DAOstack

The Operating System for DAOs

Whitepaper

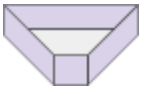
Version 1.0

May 12th, 2017

Abstract

Since first appearing on the planet, mankind has been constantly inventing new ways to organize and increase the scale of cooperation towards more and more efficient structures. From families and tribes to corporations, countries and the global economy. The most advanced organization, the Internet, has opened the door for peer-to-peer exchange of information at a global scale, but lacks the built-in economic incentive to trigger large-scale general-purpose coordination and peer-production. The Blockchain revolution made this possible by providing a reliable, open and programmable accounting system, consequentially leading to the invention of the Decentralized Autonomous Organization (DAO).

A DAO is a self-organizing group of people, companies and computers, coordinated by economic incentives and self-executing code. For the past few years, DAOs have been attracting top talent in this rapidly growing scene, bearing the promise for more efficient and resilient organizations. Despite this, they have lacked critical elements to be successfully deployed so far. DAOstack is the first operating system for DAOs. With DAOstack, thousands of open-source creators and early adopters can come together to jointly produce decentralized applications (DApps), while continuously re-distributing individual ownership in the product to contributors of value. We believe undoubtedly that DAOs will disrupt the existing business landscape, from startups to corporations and from formal to transient organizations. DAOstack forms the basis for this transition to the future of business and work.



1. Overview

1.1. Grand Vision

Imagine thousands of people spontaneously joining forces to work together. Imagine Linux and Wikipedia reinvented, more scalable, decentralized and resilient, with viable and collaborative business models built in. This is the DAO future of innovation.

Imagine Internet-scale curation networks that supersede existing platforms. Within a network the created value is shared between curators, which are then incentivized to participate; and different value systems provide different views of the world. It can be articles on Reddit or videos on YouTube, restaurant on Yelp or hotels on TripAdvisor. It can be websites on Google or investments opportunities on AngelList.

Imagine peer insurance networks and collective investment funds replacing the corresponding corporate models.

All of the above requires the same missing element in order to operate, a distributed and trustworthy governance system. DAOstack provides that missing element, based on the blockchain technology, naturally applied first for the open-source development community to further build DAOstack itself.

1.2. Mission Statement

DAOstack's mission is to bring a landscape of DAOs into life and to enable spontaneous crowd cooperation around any goal. With blockchain governance system and a virtual hub for entrepreneurs, freelancers and investors, it forms the interface for a new Internet of Work.

The first two steps towards that goal are:

- To bootstrap and grow the DAOstack platform, as an operating system for DAOs.
- To bootstrap and grow the ecosystem of DAOs using the DAOstack platform.

DAOstack is also a DAO by itself, developing and at the same time using its own platform, living entirely on the ethereum blockchain and the IPFS peer-to-peer network. **Bootstrap** is DAOstack's first release that will come into life (by being deployed on Ethereum and IPFS) on June 2017. From that point it will be a live, self-sovereign entity that will grow organically and govern itself using the DAOstack framework.

1.3. Core Elements

- DAOstack is the infrastructure and operational stack for DAOs, enabling them to manage token and decision-power distributions, as well as their own protocol.

- DAOstack Core is a modular governance framework for DAOs that can easily be deployed, configured and upgraded (governance and architectural wise). With an open library of modules and templates it forms the analogue of Wordpress for DAOs.

- DAOstack Registry is the database of DAOs and DAO modules, being curated by the DAOstack organization and serving the DAOstack ecosystem.

- DAOstack Hub is the network of DAOstack organizations, and a hub for entrepreneurs, professionals and investors, forming together the Internet of Work.

- DAOstack DApp is an intuitive interface to the DAOstack ecosystem, that is under development and will be launched in the coming months. As an open-source project, we expect many other interfaces to be developed and enrich this ecosystem.

1.4. Use cases

- Innovators seeking collaborators can easily open a new DAO venture.
- Anyone can on-board existing DAO projects according to their governance rules.
- Professionals can accept freelance missions from DAOs of their choice.
- Easy configuration of DAO governance protocols for token distribution and ICO.
- Blockchain ventures can crowdsource their work in a trusted way with smart contracts.
- Large-scale open-source development networks can be spontaneously created.
- Investors can easily invest in a wide and curated portfolio of blockchain projects.

1.5. Economy

The Stack (STK) is the native token of the DAOstack ecosystem. Basic operations on the DAOstack platform will require the spending or holding of Stacks, thus contributing to its value. Stacks will also be distributed to contributors of value to the network (through the DAOstack framework itself), thus incentivizing wide engagement in development, promotion and early adoption. Finally, Stacks will be offered for sale in two batches: an early one starting with the release of this paper (V1.0), and a public ICO (Initial Crowd Offering) on August 2017.

2. The Future of Work

2.1. Legacy Organizations

Cooperation of individuals increases their efficiency with respect to external market forces. This is the basic source of organization[1] and the reason organizations want to grow. However, coordination of very large number of agents is very difficult, and that is why organizations cannot grow indefinitely.

When growing, organizations needs more rigid structure in place, and thus face a growing challenge to: a) maintain agility with respect to rapidly changing conditions, and b) preserve alignment of interests, trust and engagement among their members. In short, the larger an organization is, the more internal friction it needs to cope with.

Once in a while, the introduction of a new technology or paradigm shift enables the reduction of coordinational cost, pushing up the scale and efficiency of organizations to new levels. It triggers a transition in the landscape of work and business, and thereafter a social change too, as was exactly the case with the invention of Crowdsourcing and the Internet itself.

The Internet allowed, for the first time in history, the open, peer-to-peer exchange of information on a global scale. The Internet media has become more efficient —and scaled better— than traditional media outlets, and has quickly assimilated the latters. However, the Internet itself does not support the open, peer-to-peer exchange of value, and thus limited in its potential to power global cooperation.

2.2. The Blockchain

Blockchain is the second internet revolution, doing to value and business what the Internet has done to information and media. It allows unprecedented levels of crowd coordination by eliminating altogether the issues of fault and trust, and consequently forms the technological basis for the Decentralized Autonomous Organizations (DAOs). A DAO is a new form of scale-free, self-organizing cooperation, that is operated by smart contracts on the blockchain. Many believe that DAOs hold the promise for the future of business and work.

The building blocks of DAOs are Smart Companies, faultless companies operated on the blockchain. Despite a lot of traction in the blockchain community around this subject, a successful governance system and operational basis for DAOs is still missing.

[1] This idea was formalized by Coase in his famous paper “The Nature of the Firm”.

2.3. Smart Companies

The building blocks of DAOs are *Smart Companies*. Smart companies are companies that are managed and operated with smart contracts on the blockchain. They have their own tokens, related to benefits of the company's resources, and own governance system, including its bylaws and voting systems encoded in smart contracts. A heuristic visualization looks like this:

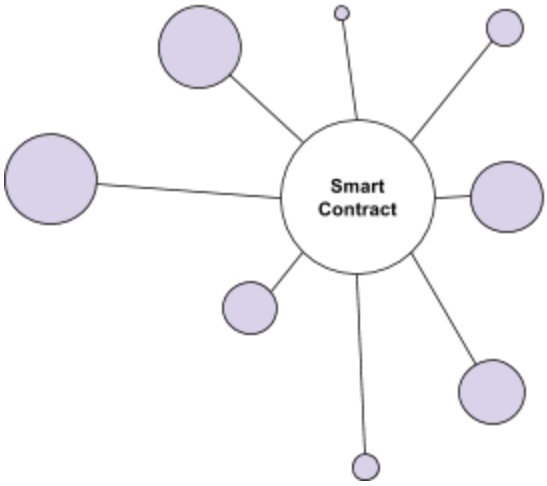


Image 1: *a caricature of a smart company. The solid balls visualize members in the company; their distance from the contract circle reflects their influence power, or reputation in the company (the closer they are to the central circle the more influence power they have); and the size of their balls reflects their native token possession (the larger the ball the more tokens they have).*

The governance protocol embedded in the smart contract can be anything one can come up with, but the simplest example would be a reputation-weighted Yes/No majority vote on actions such as token and reputation distribution. In an image it could look like this:

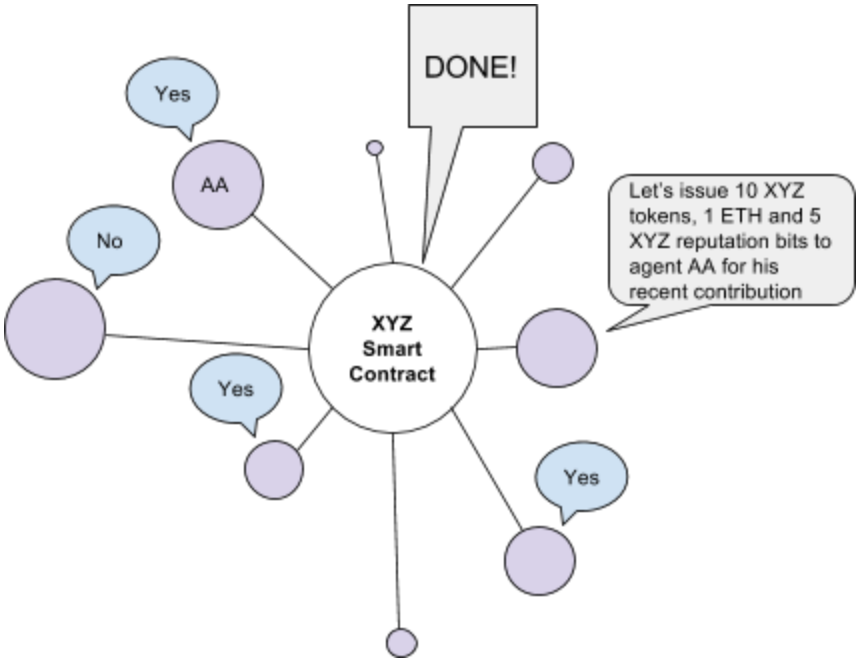


Image 2: *One of the smart company's agent is proposing to distribute tokens, external funds and reputation to an agent who has just made a valuable contribution. The reputation holders of the company vote, with their vote weighted by their reputation, and as soon as majority of reputation holders agree with the proposal the contract performs the suggested distribution.*

2.4. DAOs

Smart companies are autonomous: they are not regulated by external forces, and rather operate faultlessly with smart contracts on the blockchain. They follow verifiable rules that cannot be broken and are changeable only in accordance with the rules themselves.

DAOs are in addition also centreless, meaning that there is no single point of control (or failure) in the organization. Instead of central management there is indirect coordination between agents, also known in biology as stigmergy. The DAO is a self-organizing entity, and at large, resembles an organism rather than an organization.

2.4.1. DAO Topology

There are two ways to think of DAOs with respect to smart companies:

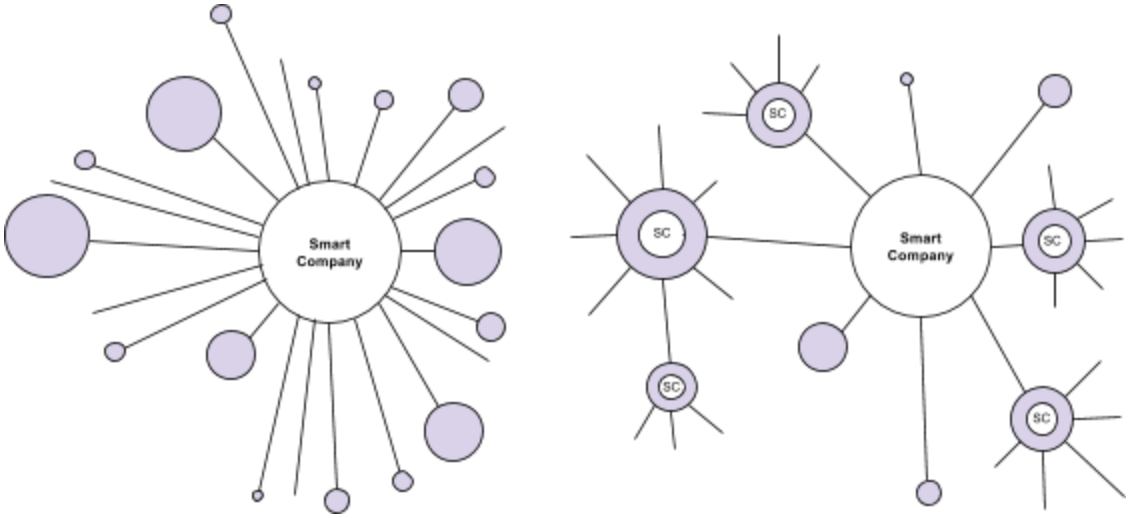


Image 3: *The two DAO edge modes, an assembly and a fractal federal governance.*

The first way resembles an *assembly*, having a large number of agents interacting in decision making within a single smart company, so that power is pretty distributed. The second way is a *fractal federal governance*, where a smart company is managed by small number of agents, some of which are possibly themselves smart companies, and so on and so forth. In reality, a DAO would probably be somewhere in between, but the bottom line is that power should be well distributed in a *meritocratic* way in order to effectively utilize its collective wisdom and benefit the organization as a whole.

2.4.2. Familiar DAOs

DAOs are nothing new. The human body is a DAO made of organs, sub-organs and sub-sub-organs, all the way to the atomic cells, which themselves have their internal structure. The functionality of the body is pretty decentralized and no cell instruct other cells what to do. Rather, each cell is autonomously operating according to inputs it receives from its environment. The sense of an organism —an autonomous and sential human being, is an emergent phenomena apparent only at the collective level.

An ant colony is a DAO too. It functions without any central management or control (“no, the queen doesn’t decide about the colony, it just lays eggs”), and individual ant behaves in reaction to the conditions of its nearest environment. The sensible colony is an emergent phenomena at the collective level, derived from an indirect coordination of ants which need not even communicate directly with one another.

We are also very familiar with a human-colony DAO — the Internet. It is a centerless system which has gracefully scaled to more than 2bn users over fifty years of existence. Its dynamic self-governance helped it evolve and upgrade itself over time just like a living system. The Internet does not support internal value distribution though, so it lacks an inherent incentive model for engagement. Its functionality is thus limited to the distribution of information.

In fact, Blockchain is a DAO. And it is the first value-based DAO. It is a centerless, living organism operated by a wide crowd of engaged members (AKA *miners*). With a new form of internal economic incentive model, it opens up the door for growth and adoption levels never seen before. At the time of writing, the Bitcoin blockchain network has grown from zero to almost $30bn in value without any central management or coordination. The Ethereum blockchain has similarly grown to over $8bn in value in less than three years! (The lucky ICO investors of the Ether token have seen their investment going up about X350 times in that time window.) But the functionality of these value-based DAOs is limited, and an additional element is needed to enable general-purpose DAOs that could organize around any goal. DAOstack is that missing element.

2.4.3. DAO Economy

Smart Companies, DAOs and DApps (Decentralized Applications) are all based on crypto-token, *circular economies*. Tokens reflect value in the network, but we need to explain where the value of tokens is coming from, or what is their business model. Concretely, we need to understand how tokens are being distributed, and how tokens are being spent.

2.4.3.1. The DApp Model

The business model of a DApp token is pretty standard by now. The tokens are being distributed to contributors of value to the network; and at the same time, the tokens need to be spent by users when using the resulting DApp. For example, Ether is being distributed to miners in the Ethereum blockchain network; and Ether needs to be spent by users in order to process computations on the Ethereum blockchain or use its storage. The success of the DApp drives the demand for its token, and thus the token's value. The more people would run computations on the Ethereum blockchain, the more Ether they would need to spend, and the higher would be its value in the open market.

2.4.3.2. The Share Model

The DApp model fits the situation where the DApp as a DAO, or smart company, does not hold by itself any funds; it has no collective wallet. In the case where a smart company does have a collective wallet, which can be filled with valuable tokens in this or that way, that company's tokens have their *share value*. Meaning, they are redeemable against their relative portion of the collective fund. Let's consider an example. Say company B has 100 B tokens distributed to its members. But the company B collective wallet somehow has 1000 A tokens of the A company. Then, applying a *full-reserve redemption scheme,*[2] every B token that is sent to the B wallet is being burnt out of circulation; and 10 A tokens are sent back to the B-tokens sender.

[2] More generally, company B can apply very different redemption schemes.

The simplest scenario in which company B gets to hold the A tokens in its wallet, is if company B is an agent (or sub-company) in company A. We will come back to a detailed illustration of that in the next chapter. Other use cases could be collective investment or insurance fund.

2.4.3.3. The DAO model

This new crowd incentive model of token distribution works VERY well in driving engagement and adoption. In the Bitcoin network, miners adoption rate looks like this:

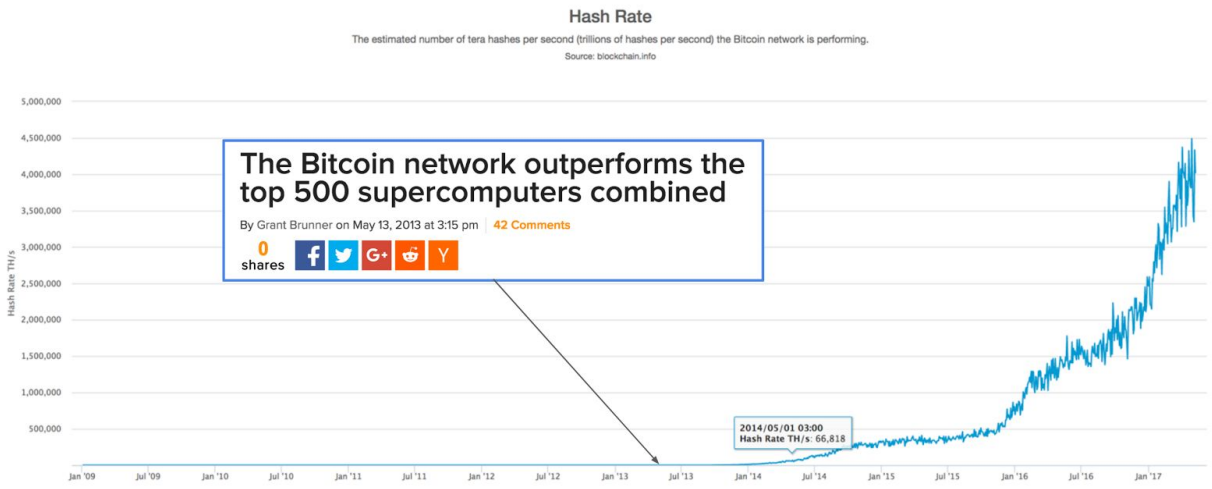


Image 4: Total hashing power in the Bitcoin network has grown exponentially and multiplied about a millions times over the past 6 years, due to the built-in economic incentive in mining.

However, in the blockchain case, miners are only the maintainers of the network, and no direct reward is awarded for the developers of the network, or its early adopters. In a DAO, with the help of the DAOstack governance system, tokens can be distributed to any contributors of value, including developers, promoters and early adopters of the network. We believe this new incentive model will trigger a level of engagement and coordination we have never seen before, leading to much higher business efficiency than in existing structures.

2.4.3.4. Economy on Steroids

Until now we have considered the market value of tokens as derived from their tangible value, being a DApp fuel or a share in a fund. Nevertheless, people who do not yet need the tokens to use the DApp may still see the future potential of them, for themselves or for others. They can purchase tokens early on, as a mean of investment, if they believe that their demand, and thus value, will increase.

This token distribution and usage cycle creates a circular economy. Having an open market as a built-in feature fuels this economy with the wisdom of the crowd, and its resources. This

crowd investment mechanism is the responsible for the X350 increase in value of the Ether tokens over a period of less than three years; despite its product being in a very early stage.

3. The DAO Stack

The vision and goal of DAOstack is to create the necessary and sufficient ground, and act as an incubator for all kind of DAOs to pop up into existence. We argue that as a more evolved construct, DAOs will swiftly replace existing business structures. Just like the Internet disrupted legacy media simply because it is far more efficient than they were, DAOs will disrupt businesses as we know them, by being far more efficient than they are.

This vision is made possible with the following stack of components in place:

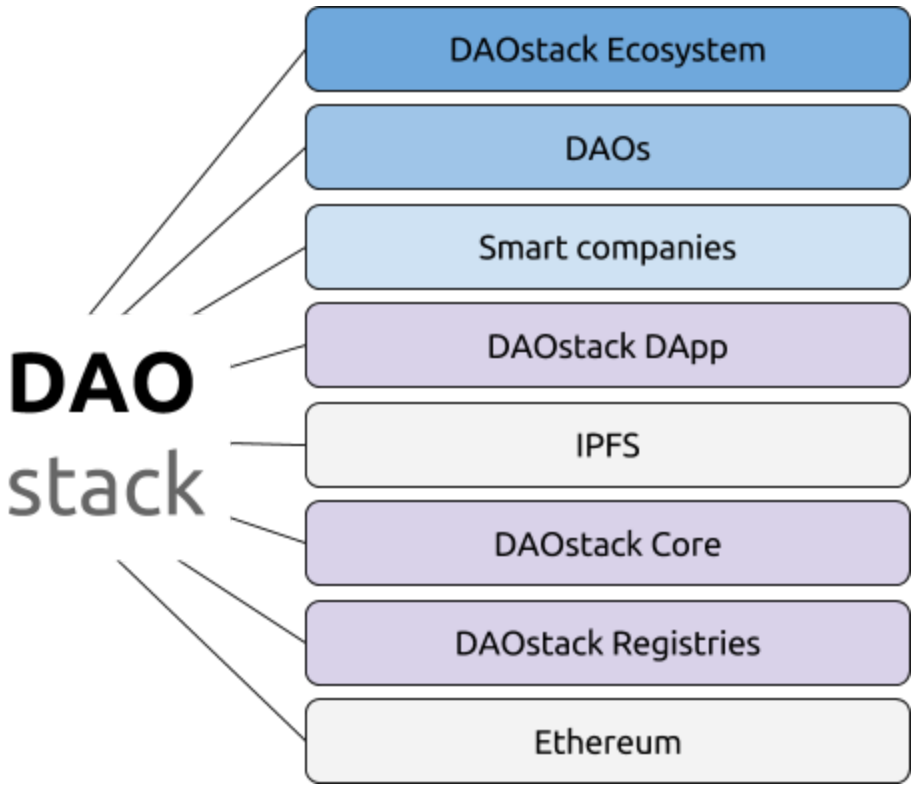


Image 5: A rough sketch of the DAO stack. An ecosystem of DAOs, each made of a network of smart companies. Smart companies operate via DAOstack (or other) DApp, which is deployed to IPFS and connects to the blockchain through DAOstack Core framework and its Registries.

3.1. DAOstack Core

DAOstack Core is a general governance framework for an interacting internet of smart companies, the basic operating system for DAOs. Its smart-contract bundle is flexible, modular and upgradeable by design, to allow an easy modification, and thus evolution, of a

company's governance system. Complemented with an open library of modules that will grow with the need of its users, Core is for smart companies and DAOs what WordPress is for websites and the Internet. Today, Core is based on the Ethereum blockchain, but will be blockchain agnostic once other technology platforms mature up and made interoperable with each other.

3.1.1. Design Thinking

As an open framework for general-purpose blockchain organizations —and not a specific protocol implementation, Core was designed with the following requirements in mind:

- Generality: Core is not a specific protocol. It is a *framework,* compatible with any governance scheme for smart companies and DAOs. The general framework is complemented with a growing open library of independent governance modules that will cover the space of governance protocol over time.

- Modularity: The entire framework is extremely modular, which means that the company's governance structure is made of small building blocks that are easy to be added or removed.

- Changeability: The company's rules includes the rules to change the rules. Separate rules can even have their own changeability rules; for example, certain decisions can be altered only with some supermajority voting condition.

- Upgradability: The entire framework is upgradable, allowing for continuous evolution. Naturally, system upgrade also has its own rules, which are themselves configurable.

- Interoperability: the entire system is designed for interoperability of companies, the essence ground for DAOs. In practice, it means that companies can play as agents of other companies, and an Internet of smart companies can emerge spontaneously.

- Simplicity: The whole bundle of smart contracts is deployed with a single transaction, and a strong emphasis on simplicity of design is implemented wherever is possible. Electric outlets and the USB port could not succeed as standards if not being integrable with and agnostic to external components. Which is exactly what enabled the growth of an open ecosystem of appliances and appliance-builders around them. Core was designed with the same purpose and intention in mind.

3.1.2. What can smart companies do?

A smart company, entirely living on the blockchain, can clearly do the following:

- Distribute its own native tokens to contributors of value, as valued by the company. This is somewhat analogous to a regular company distributing its own shares, or selling

rights for its future products.

- Distribute external tokens that are under its possession to contributors of value, as valued by the company. This is somewhat analogous to a company using its fund (say, in USD) to pay to contributors of value, such as employees and service providers.

- Distribute its internal decision-making power in form of *reputation* to contributors of value and other accredited professionals. This is somewhat analogous to a company distributing its voting shares to directors and other members.

In addition to those three obvious actions, a smart company can also act with the following:

- Registration of metadata. For example, a smart company can collectively curate the quality of articles by its members.

- Update its own governance protocol, its bylaws.

- Act as a single entity in other smart companies. For example, vote on a proposal in another company (assuming the former holds some voting power in the latter).

3.1.3. Governance structure

The governance or bylaws of a company can be divided into two types, the do's and the dont's:

1. The do's meaning the logical rules under which some of the above actions are being triggered in the company. For example: if a majority of stakeholders vote *yay* for issuance of new tokens, then the issuance is being automatically triggered by the company's smart contract. We call these operational logics: *schemes*.

2. The dont's refer to the boundaries of a company that cannot be crossed, not even by approved schemes. For example: a company may have an upper cap of one million tokens. In that case, issuance schemes will operate only as long as the total number of tokens after issuance is less than a million. We call these limits: *global constraints*. Global Constraints can be eternal, or they can also be set to be upgradable under some chosen limited conditions.

Given the schemes and global constraints of a smart company, its entire governance protocol, the bylaws, including the protocol to change the protocol, is unambiguously defined.

3.1.3.1. Schemes

The schemes of a company can be as wild as one can imagine, given the above types of outputs of a company, and taking into account any possible input agents can put in. For

example, the simplest rewarding scheme in a company C goes like this:

1. Agent W submits a proposal to reward 150 C-tokens and 230 C-reputation bits (C-reps) to herself for her contribution Z to the C-company.
2. Anyone can vote *Yay* or *Nay* on this proposal, to be weighted by her C-rep score.
3. Once a majority of C-rep holders vote *yay,* the C-company's operating system issues 150 C-tokens and 230 C-reps to address W. (Note that W can also be the address of a smart contract, in particular the Avatar address of yet another smart company.)

Just for illustration, a much more complicated scheme could be as follows:

1. Agent W submits a contribution X to the C-company and asks for a reward.
2. Anyone can vote with a suggested number of C-tokens to award to agent W for this.
3. Votes are weighted with each voter's C-score = (C-reps * C-tokens) in his address.
4. As soon as:
    a. 20% or more of C-score holders vote,
    b. and not more than 1% of C-score vote was cast for the last 1 day,
    c. then the C-company's operating system issues M C-tokens to address W,
    d. where M equals the *score-weighted median* out of all voting agents,
    e. and issues 1.5*M of C-reps to address W.

More generally, schemes can activate different actions, incorporate very different logics, or use different voting systems, that in particular can hybrid reputation with tokens for voting power. A company offering its tokens for sale under some conditions (also known as an Initial Coin Offering, or ICO) is yet another family of schemes. The spectrum of possibilities is endless and will be covered with more examples in an extended paper.

3.1.3.2. Global Constraints

The simplest example of a global constraint of a smart company is, as described above, an upper cap on the total supply of tokens. It can be unchangeable, or it can be changeable, say, with a 60% supermajority decision of stakeholders.

Examples of more sophisticated global constraint could be:

- Adding or removing schemes, or modifying the global constraints, requires a supermajority of 70% of score-holders, when (score = reputation * token).

- Token issuance cannot surpass a monthly inflation rate of %5.

- Reputation issuance cannot be processed without a burn of 10 STK by the awardee.

- Schemes can only register new schemes which are registered on the DAOstack Registry.

3.1.4. Architecture

In terms of logic and smart-contract architecture, Core looks something like this:

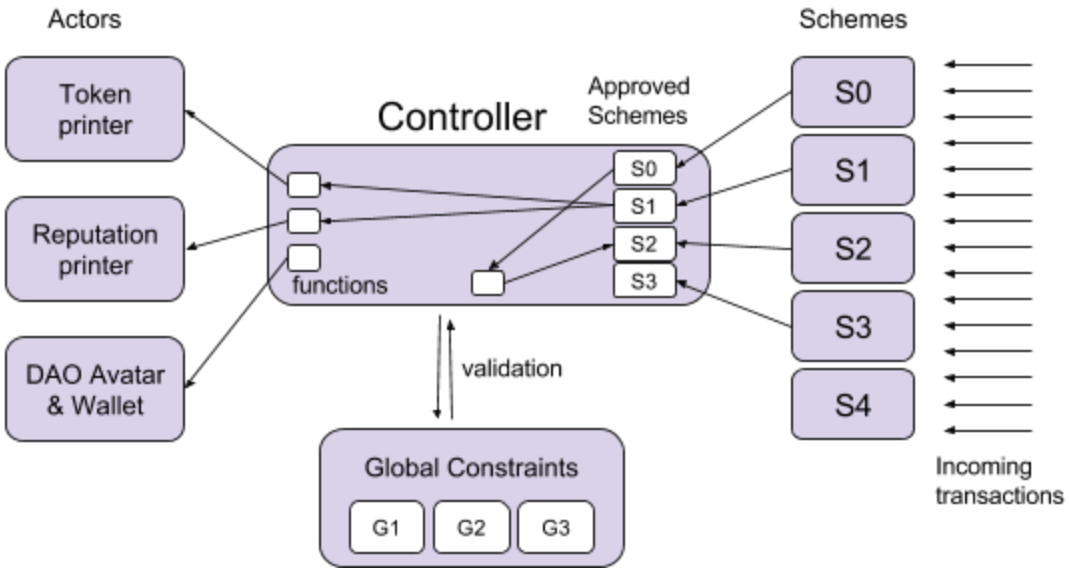


Image 6: A rough sketch of the Core smart contracts of a smart company, and their dynamic interactions. What is not visible in this diagram is the fact that most of these contracts, schemes and global constraints, and the controller too in the future, are universal. Meaning, DAOstack companies could use the same universal contracts rather than deploying their own. This design contributes to the scalability, functionality and security of the framework.

Note that each company has to have at least one scheme —the scheme that can approve more schemes. We call the first scheme of this type the Genesis Scheme (denoted S0).

A general process in the smart company looks like this:

1. The company can act with the functions of its *Actors (*print tokens, reputation, etc.).
2. Only the Controller can activate the Actors, through its own functions.
3. Only Approved Schemes can activate the Controller's functions.
4. One of the Controller's function is to register new schemes (or unregister old ones).
5. Schemes, such as S0, can also activate this function and register new schemes.
6. Before each activation of the Controller, Global Constraints validates for its legitimacy.
7. DAO Avatar can do *any* action in the Ethereum world, using a proxy contract for help.
8. And specifically it holds and controls external tokens and reputation scores.

9. Schemes are activated from the external world through incoming transactions.[3]

Note that schemes are universal by design, which means that the same scheme contract serves all companies, a scheme as a service (SaaS). It can also has its own business model, charging for operation, and it can be registered in the DAOstack Registry and be curated by the DAOstack expert community.

3.2. DAOstack Registry

3.2.1. Gov Registry

The open framework allows anyone to deploy new governance modules —schemes and global constraints. For purpose of security, companies may decide to limit themselves to schemes that have gone through exhaustive and professional audit. For that purpose, DAOstack has its Registry, which registers governance modules that have been approved by the DAOstack expert community.

Note that the Registry serves also as DAOstack business model; it costs Stacks to deploy a governance module onto the registry. More so, the registered modules may have their own business models, that collects Stacks upon every usage, which can be shared by the uploading developer and the DAOstack organization.

3.2.2. Org Registry

The open hub of DAOs is yet another curated registry, of organizations. It costs Stacks to register or promote an organization on the DAOstack Registry.

3.2.3. Hub Registry

This is where innovators, professionals and stakeholders “meet” among themselves and with organizations. It is a search engine curated by the DAOstack organization, and a billboard that everyone can use to post requests or offers. Posts are registered and promoted on the board by spending Stacks.

3.3. DAOstack DApp

We have covered the smart contract framework for smart companies and DAOs, from which an Internet of companies and tokens can emerge, the DAO landscape. What’s missing is:

1. an intuitive interface to operate this framework,

[3] Note that the term transaction is used here in a broad sense, that beyond sending of funds includes the activation of any function in a smart contract and injection of data.

2. and a participation hub of organizations and people: innovators, professionals and stakeholders, who can find each other and play the game together.

DAOstack DApp is a serverless application that plays this part. It is the interface to the DAOstack landscape, and a hub by its own right.

4. The Stack DAO

DAOstack is a platform for DAOs. DAOstack is also a DAO using its own platform to operate. In order to grow itself it has to be economically viable and reward its contributors and backers. Its token, the Stack, and its value-generating model will serve that purpose. It also has to have the minimal viable platform to grow on and expand from. The Bootstrap release on June 2017 will give birth to DAOstack and will serve that purpose. In the following we describe the details of and plans for the DAOstack DAO.

4.1. Bootstrap

On June 2017 the first DAOstack release will be deployed on the Ethereum mainnet and IPFS network. In effect, from that point, real ERC20 Stacks will be distributed to contributors of value, with an initial Stack distribution detailed below, and according to its initial governance protocol (which includes in it the protocol to change the protocol).

The mission of Bootstrap is to ignite the mission of DAOstack. In particular:

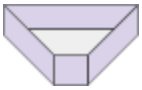
- To launch an MVP DAOstack platform suitable for the professional early-adopting community, that could develop it from thereon.

- To launch a successful ICO, that will support:
    - Establishing the DAO platform suitable for a wide audience;
    - Growing the DAOstack ecosystem by backing its promising DAO projects.

- To widely and meritocratically distribute the decision power in DAOstack.

The Bootstrap release will include the very minimum of ingredients needed in order to viably operate DAOstack on top of itself, with a professional early-adopting developers community. In particular it means that it will be launched without a native frontend DApp; thus, operations will be carried out via Ethereum's Mist browser. (The DApp will be launched soon thereafter.)

It also means that, while the smart-contract governance framework will be deployed with its full architecture in place, it will start to operate with the simplest and functionally minimal governance scheme in place, specifically the Simple-Contribution scheme described below.



4.2. Stack-onomy

DAOstack's native token is the Stack, the basic token of operation on the DAOstack platform. It is the driver of the DAOstack organization, platform and ecosystem, and its value is derived from their success, thus forming a circular economy.

For a successful growth of the ecosystem it is important to have a viable value-generating model for Stack holders, contributors and backers.

4.2.1. Value-Generating Model

Stacks will be spent by the users of the DAOstack platform, which are the founders and participators of DAOstack-based organizations, to facilitate their usage:

- Registering and promoting (sub)organizations on the DAOstack Org Registry.
- Registering and promoting new governance modules on DAOstack Gov Registry.[4]
- Registering and promoting request and offers on DAOstack Hub Registry.

In addition to spending Stacks, DAOs or people that will keep more Stacks in their wallets (as a Reserve Fund for their native tokens in the case of DAOs), will be more staked in, and will thus gain more visibility and decision power in the DAOstack ecosystem and its registries.

4.2.2. Tokens Cap

DAOstack will be launched with a cap of 100M Stacks, enforced by a Global constraint. This global constraint can only be changed with a special majority vote of the organization, and only 1 year after the deployment of Bootstrap.

4.2.3. Budget

The Stacks reserved for future collaborators will only be issued by a certain rate, enforced by a global constraint. Changing this global constraint will also require a special majority vote.

4.2.3. Initial Stack Distribution

There will be an initial distribution of 75M Stacks:

- 12.5M Stacks will be awarded to all early contributors before ICO.
- Up to 12.5M Stacks will be awarded to earliest backers before ICO.
- Remaining Stacks at time of ICO will be offered to ICO backers.

[4] The modules can have their own business model that may gain revenues to their deployers and DAOstack.

The remaining 25M plus the Stacks left from the ICO are reserved for future collaborators. Distribution of these tokens will be according to the governance system of the organization and the budget global constraints.

4.2.4. Stack Offerings

Stacks will be offered openly at the official ICO at the beginning of August 2017. For early backers who would like to support the birth of DAOstack, “promise-of-Stacks” are being offered these days.

4.3. Governance

The core innovation of DAOstack is its decentralized governance system. Naturally, DAOstack will be using its framework for its own governance.

The DAOstack organization, as a DAO, will be composed as a network of companies. For example it could look something like this:

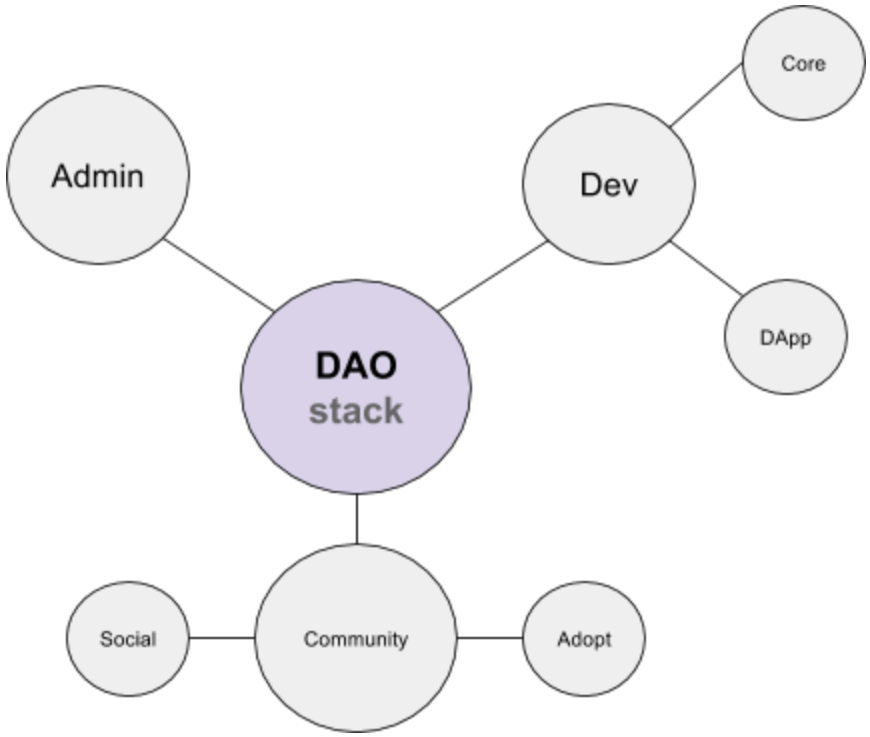


Image 7: A heuristic sketch of a possible scenario for the network of companies composing DAOstack. In reality, since anyone can instantly open a new company, it is more likely that a much more vast internet of companies will appear quickly, and successful companies will remain through an evolutionary process. An open-market economy within an organization.

Note that DAOstack has its own governance system, whereas each of its sub-companies (and their sub-companies) have their own, autonomous governance systems. DAOstack does not

have any control on the internal governance of Dev, it simply sees it as a regular agent. Decisions in Dev are made according to the Dev governance protocol, and are communicated as a unity into the DAOstack governance system, via some of the Dev governance schemes.

4.3.1. Initial Governance Protocol

In terms of schemes,

- we start with the simplest one, Simple Contribution, where:
    - Agents propose a Distribution Event.
    - Distribution event distributes internal tokens and reputation, or funds if exist.
    - Reputation-based voting on distribution events.
    - Majority of all reputation holders triggers the execution of a distribution event.
- Simple interoperability will be in place too, so that companies could use another scheme to collectively propose (and vote on) a distribution event in other companies with their Simple Contribution scheme.
- Clearly, there would be the ICO scheme.
- Finally, there will be an initial upgrade scheme, to fully upgrade the entire framework, besides of course the permanent token and reputation systems.

Some preliminary Global Constraints will be deployed as well, such as the 100M total cap on tokens; and a supermajority required to change the cap, only functional after one year.

4.3.2. Initial Reputation Distribution

Reputation will be initially distributed to early DAOstack contributors, advisor, backers and other professionals in the Ethereum community.

4.4. DAOstack Open Ecosystem

Open frameworks such as Wordpress, Google add-ons and Android, invite independent developers to develop their own apps, templates and integrations, and by that promote a prosperous development community and a resulting wide plethora of applications.

Similarly, we expect DAOstack to invite developers around the Ethereum community to develop and integrate their own governance modules or fronend DApps, thus creating a thriving ecosystem of DAO tools for everyone.

The DAOstack code is fully open source, backend and frontend, and is found here on Github.