

Tribute

Whitepaper v0.92

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"A typical commons-based peer production project involves various distributed tasks, to which individuals can freely contribute. Salaries based on a fixed job description may not be the most appropriate way to reward those who contribute to such processes. Open co-ops, therefore, may practice, for example, open value accounting or contributory accounting. Any income the contributions generate then flow to contributors according to the points they accrued. This model could be an antidote to the tendency in many firms for just a few well-placed contributors to capture the value that has been co-created by a much larger community¹".

Michel Bauwens, P2P Foundation

"We should learn to do for hunting individuals in the Entrepreneurial Age what Henry Goldman did for retailers a century ago: provide them with access to capital not based on what they own, but on what they might earn in the future²".

Nicolas Colin, The Family

"So how do you get people to join a brand new network? You give people partial ownership of the network. Just like equity in a startup, it is more valuable to join the network early because you get more ownership. Decentralized applications do this by paying their contributors in their token. And there is potential for that token (partial ownership of the network) to be worth more in the future³".

Fred Ehrsam, Coinbase

"Blockchain-based governance makes it easy to set up innovative reward mechanisms based on the concept of "crypto-equity", so as to create new incentives for people to contribute to a common project.⁴"

Primavera de Filippi, CNRS/Harvard

"For the first time, both money and equity can be programmable. The ramifications of programmable equity are massive, mainly because they create the potential for networks of value-creation to exist that require no human intervention whatsoever. Put simply, the concept of programmable money and programmable equity together push us into a world where unprecedented value can be created by autonomous value-creating networks."

Nader Al-Naji, Basis

¹ <https://www.shareable.net/blog/cooperativism-in-the-digital-era-or-how-to-form-a-global-counter-economy>

² Nicolas Colin, *Hedge*, Family Stories (2018)

³ <https://blog.coinbase.com/app-coins-and-the-dawn-of-the-decentralized-business-model-8b8c951e734f>

⁴ <http://commonstransition.org/commons-centric-law-and-governance-with-primavera-de-filippi/>

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Why Tribute

It is no longer news that the workforce has undergone significant structural change over the past few years. The number of freelancers versus full-time employees has gone up drastically. The ring-fenced model of organizations with a set number of hired employees is being extended or replaced by more open and flexible structures. 'Gig' and 'Sharing Economies' opened the doors for mega-platforms with limitless members to create value outside of the traditional company. And, thriving open source projects have come to life from non-salary contributions.

These new "open" models appear on the surface to be better because of their efficiency. But in fact, they do not always benefit the contributor. Studies have repeatedly shown that gig workers suffer downward pressure on wages and sharing economy participants take lower asset valuations than existing markets provide. In many cases, work marketplaces collide with—or escape—the legal and social systems designed to protect individuals from exploitation.

From a business standpoint, the ability to leverage networks of independent individuals to fund, build, deliver—and even consume—products and services has proven to be more effective than the traditional managerial model of a captive workforce coordinated by a hierarchical chain of command. However, rising tensions between firms and networks, combined with much lower switching costs for self-employed individuals than for regular employees, are starting to challenge the sustainability of these models.

Workers need new types of support for new economic models. Regulation is one potential path. Nicolas Colin, a leading critical voice, argues that new regulations may provide the bridge to resolving the employer versus employee conflict that is heightened in the Entrepreneurial Age⁵. Business leaders also have an essential role to play in a reinvented version of Fordism, which advocated decent wages to workers so that they could be included in the emerging industrial economy of the time—not only as producers, but also as consumers.

We believe that misaligned interests between internal and external stakeholders are the major impediment to the flourishing of new models of decentralized, peer-based production. This is why we are building the **Tribute platform**, whose purpose is to enable businesses to grow by sharing more value than they capture for themselves. With Tribute, organizations can issue contributive tokens and set up "Smart Incentives" in order to incentivize and reward communities of independent contributors in a sustainable and equitable manner.

We are building the Tribute platform in order to have a positive impact at the microeconomic level for organizations and the networked individuals they work with. We intend to play a part at

⁵ Nicolas Colin, *Hedge*, Family Stories (2018)

the macroeconomic level as well, by introducing a new way for funding the development of digital commons, such as the open protocols and the free software that made the Internet possible. To this end, we are setting up the **Tribute network** as a community-driven, code-based decentralized organization, whose purpose is to inject a flow of value into the commons economy.

It's time to pay fair tribute to every creator of value.

That is our mission, and we welcome your contribution.

Part I

The Tribute Platform



The Tribute Platform

"Aragon buys back some of their ANT in order to use them to incentivize external contributors. ANT is a great tool for us to incentivize contributors. Having a wide, varied community of contributors from different backgrounds is important. This is something that we see as an essential part of any blockchain network. Thus, seeing people commit code and close issues through GitHub or come up with great ideas that we haven't thought of, is something we want to reward⁶".

Luis Cuende, Aragon

The Tribute Platform is a set of software components and application services that enable organizations to incentivize their communities with programmable equity schemes.

Core elements

The Tribute Platform includes 3 core components essential to programmable equity:

- **contributive tokens**, used to account for the value created by contributions to a project or an organization;
- a **reserve fund**, whose purpose is to provide liquidity to the contributive tokens, in proportion to the aggregate value of all the contributions over a period of time;
- **smart incentives**, designed to encourage specific behaviors within the community of contributors of an organization.

Contributive Tokens

Definition and objectives

Contributive tokens are the *units of account* used to measure the value generated by contributions to a project. Their main function is to acknowledge and reward contributions, regardless of the current market value of their work, and of the financial resources of the project that benefits from them.



⁶ <https://blog.aragon.one/token-buyback-transparency-report-dc89ca2935b>

Globalization, on-demand workforces, information networks and ubiquitous devices make markets more liquid and efficient than ever. Increased labor competition drives prices down and favors network operators and corporate insiders, who are the only ones in position to reap the long-term economic value co-produced by other stakeholders. This is bad for the contributor in the short term and society in the long term. With contributive tokens, contributions become tangible and trackable, especially when there is a discrepancy between their instant remuneration and their long-term value.

Contributive tokens can be used in combination with cash remuneration. Payment in cash expresses the current value of a transaction, in terms of the then-market prices and financial means of the firm. Contributive tokens open up the possibility to complement instant cash compensation with an additional remuneration based on the value created over a period of time, measured as a share of future cash-flows or profits. See the Use cases section for example.

Contributive tokens can also be used to establish social recognition and assign decision power in participatory processes.

For the firm, the expected outcome of issuing and allocating contributive tokens is the ability to attract more contributors and to benefit from more engaged and supportive teammates.

For contributors, receiving contributive tokens is a tangible recognition of work, that can serve as an objective base for instant or future rewards in influence, monetary value, or other forms of acknowledgement.

Contribution tokens have their own lifecycle, from their *issuance* by the project owners, to their *allocation* to contributors, to their *redemption* by contributors in exchange of liquid assets hold in a *reserve fund*.

Issuance

Tribute enables any project or firm to create its own contributive tokens. Project owners control the way tokens are issued and allocated. They can set a fixed supply of contributive tokens, or allow for increases over time.

It is possible to keep quantities of issued and allocated tokens under certain limits within a given period of time, in order to reduce volatility, increase predictability, reduce the risk of large-scale embezzlement, and encourage the appreciation of the token's value.

Allocation

Allocation is the operation that consists of giving contributive tokens to someone whose contribution is approved by a project owner. Allocation can be implemented according to the organizational requirements of each project, including sub-projects and delegation of authority.

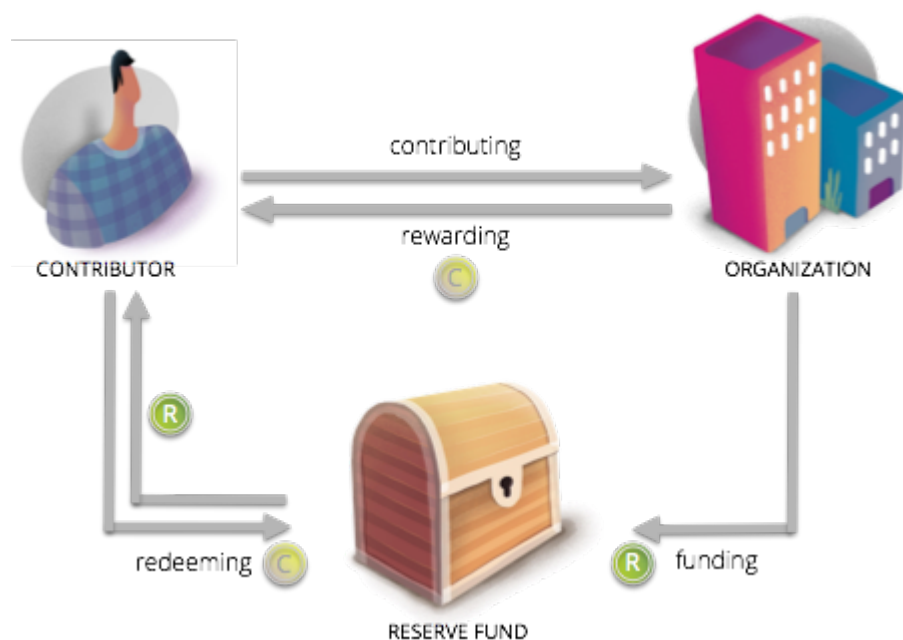
The contribution life cycle can be set up to accommodate different workflows: approvals, calls for offers, etc. Standard rewards and best practices can be applied using *support variables*, for instance: the severity level of a bug for a bug bounty, or the number of words for a translation.

Within a project, all members—owners and contributors—have access to past and present data relative to the allocation of contributive tokens.

Reserve Fund

Definition and objectives

The purpose of the reserve fund is to provide liquidity to the contributive tokens: the value of each contributive token is the ratio between the current total number of tokens and the total value of the fund. In other words, a contributive token is a reserve fund share. The contributive token value grows with the fund value for a given number of tokens; the issuance of new tokens involves dilution for existing token holders.



The intent is for projects to increase their reserve over time. Contributors are insiders. They know whether their contributions are adding value to the project and the project trajectory. A properly funded reserve, that reflects the project's success, will be a better reward for the contributor than fiat.

Decoupling the accounting function of the tokens from their liquidity allows the time factor to be taken into account. Indeed, value creation results from the accumulation of multiple contributions over a long period of time. The reserve fund reflects this progressive creation of value, to the extent of the redistribution policy enacted by the organization.

Reserve fund currency

The reserve fund can be denominated in any valuable unit of account. Fiat currencies such as the US Dollar are supported to include businesses that run primarily on fiat today. However, allocating cryptocurrencies or other crypto-assets to the reserve fund brings important advantages:

- **Transparency:** the fund is managed through a smart contract whose balance and operations are public, as opposed to company accounts
- **Security:** the fund is secured on a public blockchain and the organization has no discretionary power over its use
- **Convenience:** each token holder has liquidity by the fund smart contract; there is no need to submit a claim to an organization that may reject it or take undue time to process it

Each organization can choose from the diversity of crypto-assets to allocate to its fund.

Organizations may choose to use leading cryptocurrencies such as BTC or ETH; others may prefer less volatile instruments, such as stable coins or tokens backed on an asset like gold. Blockchain projects may want to use their own utility tokens. Sophisticated fund managers can use a portfolio of assets with different risk profiles.

Initially Tribute will support ETH and ERC-20 tokens and only one type of token per fund. Eventually multi-chain and multi-token capabilities will be added.

Less crypto-affine companies will be able to use tokenized fiat currencies for their reserve fund, as this option reduces tax and regulatory risks as well as the operational complexity of asset exchange and custody. Fiat deposits to reserve funds will also be an option to facilitate onboarding of crypto-averse businesses.



- **R** Cryptocurrency: ETH, BTC, ...
- **R** ERC20: Project's own token, stable coin, Smart Token, ...
- **R** Tokenized fiat: N-EURO, Circle USDT, ...
- **R** Fiat: Paypal, offline payment, ...

Redeeming

Redeeming contributive tokens means exchanging them for a corresponding share of the reserve fund. To keep the exchange rate stable, redeemed tokens are permanently destroyed.

For crypto-denominated reserves, the token holder directly redeems by calling a method of the smart contract that controls the fund. In case of off-chain assets, token holders use Tribute to

request a transfer to their accounts. Tokens are frozen once the request has been initiated, and then destroyed as part of the settlement process, once the transfer is completed.

Redeeming is the only way token holders can cash out. Public trading of contributive tokens is prevented, to protect token issuers from regulatory risk and token holders from speculation bubbles and market manipulation. As a result, contributive tokens are not implemented as ERC20 tokens.

Security

Reserve funds created by organizations using Tribute are protected from attacks at multiple levels:

Procedures	Multisig transactions for critical operations: adding owners, redeeming over predefined thresholds, or changing security settings; Limits in periodic token allocations & redeems; Emergency lock and release of funds triggered by network-level or project-level curators; Ricardian contracts used to increase legal protection from litigation; Policy and constitution of reserve fund on public display
Smart contracts	Secured value transfers , including redeem operations, with permission system for eligibility to perform token issuance and transfer; guaranteed liquidity for immediate transfer is secured (for crypto-funds)
Infrastructure	Ethereum chosen for the initial version of Tribute, as a blockchain-based distributed computing platform blockchain with a reliable track record in securing billions of dollars for years

Smart Incentives

Contributive tokens can be customized in order to foster particular behaviors. Programmatic in nature, they introduce endless possibilities for driving and coordinating the action of contributing agents in a network. They are implemented as smart contracts, so as to gain from their transparency, enforceability, and resistance to tampering. As examples, here are three classes of smart incentives that illustrate how they can be used to serve targeted purposes: **Pioneer Incentive**, **Gratitude Token** and **Retention Bonus**.

Token type	Pioneer Incentive	Gratitude Token	Retention Bonus
Main objective	Attract early contributors, offset the risk of not being adequately compensated	Foster peer collaboration by facilitating internal, mutual rewards among contributors	Retaining trusted independent contributors, fostering long-term cooperation

Mechanism	Holders get compensated in extra tokens when the value of their token falls below a defined threshold	Tokens obtain value only when they are transferred to another holder, they have no intrinsic value for the first holder	A reward multiplier is applied while allocating tokens when given conditions are met, eg. a minimal amount of contributions over time
Incentive regulation	Linear or progressive compensation percentage	Defined minimum share of tokens with this attribute	Defined minimum time and percentage of bonus, categories of eligible contributors
Example	Compare 3-month average token value with target value: If it falls below 40%, holders are granted 10% of their current holdings. If it is between 40% and 70%, holders are granted 5% of their current holdings.	E.g. 15% of all project tokens. Contributors with most Gratitude Tokens are identified as influencers. Financial value of redeemable tokens is an additional reward for these individuals and extra motivator for peers to support others.	Project owners may apply a 20% bonus in contributive tokens for any contributors who received at least X number of tokens in the past year and Y number of tokens in the past quarter.
Caveats	Early contributors need to be adequately rewarded for taking the risk of joining a new project.	Collusion for reaping rewards can be prevented by system transparency and public information about all transactions.	It may become expensive to reward contributors for tenure, types of contribution for this reward need to be prioritized.

Permissioning

The default decision-making process for projects run on Tribute is organized around three general principles: **top-down delegation**, **subsidiarity and escalation**, and **collegiality**.

Top-down delegation	Each project has at least one owner; Owners of initiatives or sub-initiatives - core team who run the project and are in charge of managing the project contributive economy; Initiatives and sub-initiatives - coordination levels used to delegate responsibilities
Subsidiarity and escalation	Owners are notified when a decision must be made regarding their project initiative and related contribution. To ensure continuity, an owner of the parent initiative level can step in to make a decision related to a child initiative.
Collegiality	All owners have the same decision power within a project for a given level of responsibility. By default, any owner can make a decision at their (her own) level of responsibility, without a need for a peer validation.

This simple top-down permission model is offered by default. Alternative decision-making logics will be offered as pluggable *governance modules*. Governance modules are applicable to a specific scope, defined by a set of operations that require a decision event - i.e. an input issued by an external system. For instance, a non-default decision-making logic can be applied to the approval of contributions over a given value, in order to reduce the risk of human error or fund embezzlement. Each module defines who makes the decision and how it is made. The decision maker might be one or multiple owners (at the project or initiative level) or one or multiple contributors, or any combination. Decisions can be applied depending on quorum rules, majority rules, consent rules, etc.

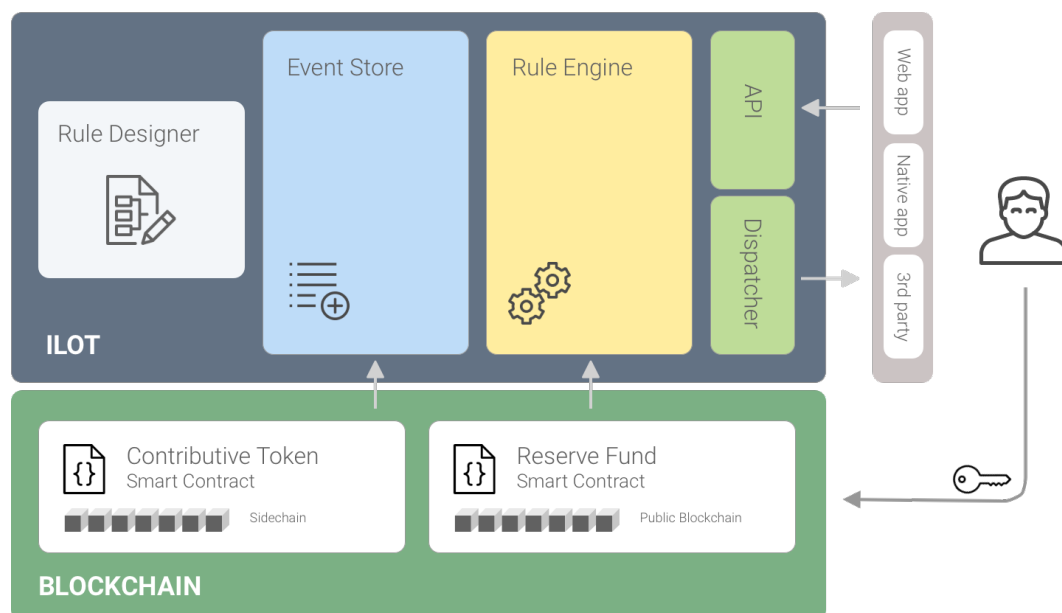
The main operations subject to a decision process cover:

- setting up a project, managing project owners;
- issuing new contributive tokens and setting up distribution rules;
- creating initiatives and managing initiative owners;
- creating calls for contributions, selecting proposals, closing calls;
- creating, assigning, updating, and approving contributions.

When a decision involves a transaction - such as the approval of a contribution or the addition of a new owner -, applying a governance module with multiple decision makers leads to a multisig validation pattern.

Architecture

Tribute is based on an hybrid architecture which combines a public blockchain layer and our own event-driven middleware, ILOT.



The blockchain layer is used to:

- Make token issuance and reserve funds publicly verifiable
- Escrow reserve funds so that token holders are the only users authorized to withdraw
- Enforce incentive policies once they have been enacted by project owners
- Empower token holders to redeem on their own, at anytime
- Secure the delegation process so that token operations are under the strict control of authorized owners and contributors

ILOT is an open-source event-driven middleware created by Tribute in order to make decentralized apps more secure, readable and flexible.

ILOT uses two key patterns:

- **Action semantics** as a representation layer for the operations of the system, describing their attributes, requirements, validation and calculation methods
- **Event sourcing** as an event-centric persistence layer, allowing the modelling of objects as a sequence of events

Based on these patterns, ILOT generates a structured event datastream interpretable across multiple environments. This approach benefits Tribute in many ways:

Security	Code execution strictly complies with the business logic (state changes and permissions) expressed in a declarative format
Readability	The business logic is expressed as the expected results of events, rather than code, making it easier for non-technical domain experts to specify the requirements
Universality	Business rules can be compiled into any language and executed in any target environment
Flexibility & scalability	Multiple execution environments can be combined in order to leverage their specific features, while ensuring cross-environment consistency
Full audit logging	All actions are signed, stored and accessible, enabling end-to-end traceability across environments
Extensibility	Business logic can be extended by simply adding new actions, rules, or notifications, without having to modify existing code

Based on these patterns, ILOT bridges smart contracts with dynamic Web applications.

Tribute requires multiple workflows between users in order to invite users, delegate ownership, assign work, approve and reward contributions, and many other operations.

All these operations are represented as actions, validated by the target environment—Web backend or Solidity smart contract—and recorded in an event store. Examples of actions that are

executed as smart contracts include the issuance of new tokens, the confirmation of a delegation of ownership, or the confirmation of a reward.

Successful actions executed are cross-referenced in the event store and in the blockchain transaction to ensure that operations are consistent and fully verifiable.

The current version of ILOT runs on a traditional Web stack, but it has been designed for decentralization. Beyond its current capability of bridging a Web app with smart contracts, ILOT could run on its own blockchain, relying on consensus and p2p network layers provided by third parties like Tendermint.

Use cases

Contributive tokens may benefit any organization that create value through collaborating with networked individuals, whether those organizations are centralized - as traditional firms -, democratically governed - as cooperatives -, or decentralized - as collectives of self-employed workers or consortiums of independent businesses.

Here are some examples drawn from current or prospect users of the platform:

Intrapreneurship in large organizations	Achieving a level of engagement comparable to startups led by independent founders, by empowering intrapreneurs to allocate shares of the future value generated by their projects. Aligning the interests of intrapreneurs, internal staff, and advisors and external subcontractors by using a unified rewarding system based on contributive tokens.
Sharing economy marketplaces	Bootstrapping marketplaces by offering a share of the network value to early participants: reference customers, power users, buyers and sellers, referrers, developers, etc. Contributive tokens can be redeemed in kind, as a discount, or in cash. They can also be used as a way to open the governance of the marketplace to the most engaged stakeholders.
Blockchain projects	Attracting a large community of contributors in order to boost a token launch and to amplify the project's reach once the token is live. Supporting structured initiatives related to product and business development, communication, and community management. Establishing trust based on high level of transparency in the way the community is involved, tasks are achieved and tokens are allocated.
Open Source Software	Nurturing the community of developers and users of the software, by rewarding their contributions with tokens. When a licensing or service business results from the effort of the community, part of the cash flow can be used to compensate the volunteering efforts. Contributive tokens are tangible metrics that can also be used to honor contributors (Open Badges). Tokens granted to users can serve as discount coupons, invitations to conferences, and voting rights on the roadmap.

Incubators and Accelerators	<p>Engaging mentors in sponsorship programs by making their contributions of time, knowledge and networking, tangible and visible. Supporting the long-term involvement of token holders in projects beyond the incubation time by awarding them shares in an equity fund supporting best post-incubation businesses. Introducing tokens to other members in the ecosystem as a tool for incentivizing support to the projects.</p>
Networks of Independent Workers	<p>Fostering network growth by incentivizing members to engage in activities beneficial for the network as a whole, not just for the individual alone. Besides benefitting from transparent rules of engagement, assignment of tasks and split of rewards, token holders can be invited to participate in the decision making regarding the development of the network.</p>

Part II

The Tribute Network



The Tribute Network

"Prosperity came when the fruits of productivity were widely shared; enmity, political turmoil, and even outright warfare were the harvest of rampant inequality. it is obvious that generosity is the robust strategy."⁷

Tim O'Reilly, O'Reilly Media

Purpose: a capital pool for the commons

Digital commons, under the form of free software and open protocols, gave us the Internet and a Cambrian explosion of new contents, products, and services. Creating new businesses has never been so easy nor so cheap, because we benefit from open knowledge and resources, like the proverbial dwarfs standing on the shoulders of giants. But the centralizing power of network effects has reintroduced the dominance of proprietary platforms that tend to extract most economic value through rent-seeking⁸.

The giant tech companies that have emerged as the winners of the Internet revolution have built their business models on the capture and the privatization of all socially produced information⁹. Initially launched as platforms whose success was depending on a thriving network of developers and users, they naturally evolved towards monopolistic businesses that predate their very own ecosystem, stifling innovation and threatening privacy.

Many see the new wave of decentralization brought about by cryptonetworks as a way to change the game, by providing sustainable economic incentives to participants, as well as the ability to exert a greater influence on the network through "voice" (via participatory governance) or "exit" (via the transfer of assets between networks, or through forks).

However, the current state of wealth and power distribution in cryptocurrency and blockchain projects still shows a very high degree of centralization¹⁰. It seems that every nascent project in the crypto-space is affected by a very high concentration of their underlying token, whether they grow organically like Bitcoin or they attract some initial capital through an initial token sale. Still, a lot has been done by decentralization pioneers in order to fund projects beneficial to the community, through foundations and donations.

The Tribute Network aims at providing a durable, transparent, community-driven system for distributing value to the commons, under the form of a protocol, rather than through discretionary funding - while providing a fair return to our investors and builders.

⁷ Tim O'Reilly, WTF? What's the Future and Why It's Up to Us, Harper Collins (2017)

⁸ See for instance [Why Decentralization Matters](#), by Chris Dixon

⁹ PostCapitalism: A Guide to Our Future, by Paul Mason

¹⁰ See for instance [The Tezos Experiment](#), by Meltem Demirors

Tribute Token Economy

Tribute Business Model

Tribute gets its primary revenue stream from the **contributive tokens of each organization** using the Tribute platform. This 'Reward Fee' is triggered when a contributor is rewarded, rather than when tokens are pre-issued, so that it reflects the real use of the platform. It is expressed as a percentage of the reward, currently set to 3%, and subject to changes decided by the network (see Network Governance section below).

Applying fees in contributive tokens instead of fiat or crypto-currencies bring about two key benefits:

- **Inclusivity:** any organization can benefit from Tribute, even those with limited to no financial means, thus lowering friction for bootstrapping organizations. Anyone can use the platform for free - more precisely, for play money -, as long as their contributive tokens are illiquid. Ultimately, it is in the interest of each project to provide liquidity to their tokens holders, as the very purpose of tokenized rewards is to create trust and engagement, not frustration and anger.
- **Alignment:** the Tribute platform delivers a service that can rightfully be seen as a contribution to the growth of communities of contributors around each project. As such, it makes sense for organizations to pay for it with the same currency as the one used with their other contributors. The value of the service gets paid in proportion of the actual value contributed by the network.

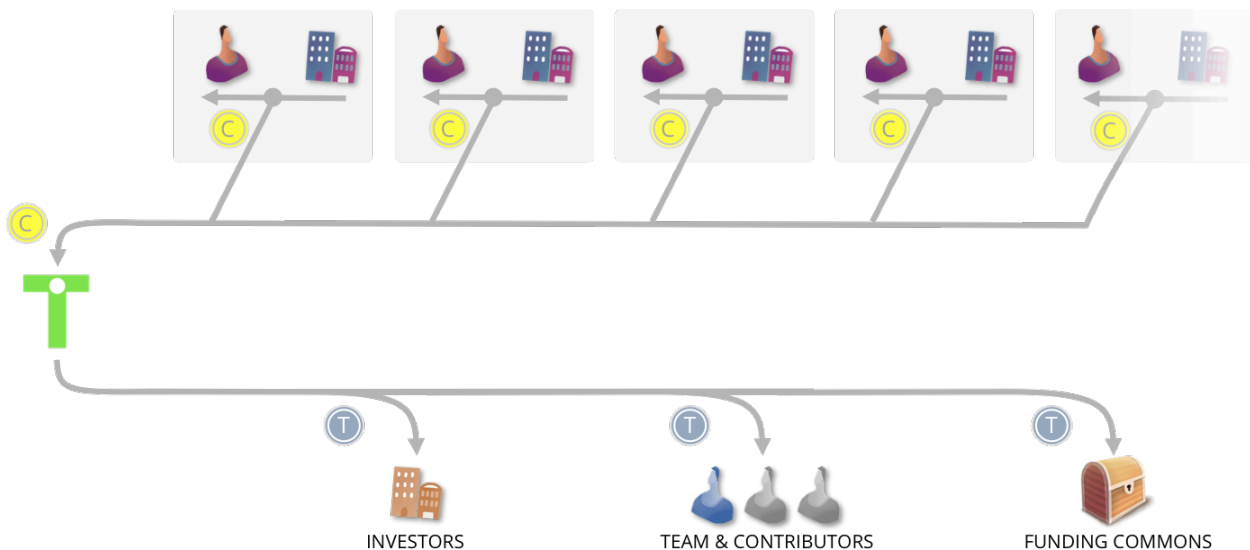
In addition, a 1% fee (subject to changes enacted by the network) is applied to the **reserve fund of each organization**. This 'Fund Fee' is meant to be used for covering the development and the operating costs of the platform. Initially, Tribute's builders will be rewarded in a combination of fiat or crypto-currencies, and some contributive tokens of Tribute itself. Ultimately, the allocation of Tribute contributive tokens will dry out, as their supply is fix, and builders will be only paid from the fee applied to reserve funds of all projects using Tribute.

Both the Reward Fee and the Fund Fee are automatically applied through the smart contracts used to hold the contributive tokens and the reserve fund of each organization.

TBX, the Tribute Security Token

Reward Fees collected by Tribute are actually a pool of all the contributive tokens issued by the projects using the platform. They constitute a fund denominated in TBX, a token that represents shares of the fund. As a basket of underlying assets whose ownership is divided into shares, it bears some similarities with an ETF, but neither the fund nor its underlying contributive tokens are marketable.

The primary role of TBX is to incentivize both monetary and non-monetary contributors to the creation of the platform. Its secondary role is to serve as a unit of account for distributing the value accumulated in the fund to selected commons.



Token Issuance Model

As an instrument for incentivizing contributions, we want to use TBX for:

- providing a higher reward to early contributors;
- balancing the reward between capital contributors ("Funders") and work contributors ("Builders");
- issuing tokens progressively, in proportion of the actual funding provided by Funders;
- cap the total number of tokens so that TBX reflects the appreciation of the true value of the network.

Our current model (described in the Token Valuation Model section below) fulfills these requirements. In a nutshell:

- early capital contributors buy TBX/F at a lower price;
- TBX are equally allocated to investors and work contributors;
- TBX are issued over the course of 10 years, with a cap of 63M TBX.

Redemption

As previously mentioned, TBX are not tradable, for two reasons:

- most jurisdictions prohibit public trading of unregistered securities, and TBX is likely to be considered as one;
- we want Funders' interests to be fully aligned with Builders', so that every stakeholder contributes to the success of the network, rather than feeding speculative activity around its token and being exposed to market manipulation.

That could evolve in the future, when:

- new regulations make it possible to issue and trade security tokens;
- the Tribute network gets mature enough, with business fundamentals that make it less likely to be subject to intense speculation or manipulation.

While trading is not an option, at least initially, the way token holders can cash out is through redemption, an operation conducted autonomously through a call to the smart contract that holds the platform tokens.

Since TBX are backed by a basket of contributive tokens, whose market value depends on their respective reserve funds, redemption is a complex operation. It would be unmanageable for a TBX holder to receive hundreds or thousands of contributive tokens from different projects, and then to have to redeem each of them individually. Therefore, the second-level of redemption must be performed behind the scene by Tribute, using mechanisms that still need to be defined.

Two considerations have to be taken into account while designing this 'chain of redeem' process:

- a. **Cost.** TBX is a small fraction of the long tail of many tokens, and most holders willing to redeem will own only a small fraction of the total amount of TBX in circulation.

Since redeeming contributive tokens require a call to the smart contract that holds a reserve fund on a public blockchain, which incurs fees, performing this operation multiple times on very small amounts is likely to induce excessive costs - they might actually end up being greater than the expected earning for the redeem.

- b. **Hold vs. Redeem arbitrage.** The nature (and the purpose) of contributive tokens is to gain appreciation over a period of time.

It would be very inefficient to redeem blindly the same proportion of tokens for each project using Tribute, without considering their relative maturity and liquidity.

Because of the transaction cost mentioned above, redeeming contributive tokens with a very low value could represent a loss. More importantly, it is in the interests of the TBX holders to liquidate first contributive tokens that have close to their optimal value, and keep holding those that are still early in their cycle and that could lead to a much higher return.

Estimating the potential for appreciation of each project using Tribute will be a daunting task. Not only will the performance of the underlying business have to be factored in, but also the redistribution policy decided - and its actual implementation - by the project owners. At scale, this task has to be either automated, using advanced algorithmic

strategies and machine learning, or decentralized, using for instance TCRs or curation markets - or both.

Classes of TBX

The long-term objective of TBX - Tribute's platform token - is to serve as a capital pool for the commons. It is also designed to incentivize early supporters who will either contribute capital (the "Funders") or work (the "Builders").

This has led us to design some characteristics of TBX that are only applicable to Funders and Builders. While there is only one token in terms of supply, valuation, and redemption mechanisms, we use TBX/F and TBX/B to designate the platform token when covering its aspects that are specific to Funders and Builders. Consequently, we called TBX/C the remaining tokens, that are meant to benefit to "Commoners".

Each class of TBX represents one-third of the total amount issued at any point in time.

TBX for Funders (TBX/F)

The Tribute tokens reserved to investors - called TBX/F - are allocated in exchange of a monetary investment that will be used by Builders in order to grow the network.

Staged allocation

We plan to raise funds in multiple stages, rather than a single token sale. Token sales associated to a token generating event with a fix supply may lead to two undesirable outcomes: (a) if a relatively low amount of capital is raised, it is impossible to raise again later using the same mechanism, as it would deceive the expectations of the projects early supporters; (b) if the amount of raised capital is vastly greater than what is needed at an early stage of the project, the allocation of funds is suboptimal and the risks of irrelevant spending are high.

We also intend to search funds from investors who actively participate to the development of the crypto space and who show interest for the emerging decentralized governance systems.

Choosing a progressive funding strategy over an ICO, and preferring trusted funding partners to any crypto investor lead us to a manual, negotiated approach of the network valuation, rather than applying a rigid formula for token pricing, as it is commonly the case with discounts or price increase¹¹, or curved issuance models¹².

¹¹ For instance, the DAO formula for price changes over its crowdsale: <https://web.archive.org/web/20170713155945/http://blockchain-finance.com/wp-content/uploads/2016/05/thedao-price-increase.png>

¹² For instance, the NeuFund ICBM as shown here: <https://commit.neufund.org/>

Liquidity for Funders

From a Funder's perspective, cashing out of TBX is quite different from the options offered to investors in both private equity and public markets.

Akin to the alignment between VCs and co-founders of venture-backed startup, Funders have a long-term alignment with the Builders, materialized by the fact that TBX faithfully reflect the business value of the network. However, TBX/F holders can redeem at any time, without requiring a liquidity event such as an acquisition or an IPO (which is not considered as a desirable outcome for Tribute anyway, given its purpose).

TBX for Builders (TBX/B)

A large part of the funds raised from investors will be used to build the Tribute network, under the form of payments to the 'Builders'. The alignment of interests between Funders and Builders is achieved through a proportionate allocation of platform tokens, that are named here TBX/B when they are awarded and hold by Builders.

Who are the Builders

Builders is a term that covers two different categories of stakeholders involved in the construction and the operations of the network: the Core Team and the Contributors.

As a platform, Tribute's mission is to sustain the economic performance of firms and entrepreneurs that jointly create value with networked individuals. It is all but natural that we apply to ourselves this model, by attracting and nurturing a large community of contributors.

The Core Team is made up of a small group of highly committed individuals who devote most or all of their time and energy to Tribute. They are essentially in charge of leading the project and act as focal points of coordination for all operational aspects of the project: technology, product, marketing & communication, partnerships & sales, finance, and legal & compliance. Community management is considered as a transverse function, as all those activities are conducted with the active involvement of independent Contributors.

Allocation of TBX/B

Builders - Core Team members as well as Contributors - are incentivized and compensated with a combination of cash and TBX/B, according to the following principles:

a. Alignment with Funders

As long as TBX's liquidity is low, the token might be perceived as "play money" that may be spent too easily. TBX should be awarded as cautiously as cash, since it might become an extraordinary incentive for growing the Tribute network at a global scale. A coded

limitation can ensure that the amount of TBX/B allocated at a given stage of the project is proportionate to the current level of fiat funding.

b. Responsibility and accountability of the Core Team

The Core Team is in charge of allocating TBX/B to Builders, both to the Core Team itself and to the community of Contributors. While the Tribute network will be governed in a decentralized manner from the outset, we regard as necessary that some individuals are accountable of the management of the funds - in the form of both cash and tokens.

c. Transparency

The Tribute platform itself will be used to allocate contributive tokens to its builders. Not only it will offer full transparency with respect to token budgeting and rewards, it will also provides the benefits of *dogfooding* to the team in charge of developing the platform.

d. Incentivizing community growth

At least 50% of TBX/B will be allocated to Contributors, outside of the Core Team. As the project grows, this rule will ensure that the Core Team face some hard limit with respect to the tokenized funds that they can allocate to themselves, so that there is a strong incentive for locating, attracting, and growing a vibrant community of contributors.

Liquidity for Builders

Like with any other TBX, the only way to extract value from the TBX/B is to redeem them.

However, it is important that the Core Team's incentives match the Funders' legitimate expectations. Core Team members shouldn't be able to cash out while investors haven't achieved yet a minimum return on their investment.

In order to prevent this situation, TBX/B hold by Core Team members are locked until one of the two following conditions is met:

- Funders redeem some or all of their TBX/F; in this case Core Team members are free to redeem the same proportion of their own tokens;
- The TBX value raises above a level that ensures Funders to break even on their investment (such value being computed in reference to a pre-agreed minimal rate of return on the invested capital).

This constraint does not apply to TBX/B holders that are not part of the Core Team.

TBX for Commoners

Tribute's purpose is to develop the contributive economy at large. The most successful businesses of our time, such as the dominant Internet platforms, have exhibited a disconcerting ability to extract value from the multitude and to concentrate it in the hands of the few.

Alternative models have, on some occasions, shown that they can greatly benefit society while avoiding the pitfalls of this extreme concentration of wealth and power. This is notably the case of open source software projects like Linux and collaborative content creation like Wikipedia. Unfortunately these famous examples are more exceptions than the rule. The prevailing way to do business follows an extractive pattern that favors wealth inequality - and new "decentralized" projects in the crypto space do not seem to be reversing the trend¹³.

Ironically, community-governed free software and open protocols have been an essential enabler of the rent-seeking, software-based businesses of today¹⁴. What would it take to close the loop, i.e. to nurture the creation of commons with the financial support of the private firms that benefit so much from it?

Not much, actually. We argue that it is the lack of appropriate instruments, rather than the sole pursuit of short-term corporate profits that makes it so difficult. Tribute as a platform helps organizations to grow their communities by enabling them to acknowledge and reward contributions. Tribute as a network is designed to select and fund the digital commons - community-governed, open source and open knowledge projects - upon which our society is being built¹⁵.

Once the network fully developed, Funders and Builders are likely to redeem their TBX in order to get their return on investment, and the reserve fund fee will be used to operate the network. Hence the value collected through the contributive fee will be accumulated for the sole benefit of the commoners that the network supports.

Selection process and allocation of funds

Funding commons requires a community-governed process. It is one of the duties of the governance system described in the next section to frame this process and to update it when needed.

We are considering leveraging Curation Markets for selecting projects in a transparent and decentralized manner.

¹³ https://medium.com/@Melt_Dem/the-tezos-experiment-b97e124e5b38

¹⁴ <https://medium.com/@cdixon/why-decentralization-matters-5e3f79f7638e>

¹⁵ <https://www.fordfoundation.org/library/reports-and-studies/roads-and-bridges-the-unseen-labor-behind-our-digital-infrastructure/>

Allocating funds is a much more complex task, which today is mostly based on decisions taken by a closed group behind doors. We will rely on such traditional off-chain collaborative process in the beginning, until promising projects such as oscoin¹⁶ or DAOstack's holographic consensus¹⁷ make new approaches available for conducting a large-scale grant program in a decentralized fashion.

TBX Valuation Model

A caveat: the model described below is built upon assumptions that are still being worked out and subject to changes.

The TBX valuation model is based on the total redeemable value of the contributive tokens collected through the Reward Fee from all the projects running on the platform. We call this basket of tokens the Reward Fee Reserve (RWR). The RWR increases in value over the time, both as a result of new projects joining and existing projects increasing their use of the platform, issuing new tokens and increasing their reserve fund.

The number of TBX tokens to be ever issued equals 63,000,000. As each token represents a share of the RWR, the value of each token grows with the number of projects, the average Reserve Fund value per project, and the average ratio of rewarded contributive tokens/issued contributive tokens per project.

Based on an assessment of the Target Addressable Market (TAM) of two selected market segments, estimates were made regarding the prospective average size of organizations' Reserve Fund and the average amount of CTs they may grant every year. The table below shows a 10-year forecast for the Reward Fee Reserve, based on these estimates:

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Nb of projects	485	2,412	6,222	13,775	27,807	50,015	80,017	116,382	155,787	197,031
RWR increments (in thousands)	112	846	3,585	11,847	31,297	66,207	127,068	222,562	357,434	533,304
RWR total (in thousands)	112	958	4,543	16,390	47,686	113,893	240,961	463,522	820,956	1,354,260

The table above shows a constant increase of circulating TBX, as a result of annual issuance. The number of TBX will actually decrease in proportion of redemptions, but this reduction is not shown in the model since it doesn't affect the valuation of the token nor the return on investment for investors.

TBX Issuance

The supply of TBX is capped at 63M, with a progressive and constant issuance of 6.3M per year, over a course of 10 years. Alternative models are being considered:

¹⁶ <https://medium.com/@simondlr/tokens-2-0-curved-token-bonding-in-curation-markets-1764a2e0bee5>, <http://oscoin.io/>

¹⁷ <https://forum.daostack.io/t/holographic-consensus-by-matan-field-fromtelegram/72>

- Single initial issuance of TBX 63M
- Option of suspending or terminating the issuance of new TBX, in case there is no need for further funding
- Curved issuance model, offering more tokens to the early investors and less to the late ones

Considering the forecasted value of the Reserve Fund and a constant issuance of TBX every year, TBX valuation will evolve as follows:

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
RWR total (in thousands)	112	958	4,543	16,390	47,686	113,893	240,961	463,522	820,956	1,354,260
TBX issued (in thousands)	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300
TBX total (in thousands)	6,300	12,600	18,900	25,200	31,500	37,800	44,100	50,400	56,700	63,000
TBX value	0.02	0.08	0.24	0.65	1.51	3.01	5.46	9.20	14.48	21.50

Investment Rounds

In the scenario laid out below, Tribute receives four rounds of funding.

On each round, the floor price of TBX/F would be the then current value of the TBX - it wouldn't make sense to get less from an investor than what could be done by redeeming existing tokens. The price actually paid by investors will match the potential for appreciation above the floor price that they foresee at the time of the funding round.

	Seed	Series A	Series B	Series C
Year	Y1	Y2	Y4	Y6
Nb TBX/F	2,100,000	2,100,000	4,200,000	4,200,000
Investment	744,653	2,874,033	10,926,341	25,309,531
TBX value	0.02	0.08	0.65	3.01
Multiplier	20	18	4	2
TBX/F price	0.35	1.37	2.60	6.03

Multipliers (of TBX value) have been set to determine the TBX price, so that investors recoup their investment in 4 to 5 years. Here are the RoI and IRR metrics for each round, based on the above assumptions regarding the network activity (Reward Fee Reserve) and the token issuance model:

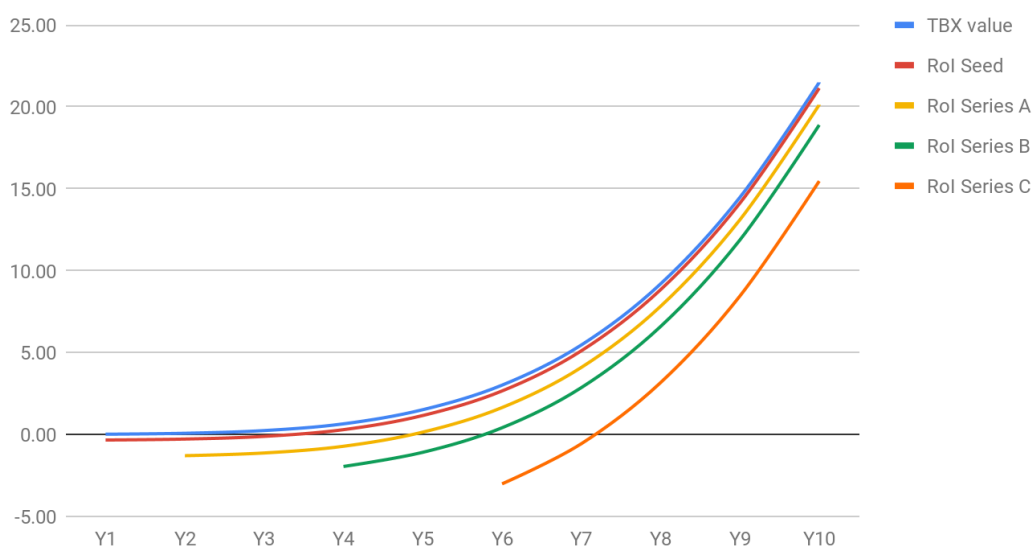
Investment Seed	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Share of TBX	33.3%	16.7%	11.1%	8.3%	6.7%	5.6%	4.8%	4.2%	3.7%	3.3%
Underlying value (in thousands)	37	160	505	1,366	3,179	6,327	11,474	19,313	30,406	45,142
RoI	-95.0%	-78.6%	-32.2%	83.4%	326.9%	749.7%	1440.9%	2493.6%	3983.2%	5962.2%
IRR	-95.0%	-57.1%	-12.2%	16.4%	33.7%	42.8%	47.8%	59.2%	59.0%	50.8%

Investment Series A	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Share of TBX	16.7%	11.1%	8.3%	6.7%	5.6%	4.8%	4.2%	3.7%	3.3%
Underlying value (in thousands)	160	505	1,366	3,179	6,327	11,474	19,313	30,406	45,142
RoI	-94%	-82%	-52%	11%	120%	299%	572%	958%	1471%
IRR	-95%	-60%	-24%	0%	15%	24%	30%	33%	34%

Investment Series B	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Share of TBX	16.7%	13.3%	11.1%	9.5%	8.3%	7.4%	6.7%
Underlying value (in thousands)	2,732	6,358	12,655	22,949	38,627	60,812	90,284
RoI	-75%	-42%	16%	110%	254%	457%	726%
IRR	-75%	-24%	5%	20%	29%	33%	35%

Investment Series C	Y6	Y7	Y8	Y9	Y10
Share of TBX	11.11%	9.52%	8.33%	7.41%	6.67%
Underlying value (in thousands)	12,655	22,949	38,627	60,812	90,284
RoI	-50%	-9%	53%	140%	257%
IRR	-50%	-4%	15%	25%	29%

The chart below illustrates the TBX appreciation and return on investment, based on these business and funding scenarios:



Governance

“Common misconception: Governance is a technical feature that can be appended to blockchains: We’ll add governance later¹⁸”

Tribute as a commons

Elinor Ostrom’s work defines the commons as shared resources - either natural or cultural -, managed by a community, according to a set of explicit rules. This definition can be applied to Tribute, whose shared resources are both its code and its platform token, both of which are meant to be used for funding other commons.

The Tribute community comprises different types of stakeholders: the Core Team and the Contributors who build and operate the platform (the “Builders”), the investors who fund its development (the “Funders”), and the organizations which use the platform to manage their contributive tokens and their reserve fund (the “Users”). In addition, we intend to include another group of people, called the “Commoners”, to represent the point of view and the interests of the builders of commons.

Our goal is to associate all of these stakeholders to the governance of the Tribute network, implemented through a combination of on-chain and off-chain mechanisms.

Code or Law?

There are two main ways to approach the governance of a network that owns and manage its financial resources. The traditional way is to create a legal personality as an incorporated entity, with a number of contracts (articles of association, shareholder agreements, etc.) that preserve the decentralized nature of the network. Cooperatives and consortiums are two (very different) examples of such decentralized incorporated governance systems.

In the wake of bitcoin, cryptocurrencies have introduced another way, under the form of decentralized, software-driven networks that rely on a shared ledger (the ‘blockchain’) and a native token to fuel and secure their operations. Using the same technological infrastructure, decentralized autonomous organizations (DAOs) can be implemented so that multiple parties interact with each other through mechanisms that are controlled by their code, in lieu of contractual arrangements.

Both approaches are relevant to Tribute.

Having a legal personality is required to manage fiat money. A legally recognized structure also inspires trust from traditional firms that would like to run smart incentives schemes powered by

¹⁸ <https://www.docdroid.net/ddz6VzP/overview-governance-blockchains-nc-zcon.pdf#page=10>

Tribute. Despite the intense interest for the blockchain and crypto-assets, most companies are conservative about dealing directly with these new, unfamiliar forms. An incorporated version of Tribute would offer the usual guarantees and compliance that they expect.

We also intend to engage with regulators on a number of legal and financial matters related to the service delivered by the platform (contributive tokens, reserve fund, smart incentives) and to our security token TBX. Having a legal entity and duly appointed representatives will make this much easier.

More generally, establishing code-driven interactions between people doesn't exclude subjugation to legal interpretations, arbitrations or litigations¹⁹. DAOs are not currently recognized as legal forms of business anywhere. Should any legal issue arise between a stakeholder and the network, the lack of regulatory recognition may put at risk every participant in the network, possibly leading to a quick demise²⁰. Having a legal form and duly authorized representatives is a protection for DAOs that should be sought, not feared.

The ability to run the network according to a set of programmable rules comes with many benefits: transparency (rules regarding the distribution of value and decision power are publicly accessible), decentralization (there is no central party the network depends upon with respect to the application of the rules), flexibility (updating the governance system is a matter of upgrading software code, provided that such upgrade comply with the governance in place), trust (governance rules cannot be censored nor twisted).

This is why we plan to combine both systems, through a DAO-driven form of a multi-stakeholder cooperative.

Tribute DAO

By nature, decentralized networks are more vulnerable to attacks than pyramidal structures with centralized control.

One way to make them more resistant is to exert a strict control on who can access critical resources of the network (such as money). This is, for instance, the case of cooperatives, or participatory organizations such as Enspiral²¹. Vetting participants is an efficient way to limit the risks that intruders compromise or seize the control of the network or steal its resources. The downside is that there is high friction onboarding new participants, which hinders the growth of the network.

Open networks such as crypto-currencies cannot operate this way. In these permissionless networks, anyone can start participating by creating their own account using public-key

¹⁹ <https://www.linkedin.com/pulse/how-sue-dao-stephen-palley/>

²⁰ John Backus provides a fascinating insight on how legal issues played out in the field of p2p file sharing - [Invest in the ugly duckling](#)

²¹ <https://handbook.enspiral.com/>

cryptography, without necessarily unveiling their identity in the physical world. Hence the possibility of the so-called “Sybil attack”, in which an attacker generates a massive number of fake identities in order to gain undue influence in the network. Preventing such attacks requires that participants have “skin in the game”, most commonly under the form of a monetary stake in the system. As a consequence, open networks tend to be plutocratic, which doesn’t fit well with the ethos of decentralization.

In the case of the Tribute network, we argue that openness and decentralization can both be accommodated through a multi-stakeholder governance relying on the following principles:

- all stakeholders have a voice in the network
- five groups of stakeholders represent different set of interests that need to be served: investors, core team, contributors, users (organizations), commoners
- each group has a given % of voting power, no group holds more than 49% of the network voting power
- governance decisions are first voted within each group, then accounted at the group level for the network, according to majority or supermajority rules
- within each group, votes are democratic - one (natural or legal) person, one vote
- majority and supermajority rules can differ, depending on the nature of the decision to be made
- voters’ qualification in each group is obtained through an objective and transparent process
- all the rules above are subject to be changed through an objective and transparent process (meta-governance)

Eligibility criteria

Participation to the governance of the network is opened to any active contributor. The definition of an ‘active contributor’ varies for each type of stakeholder:

Investors	Legal or natural persons who contributed funds to Tribute and hold TBX/F as a result; when an investor redeems 100% of her TBX/F, she is no longer considered as an active contributor.
Core team members	Natural persons who join Tribute core team for at least 6 months; the process for adding and revoking members is decided by the core team itself; the core team might use a legal vehicle such as an LLC or a cooperative form of business, but only physical members have a voice in the network governance.
Contributors	Legal or natural persons that have received a minimum number of TBX/B in the last 12 months.
Users (organizations)	Informal collectives or legal persons that have set up a reserve fund and proceed to a minimum amount of token rewards in the last 12 months.

Commoners	Natural persons nominated by any active contributor and elected by their peers (the initial group will be elected by the other groups).
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Eligibility is materialized by a governance token issued for a given voting event or voting period, provided that the above conditions are met.

Scope of decisions

Tribute's mission is to foster the contributive economy, via its platform services and its capital pool for the commons. Tribute's governance defines how the participants of the network are being incentivized to that end, and how they can participate to the decision-making process that affect this goal. In particular, the following areas pertain to the network governance process:

Fee policy	Updating the percentage (a) of the contributive tokens rewards and (b) of the reserve fund to be collected by the platform.
TBX liquidity strategy	How to select positions to liquidate within the Tribute portfolio of users' contributive tokens
Commons funding policy	How to decide the amount of funding for a given period; how to select the commons to be funded; how to decide how much should be granted to each selected commons
Operational responsibilities	Appointment of authorized representatives, definition of their roles and compensation; emergency response plan (when they involve some level of centralization)
Eligibility	Updating the conditions for joining a group of stakeholders
Meta-governance	Changing the balance of power between the groups; changing the conditions for changing the decision-making process of all the above; defining the conditions for spawning child DAOs

Implementation & Incorporation

Some of the decisions listed above can be processed and applied using an end-to-end on-chain implementation. For instance, periodic or on-demand voting could be opened to eligible participants in order to change the network fee. As a result of the vote, the new fee would be applied by the smart contract used to reward contributors of each participating organization.

Other decisions, such as the appointment of authorized representatives, not only require some off-chain activity, but also the existence of a legal vehicle.

We intend to conduct extensive due diligence on the regulatory environments that may host such a new construct based on both code and agreements. Two major requirements have to be satisfied:

- the ability to form a multi-stakeholder structure as a firm, a cooperative, or another form of entity;
- the ability to establish part of its governance as an on-chain, online process (tokenizing the ownership, granting and revoking voting power, etc).