reputation, which is leveraged for any ballots within this closed system. There is pre-allocation of reputation for employees but any committee member can increase their reputation by either voting or submitting satisfactory proposals that pass consensus. Proposal topics are segregated into four options *review, committee, action* and *listing* which manage executions for each category. *Committee* and *review* define a proposal to explicitly correlate to initiating or exonerating an individual from each of the associated groups. *Listing* regards the approval of a pending investigation given that, it has a sufficient allocation of funding and social backing. The final type *action* correlates to any sort of transactional or off-chain matters, whether it be executing interactions with external smart contracts on behalf of the committee or any management related to Validity itself. All committee members are entitled to a percentage of the committee's revenue stream proportional to their reputation, which in turn is dependent on the frequency of approved listings and the financial resources backing them.

B. REGISTRY

The registry acts as a reference point for all reports and ratings associated with a subject, such as any coin, token, application, exchange or company. It will also function as a portal to create, fund or endorse listings, which are prioritised through social and financial demand. The on-ramp to enlist has no requirements; anybody can propose or fund (using DAI [8]) an investigation. However, to endorse a listing you must bear the status of a verified user, this decreases the probability of adversaries attempting to impersonate multiple parties. If a listing has the sufficient requirements and is feasible to execute, it shall be approved by the committee. It is here that, the DAO must delegate to either; a) outsource an individual or individuals b) propose a cohort member or members to author the due-diligence report associated with the subject at hand. Once a report is composed it is then proposed to the registry alongside a rating out of 100, on behalf of an address or multi-signature wallet controlled by the author or authors.

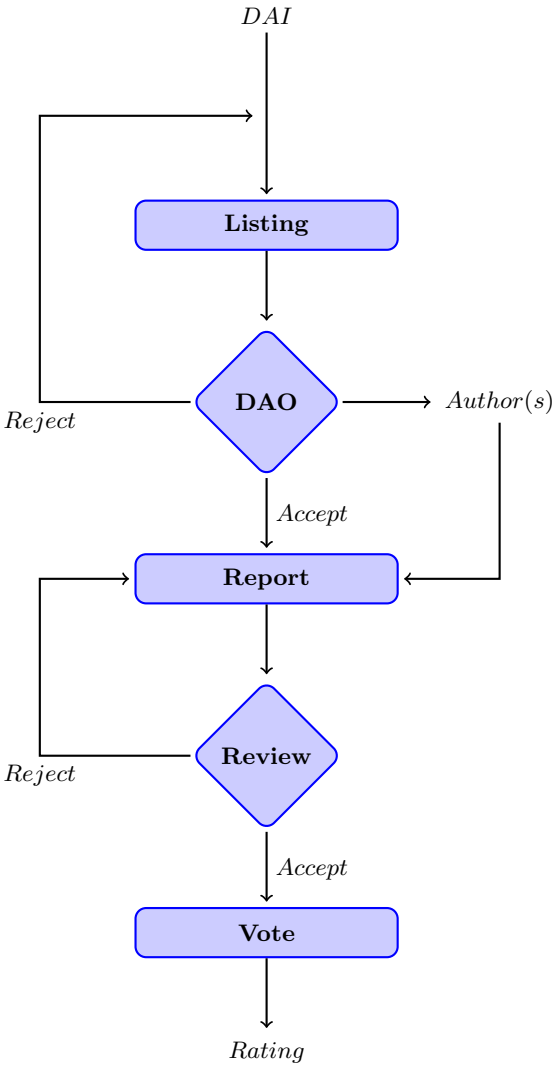

FIGURE 2: Process overview

Any quantifications submitted to the registry does not guarantee its finality, as there is no limit to the number of validations that can be applied to a subject. Given that, it has sufficient resources and demand, ratings are then averaged over time. Soon after, the reviewers partake in the process by peer-reviewing to constructively curate the document either by approving or rejecting it and providing the adequate reasoning for their decision. The reviewer topology will consist of various industry and legacy specialists extending from legal, economical and technical expertise. If consensus ($> 55\%$) is reached on the practicability of the document

it is then approved for submission. If it does not pass, the author or authors must revise the document based on the critique received and refine it until viable for resubmission. Whilst this may prove to be a long process, it is crucial in ensuring the quality of the reports produced, which significantly decreases biases forming through following the ethos of peer-production.

It is then hereafter a proportion of the listings funds are released to the author or authors and of the remainder, 50% is allocated to peer-reviewers and 25% to the committee members to maintain a consistent revenue stream for alignment. Then the remaining 25% is allocated to the staking pool, that is funnelled once the sentimental ballot has concluded and a final rating for the subject is reached. All of the above percentages are dependent on the rate established to author the investigation.

C. TOKENECOMONICS

Given the state of governance-specific distributed systems, it is obvious that there is a missing alignment between participation and allocation. Many of the existing approaches lack the elements needed to incentivise the average user, which is ultimately the key to success in such a system. In crypto networks, this is often seen as an issuement of a token, in that its denomination is justified as a vote. To incubate evaluations based on qualitative and sentimental attributes, Validity's token provides the missing piece. Denoted as VLDY and in compliance with the ERC20 [9] standard, it extends the possibilities through its governance adapted design.

With the hyper-monetisable essence of blockchain, it has been seen that projects wager off a large majority of this asset type to venture capital firms who often then dominate the distribution of power. This influences susceptibilities towards balloter self-doubt due to one's lack of any noticeable impact on a vote and sequentially reduces participation because of this. This roots from centralisation and the ability for large figures to co-ordinate through nepotism, skewing the outcome of a vote in any preferred direction. An intriguing analysis into the probabilistic effects of altering the outcome of a ballot and in turn the equality of voting weight in a governing body is leveraging the concept of the Banzhaf power index [10].

With this in mind, Validity's native token is obtainable through the free market or through the allocation in a distribution scheme, where up to 60% of the initial supply is exchanged with the public through the agreement of certain parameters. Whether related to verifying the uniqueness of an individual or to provide social traction through pre-set tasks for the project itself. The method of distribution and also the parameters to comply are subject to change to accord with the needs of the project over time. Where the core utility of the token is governance it also has secondary use-case, that exists to capture value to the asset itself and provide a process for token holders who don't wish to proactively make decisions as seen in voting. Users can time-lock their tokens into a staking pool which is distributed a proportion of funding from each validation, rewards are directly proportional to the amount staked.

GOVERNANCE

Sentimental voting consists of three simple parameters in any ballot, *positive*, *neutral* and *negative*, each bearing an association with a voters disposition towards a subject. Compliance for voting has two requirements; yielding a sufficient denomination of VLDY and staking for a specific subject to pre-signal their participation in the vote. This allows a dynamic quorum to be calculated dependent on the number of pre-signallers, which theoretically reduces power indexes in any governing body. Staking results in the bearers holdings to become "frozen" until the ballot ends to reduce the surface area of Sybil attack [11] vectors occurring.

Whilst a weighted voting model of financial denominations can be controversial, Validity's native token bears a reputation system that reduces vote manipulation through the accessibility of the free market. Expressed out of 100, it is a direct reference to the percentage that one can leverage their active balance to act as their voting weight. Therefore, if an individual aggregated a large proportion of the token (without any previous interaction with the system) for utility in a particular ballot, access to their associated voting weight would be partially inhibited. Giving a committed user with a minority of holdings but a bearer of greater reputation, more influence on the ballot.

Reputation can be earned through either of two processes, each of which is dynamic and requires upkeep to be sustained. The primary form is earning credibility through reoccurring participation in validations (and on the contrary losing it because of a decrease in participation) incentivising proactive individuals to the system. The secondary is the possibility for one to burn tokens at the cost of earning reputation. This is computed through the number of assets one has ever burnt, divided by their balance plus the total amount of assets one has burned. All of which is set to the power of a burn difficulty, this difficulty is dependent on the cumulative amount of assets ever issued versus the total amount of assets burned. Which is finally multiplied by the difference in block number since the individuals last recorded burn. So, over-time with the number of rewards issued after each validation, it becomes easier to gain potential reputation through burning given that, the amount of burned assets are less than the amount issued. All

of this is at the financial cost of the burner, to promote the option that if a user feels strongly about a certain subject they can demonstrate it. Once the ballot has been finalised, participants are compensated through a reward system, which follows an exponentially decreasing inflationary model by minting tokens to the participating users. Where rewards are issued relative to the voting reward in accordance with the voting weight cast, so the more reputation an individual has access to, the more one can earn.

D. INDEXES

Validity aims to provide the necessary awareness and education in investing in the crypto asset class, through its primary rating system or either the creation of tools to promote the accessibility of strategic investing. Such as, the ability to hedge one's risk through diversification through issuing indexes. Where a single denomination of an index correlates to a "basket" or selection of multiple investments. Allowing individuals to invest in specific categoric hedges with zero over-head. An index can be used as a measurement of the condition of any individual market, valued through the averaged capitalisation-weighted of the assets within to give definitive monetary metrics. Index tokens can be minted through hedging capital or burned by liquidating the assets in exchange for the appropriate USD value. Uniswap v2 [12] acts as a price oracle for any of the assets within an index and used to compute the index's general weighted price for transactions in or out of the hedge.

For any asset to be delegated into an index it must be whitelisted by the committee, the criteria for this status is dependent on many parameters such as; a minimum rating, sufficient liquidity reserves and is pre-approved by the committee as an ethical project. The committee also governs the ability to issue these indexes through a selection of two or more whitelisted assets, aiming each to be focused on niches in the cryptocurrency and blockchain space. Therefore, investments can be funnelled into a general prospect or solution rather than one independent entity. These indexes not only help the general investor assess the health of any specific market today but they allow investments to be automated and diversified through one simple transaction.

III. REFERENCES

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