GENERAL TOKENIZATION MANIFESTO

A tokenization standard to empower decentralised business models.

White Paper Version 1.0

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1. ABSTRACT

Over the past two years, ICOs aka Initial Coin Offering has gained massive popularity and emerged into the most preferred fund raising option for companies, especially blockchain startups. The easiness of fundraising has attracted thousands of companies to launch ICOs without a proper plan for investor and fund management, which resulted in high fail rates for ICOs. Moreover, numerous scam ICOs looted the money from the investors. Today, investor community is skeptical about ICOs due the increased number of scam ICOs and ICO fail rates. This paper proposes a standard for conducting ethical and compliant ICOs and STOs which are focused on creating sustainable businesses. The proposed standard intends to eradicate the scam ICOs and empower the investor community of the ICO, STO so that true decentralisation of companies can be established.

*The token issuance standard defined in this whitepaper is not adoptable for a limited class of STOs which offers returns by investing the raised funds in other securities.

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2. KEY TERMS

Following are the key terms used in this whitepaper;

TERM	DEFINITION
Token	Crypto token, created as a result of tokenization of a product, service or a security
ICO	Initial Token Offering
STO	Security Token Offering
Investor	Person who purchases token from the token issuance
Founder, Offeror	Person or team who is conducting token issuance
Smart contract	A computer code running on top of a blockchain containing a set of rules under which the parties to that smart contract agree to interact with each other.
Milestone contract	A special type of smart contract code to evaluate the completion of a milestone of a project
Project Blueprint	A document explaining about the project idea, team, scope of project, execution plan, tokenization details, milestone details, community election details etc
Milestone consensus	The process by which community comes to a conclusion that a milestone of a project is completed
Proof of completion	The consensus algorithm used in milestone consensus.

3. INTRODUCTION

Initial Coin Offerings have quickly grown as a method of securing startup funding for blockchain-based companies than venture capital. According to PwC, 537 ICOs with a total volume of more than $13.7 billion have been registered since the beginning of 2018. This is nearly twice the volume of ICOs registered in 2017; 552 ICOs with a total of just over $7.0 billion. Furthermore, the average size of an ICO has almost doubled from $12.8 million to over $25.5 million since 2017.

Even though it may seem that ICOs appeared out of nowhere, the history of ICOs dates back to 2008. A white paper named as bitcoin whitepaper was published by an anonymous person named Satoshi Nakamoto. This white paper caused a disruption which has revolutionised the global payments industry. Other potential applications for the underlying technology of Bitcoin - known as Blockchain was not explored till 2012 when J.R. Willet published the Mastercoin white paper which states that the Bitcoin protocol "*can be used as a protocol layer, on top of which new currency layers with new rules can be built without changing the foundation*". This idea put forward by Mastercoin expanded the potential of the Blockchain technology for other applications such as distributed exchanges, supply chain monitoring applications, and more. The Mastercoin project started off with a month-long fundraiser in which anyone could buy Mastercoins with Bitcoins. Over 5120 BTC with a net worth around $500,000 was raised by Mastercoin and this is considered to be the first ever Initial Coin Offering and it was successful beyond expectations

A year later, in 2013, Vitalik Buterin published a white paper describing what would ultimately become Ethereum, a platform that went beyond the financial use cases allowed by Bitcoin. Ethereum put forward an open-source public service that uses blockchain technology to facilitate smart contracts and secure cryptocurrency trading without a third party. Ethereum made it possible for anyone to write smart contracts and decentralized applications where they could create their own rules for ownership, transaction formats

and state transition functions. This has enabled the development of various decentralised applications which can serve not just the payments industry, but other industries as well. In 2014, Buterin and the other co-founders of Ethereum launched a crowdsourcing campaign where they sold Ethereum tokens called Ether to the amount of more than $18 million to get their vision off the ground.

Blockchain technology is something that can be leveraged to transform industries as varied as banking, farming, logistics, healthcare and manufacturing, to name a few. Since the launch of Ethereum, a number of ICOs were launched for projects of decentralised applications for different industries. Some of these ICOs astonished everyone with its performance. The ICO for a new web browser called Brave, for instance, generated about $35 million in under 30 seconds and is the highest-grossing ICO as of January 2018, beating Filecoin that was able to raise $200 million within the first hour of its token sale.

The liberation that ICOs afforded to entrepreneurs gradually drove them away from traditional VC fund raising mechanism because that process is lengthy and time consuming not to mention the biases against gender, geography, ethnicity and so on that founders would have to deal with. ICOs on the other hand, make raising funds an easy process. Funds are raised via token sales and the offerers reach out to the people who believe in what they do and convert them into evangelists and investors for their products. Since Mastercoin, thousands of ICOs have been launched, successfully raising nearly $30 billion to build decentralised applications.

3. ANALYSIS OF PROBLEMS FACED IN TOKENIZATION AND TOKEN SALES

The ICO domain is plagued with few problems are described below

A. Fraudulent ICOs

A recent <u>study</u> by the ICO advisory firm Statis Group revealed that more than 80 percent of Initial Coin Offerings (ICOs) conducted in 2017 were identified as scams. This is not surprising as an, unregulated market with heavy flow of capital is bound to attract fraudsters who want to become overnight millionaires. The usual trend in fraud ICOs is that the founders of the fake ICO company give enough information to get investors to put in their money and then disappear with the raised funds. The influx of such fraud ICOs has made wary of every ICO and they become reluctant to invest even if it is for a deserving cause. These are a lot of odds against the genuine and creative minds who are trying to change this world.

B. High failure rate for ICOs

A large number of ICOs fail, either at the fundraising stage or when it comes to delivering the actual project. Tokendata, one of the ICO trackers, lists 902 crowdsales which took place in 2017. Of these, 142 failed at the funding stage and another 276 have since failed, either due to it being a scam, or it slowly fading away into obscurity. This means that at least 46 percent of the ICOs launched in 2017 have already failed. Aside from fraud, ICOs fail due to improper project planning, poor project execution capability and disinterested investors dumping ICO tokens. The high rate of failure with ICOs creates bad impression about this domain which dissuades any prospective investors. .

C. Passive community involvement

Blockchain technology is disruptive today due to its nature of decentralization. However, not all of the current ICOs embrace that nature. Most ICO founders see ICO as the final step; once they raise the money for the project, they lose interest in the investors who supported the project. All decisions made in the project and updates are discussed only among the project founders. The community around the ICO is more often than not left out during any strategic decision making process. This results in investors growing disinterested in the project and they end up dumping the ICO tokens which adversely affects the project in the long run.

D. Lack of standardisation

The lack of a standardisation for ICOs causes the ICO founders to follow a diverse processes in token sales and token distribution. This diversified nature discourages the community involvement for the ICOs. Moreover, a lack of standardisation is beneficial to the fraudsters as they can easily execute the fraud token sales.

5. PROPOSED BLOCKCHAIN BASED SOLUTION

The above mentioned problems faced in the ICO domain can be solved by empowering self policing ICO communities to retain control over the fund allocation and an active involvement in the KPI & Milestones review of the company. This whitepaper introduces a methodology of *KPIs based fundraising* which lets investors decide when funds will be released to the offerers/promoters.

5A. Philosophy of Self-Policing Groups

The growth and success of any organization depends on how well the activities of the organization are managed. Traditionally, when a company is launched, third party entities such as Securities and Exchange Commission (SEC) of US or European Securities and Markets Authority (ESMA) of the European Union police the activities of the company and ensure its compliance to laws and regulations to protect the interests of the investors and the founders.

When a founder launches an ICO, people worldwide have the opportunity to be a part of the company. The best part of launching an ICO is not just the ease in fundraising but also the community of believers it builds; these are people who believe in the company and its vision for the world. This community does not just back the company financially but also in other aspects such as marketing and sales. The full potential of such a community is realised when the community is able to make their voice heard during any decision making process in the company.

When every participants of the organization works towards a common goal, the success of the company is more certain. The community can complement the involvement of third party entities by police the activities of the company. Here, leveraging on the element of transparency established between founders and the community, the latter can directly influence the allocation the funds, review the progress made by the company, review strategies and policies etc. The community can work along with the founders to reach the common goal, which is the success of the company.

This paper propose a standard to conduct ICO and STO so as to empower the ICO community to be self policing so that the problems faced in the ICO domain today, such as scams and high fail rate of ICOs can be solved.

5B. Milestone Contract Based ICO

An ICO launched with *Milestone Contract* can mitigate the possibility of fraud with ICOs. Fraudsters, when they launch an ICO, have only one objective- raise as much money as they can and leave with it. The diagram D1 below shows the high level picture of how a regular ICO token sale happens:
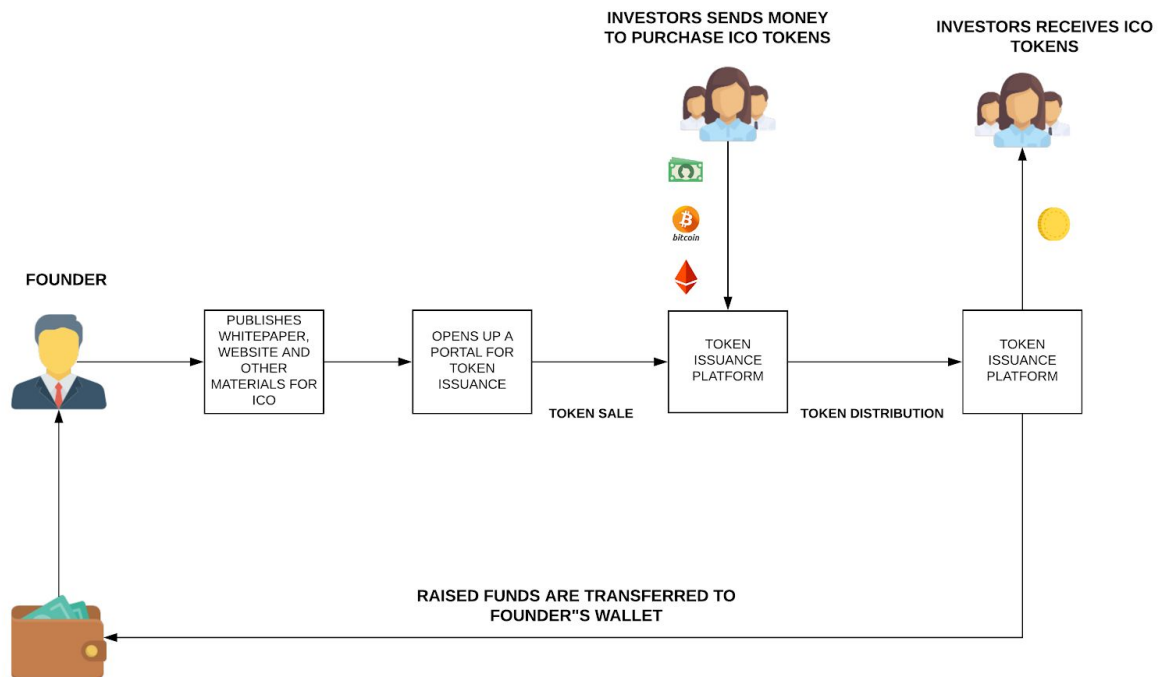
D1: High level process flow of an ICO

As depicted in diagram D1, the investors send in funds in terms of Bitcoin, Ether, other cryptocurrencies or even as fiat money to the wallet or account of the founder. When the funds are transferred from the investor's account to the founder's account, the former will no longer have control on how the funds are utilised. In case of fraud ICOs, after receiving the raised funds, the so called founders abandon ship and causing a massive loss for the investors.

5B1. Solution to exit scams : The exit scams in ICOs can be prevented with the adoption of *Milestone contract* token sale models to ICOs and STOs.

With the Milestone Contract token sale model, the funds raised with the ICO will be locked in a smart contract called the milestone contract or a third party custodian. The contract releases the funds based on the completion of each milestone as defined in the smart contract. The underlying idea is that the founders actually need to meet the milestone goals in their project to receive the funds raised in ICO. The diagram D2 depicts the working of a milestone contract based ICO.

The key components of a milestone contract ICO are;
1. Project Milestones and Milestone Plan.
2. Milestone consensus.
3. Milestone moderators.
4. Polling mechanism.
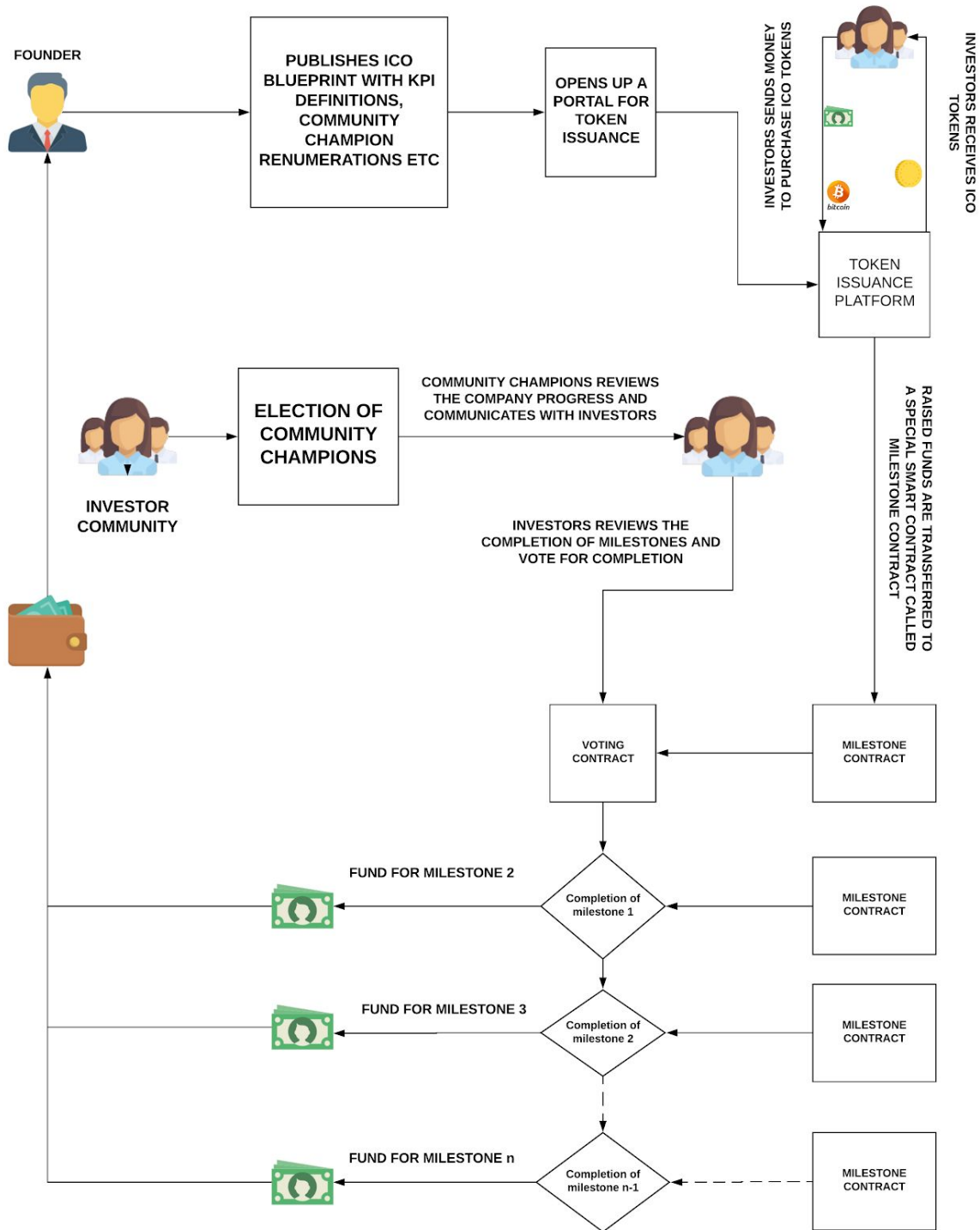
D2: High level process flow of a milestone contract based ICO

5B2. Project Milestones and Milestone Plan

A project milestone is a task of zero duration that represents an important achievement in the project. The milestones should depict a clear sequence of events that incrementally build up until the project is complete or until the next funding round or any other type of exit event. A milestone plan defines how the project will be executed and completed over time. This plan is a crucial element in the ICO white paper which the prospective investors will use to decide whether or not to invest in the project. The founder will define how the total raised funds will be used at each milestone to complete the project and the investor will evaluate the ICO based on this milestone plan. .

5B3. How to Define a Milestone

ICOs today define a high level roadmap for the project which depicts how the project will progress into the future. A Milestone Contract based ICO demands a detailed plan of the milestones of the project. Drafting this plan is the discretion of the founder. But since the investor community's evaluation of the ICO is almost entirely based on this plan, the founder will have to ensure that it is a detailed and sensible one based on the nature of the project.

Guidelines for Defining Milestones

1. The status of the milestone must be assessed in boolean, i.e, either the milestone is completed or it is not completed.
2. The funds will be released right after token sales only for the first milestone.
3. The output of the milestone must be reviewable and testable by the target customer of the product/service, milestone moderators.
4. The review instructions for each milestone should be drafted and reviewed with the milestones.

5. A project must have at least one milestone and an equal number of milestone drafts.
6. A milestone draft should include
    a. Milestone description : A description of the objective of the milestone.
    b. Milestone due date : The date due which the team estimates the milestone to be completed.
    c. Milestone capital requirement : The fund needed to execute the milestone
    d. Capital distribution : How the fund will be distributed for various aspects like operations, customer acquisition, marketing etc.
    e. Milestone requirements and dependencies : Explains the third party dependencies, requirements etc required to complete the milestone.
    f. Milestone buffer percentage : Define the anticipated percentage change in the milestone capital caused by external factors such as price of resources, market etc.
    g. Supporting documents : Attachment of the documents and assets required for the completion of the milestone.

Example: Consider an ICO which is raising funds to launch a decentralised music sharing application.

Correct Example of milestone definition

Milestone 1: Hire developers and set up infrastructure for app development

Milestone 2: Launch of production ready application in app store. The application will have the functionality to send and receive tokens, subscribe to songs and add playlists. Acceptance criteria: The app is fully functional with functionality to send and receive tokens, subscribe to songs and add playlists.

Milestone 3: Complete the marketing to reach 1K app downloads in app store.

Acceptance criteria: The app download reaches minimum of 1K in app store.

Incorrect example of milestone

Milestone 1: Completion of app development.
Milestone 2 : Completion of marketing for the app

Changing the Milestone plan

The milestone plan can be changed after the completion of tokensales only under the following conditions are satisfied.

1. Community election need to be conducted and community approves the need for a new milestone plan
2. The reason for the change should be
   a. The new plan is more efficient in terms of time, finance or value of the project
   b. The current plan is predicted to be not effective
3. Community voting need to conducted and requires a minimum of 75% of the votes in favour of changing the milestone plan.
4. Founder should bear any additional cost resulted as per change of plan.

5B4. Milestone consensus and moderators

Milestone consensus is the mechanism by which the investor community of an ICO arrives at a consensus about the completion of the milestones by the company, so that funds required for the execution of upcoming milestone is released to the founder. Milestone consensus is achieved by the process of voting by the community. Community champions are the elected representatives from the investor community who can review the progress of the milestones and convey the progress to the community. To arrive at a milestone

consensus, 75% or above of the votes from the community should be in favour of approving the completion of the milestone. For an ICO, there will be multiple community champions, each responsible to review one of the following aspects of the company.

1. Technology
2. Finance
3. Domain expertise
4. Legal and compliance
5. Quality assurance

5B5. Polling mechanism

Community champions are elected members from the investor community who can represent the community to vote in favour or against the progress achieved by the company.

Anyone from the investor community of an ICO can participate in the election process to be elected as a community champion. The candidate has to showcase his credentials to the ICO community through the community channel. The community can review the credentials of the candidate such as his expertise and experience in the field. The members can cast votes to their favourite candidate in each of the category. The candidate with most votes in each category will be elected as a community champion.

Election process

The election for the community champion will follow a stake based voting. Here, a member in the ICO community can cast votes proportional to the number of stakes he owns. Number of votes available for one member is determined by the following calculation.

N = total token sold in the pre and public ICO stages.

n= number of tokens purchased by an individual investor

X= the voting power of an individual investor

X= N/n

An individual investor can cast X number of votes under each category for the election of the community champions.

Benefits of Stake based election process.

- Staked based process for community champion election will ensure that the founding team has the least influence in determining the community champions.

- Stake based voting makes the voter to be more vigilant to cast the vote. The voter will have do proper due diligence, otherwise the collective polling process can affect the project and this in turn may affect the value of the stakes held by the voter.

Rotation of community champions.

The elected community champions can serve as the community champions for a predefined period as specified in the ICO white paper. After completing the period of service, the reelection process will happen where the performance of the community champions in the previous term will be taken accounted for.

Incentives for the community champions

The elected community champions will be rewarded by the ICO founders for the service done by them. A portion of the raised funds will be allocated for incentivising the community champions. Incentives for the community champions has to be defined in the ICO white paper by the founder.

5B6. Fund releasing process and buffers

Fund release for the milestones are controlled by a special smart contract code called *milestone contract.* Milestone contract are actuated based on the inputs received in the community channel from the community members.

5C. Post ICO engagements

5C1. Multi tier investor reporting

Despite the fact that Blockchain technology endorses decentralization and transparency, blockchain startups raising funds through an ICO lacks these qualities when they do not give power to the investor community in decision making and company's progress reporting. We have seen in the previous section how a milestone contract based system brings power to the investor community in decision making. In this section we will see how to empower transparency between the founders and ICO community.

Principle : The principle behind multi tier investor reporting is to establish a permissioned transparency of information within in ICO community. The members of the community ranges between investors who made investments in value of a few hundred dollars to investors who made investments in millions. Multi tier investor reporting presents a mechanism for reporting right information to the right category of investors. For example, the high value investors who falls under the top 5% of the top investors list will have greater insights on the company such as board decisions while the low value investors will have insights on company updates, project updates etc.

Reporting tiers

1. First tier : top 5% of investors
2. Second tier : top 10% of investors
3. Third tier : top 20% of investors
4. Fourth tier : top 50% of investors
5. Fifth tier : top 100% of investors

Reporting schema

1. Company updates
2. Project updates
3. Contracts updates
4. Strategic updates
5. Board decisions

Updates/tiers	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Company updates	Yes	Yes	Yes	Yes	Yes
Project decisions	Yes	Yes	Yes	Yes	No
Contract updates	Yes	Yes	Yes	No	No
Strategy updates	Yes	Yes	No	No	No
Board decisions	Yes	No	No	No	No

5C2. Community engagement

Community engagement is an important factor for companies launching ICOs. Founders need to provide a common channel for the investors to engage with the founders. Such a community engagement portal should facilitate the following activities;

Discussions : Currently, ICO founders rely on channels such as telegram, slack etc to engage with the community. These channels are isolated from the tokensale platform and inconvenience to the investors. The discussion channel need to be integrated to the token sale platform so that all vital information can be made accessible in a single place. Having an integrated discussion channel provides several benefits to the founders as well as the investors. Few of the benefits are as follows.

1. Provide token sale analytics information to investors
2. Option to implement polling to understand community's opinions
3. Option to implement multi tier reporting
4. Option to integrate bounty programs with the channel

Reporting : The channel facilitates the sharing of report from the founders to the investors based on the tier of investors as specified in section 5C1..

Polls: The channel facilitates the founders to do community polls to collect the opinion of the community on company updates, strategies etc. Milestone consensus are achieved by community polling.

Bounties : The channel facilitates announcement and implementation of new bounty programs which can help the growth of the company through the investor community.

Investor happiness level : The channel can be used to track the happiness level of investors. Investors can upvote or downvote the activities and updates posted by the

founders on the community channel. Based on the investor's engagement with the company updates, an analytics engine can measure the happiness level of the investors. Founders can use the analytics insights to modify the company strategies.

5D. Ethical and regulatory compliance

When a founder opts ICO or STO mechanism for raising funds, they are bound to comply with a set of ethical as well as regulatory processes. Regulatory compliances are defined and forced by third party entities such as SEC, ESMA etc to protect the interests of the investors. Founder has to follow the rules specified by these agencies to legally sell their tokens to the public. Ethical compliances are not forced by a third party entity, rather the founder has to follow a set of rules to maintain the positive environment with the investor community.

Ethical Compliances

Ethical compliances for an ICO can be broadly classified as below

1. **Reporting** : Founder has to submit reports to the investor community through the reporting schema as defined in section 5C1. Proper reporting of the company updates empowers permissioned transparency between founders and the investor community. This way, the completion of KPIs and milestones can be made transparent between founders and the community.

2. **Remuneration** : Founder has to remunerate the community champions for the work they do in reviewing the reports. Founder also need to remunerate the members of the community for participating in different programs such as bounty programs, bonus programs etc.

3. **Community engagements** : Founder has to engage with the community via polls to understand the satisfactory level of the community regarding the progress of the company.

4. **KYC/AML for the ICO team** : ICO founders should complete the process for KYC/AML. This includes providing details such as identity proofs, kyc verification etc. The investor community should be able to review the id proofs and other details provided by the founders.

5. **Advisor relationship and definition** : founders has to define the relationship they have with the advisors, via an advisor profile. The advisor profile will brief the bio of the advisor, their experience, how they can add value to the company and how well they are connected to the founders.

6. **Integration with regulators and laws**: Founder has to provide detailed information on how the entity is integrated with regulatory agency in the jurisdiction of the company. What all compliances are followed by the company and supporting documents.

7. **Legal holding** : founder has to provide detailed information in the legal holding of the company.

Regulatory Compliances

SEC has now made it crystal clear that virtually all ICOs are securities and they want to define a path forward for the industry through rigorous enforcement. Simply put, the commission wants all ICOs conducted for fundraising in the U.S. to be brought into immediate compliance with securities laws. SEC proposes a way to do that with a Reg D-compliant private sale, combined with a new token permissioning technology (the

"Restricted Token") that makes it possible for issuers and investors to abide by existing rules and regulations.

For a successful ICO, the company has to achieve the following objectives to comply with the compliances.

- enforce restrictions on secondary trading
- enforce restrictions on initial issuance of tokens
- tokens need to be sufficiently available to enable use of the protocol.

Solution : A combination of Reg D, Section 4(a)(7), and Rule 144 can achieve the objective of a private ICO as pointed above. Under Section 4(a)(7), the private resale exemption, accredited investors may generally resell to other accredited investors after a 90-day post-issuance lockup period. One year after the initial issuance, the public may generally buy and trade the tokens under Rule 144. In this scenario, the company raises initial funds on a SAFT from accredited investors, then issues the tokens to those accredited investors. After a relatively short 90-day lockup, those initial accredited investors are free to trade with any other accredited investors. This allows the protocol to begin functioning. Nine months after that, all investors, not just accredited, are free to own the token.

How to enforce secondary trading ?

A new technology called Restricted Token enforces the secondary trading requirements under Section 4(a)(7) and Rule 144. A restricted token is a permissioned token based on the regulated token standard. The regulated token standard is based on the ERC-20 standard but contains additional code to check an on-chain regulator service before it trades. The regulator service can be configured to meet relevant securities regulations, Know Your Customer (KYC) policies, Anti-Money Laundering (AML) requirements, tax laws, and more.

When a trade is requested, the Restricted Token checks with the Regulator Service to make sure that the investor and the trade are compliant; otherwise the token throws off an error message and will not transfer. In the case of Section 4(a)(7), for example, Restricted token will ensure that a token is being transferred to an accredited investor after the initial 90-day period. The Restricted Token can also be implemented to ensure that the tokens trade only on approved trading platforms.

The PICO's protocol allows for multiple jurisdictions for true international compliant use. For example, Reg S provides an exemption under U.S. securities laws for international offerings sold to non-U.S. persons. Issuers wanting to do a Reg S token sale could permission Restricted Token to exclude U.S. persons altogether. Alternately, Restricted Token could facilitate the combination of a Reg D offering to accredited U.S. investors and a Reg S offering to non-U.S. persons to achieve the widest possible compliant token distribution.

The SEC has a 3-part mission: (i) protect investors, (ii) maintain fair, orderly, and efficient markets, and (iii) facilitate capital formation. The Reg D-compliant PICO serves all three interests, providing a common, reliable, and efficient way to raise funds with slowly expanding liquidity as the risks to investors lessen and become better known:

- Compliance with Reg D protects investors by limiting the initial issuance to accredited investors who have the sophistication and financial resources to deal with the risks of a nascent industry with young companies.

- The 90-day lockup period of Section 4(a)(7) dampens the initial speculative fever that has accompanied prior ICOs. The continued limitation of trades after 90 days to accredited investors protects the broader investor community when the protocol

and company are still very young and risky.

- The opening up of secondary trades to any investor after a year allows for essentially public distribution of the tokens.

In the first year after the token issuance, the company will have a limited pool of engaged, and fault-tolerant users which can add value to the company and after an year from the token issuance, there should be much more information for all investors on whether the protocol is working, the use and valuation of the token, etc., Moreover, after a year the functionality of the protocol may have advanced sufficiently such that the tokens have truly become utility tokens. R-Token ensures that every token holder is a known party who passes KYC/AML and other tests.

6. THE FUTURE OF ICOs, STOs

ICOs has ignited a spark in entrepreneurship, where entrepreneurs can raise the funds to build their companies from the people who believe in their idea rather than money motivated venture capitalists. The frictions faced by ICO domain due to scams and passive community engagement can be resolved by standardisation of ICOs. With this standardisation, we can expect democratised companies, where the self policing community acts as evangelists for the company, working in tandem with the founders to drive the company to success.

7. APPENDIX

1. Template for milestone contract - Milestone definition

MILESTONE 1	
Milstone Name	
Estimate Commencing Date	
Estimate Completion Date	
Estimated Capital Requirement	
Milestone Definition	
Milestone Completion Indicators	
Deployed Contract Code	