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Decentralised Autonomous Organisation (DAO)

The Bridge

Redefining Finance for the New Economy

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Executive summary

A DAO is an alternative to the traditional organisational structure, a potentially better way to coordinate capital and talent almost instantaneously, at scale, from anywhere in the world. In this edition of the Bridge, we will look at some of the basics of DAOs, starting with a brief history behind the term and its use, followed by understanding how they work and how the membership is distributed, along with some successful implementations in leading categories, before finally talking about some of the limitations of the technology.

In this edition of The Bridge, we look at what are DAOs, some of the key features of a DAO, and why they are important. It is often better to compare new things with their existing counterparts to gain perspective, and that is why we will compare a DAO against the structure of a traditional company.

1. Introduction

The peer-to-peer transactions enabled by cryptocurrencies and smart contracts gave birth to an innovation called DAO for Decentralised Autonomous Organisation, that lays out ways of community governance and coordination. Given that crypto communities are truly global, there is a need for an efficient way to communicate with each other and make important decisions related to their common objective. For a DAO to efficiently coordinate humans worldwide, its incentives must be properly aligned to generate maximum output. It is safe to say that the DAO governance model is not perfect, but a lot of different implementations are making significant progress in building a better model for decentralised organisations.

In this edition of The Bridge, we look at what are DAOs, some of the key features of a DAO, and why they are important. It is often better to compare new things with their existing counterparts to gain perspective, and that is why we will compare a DAO against the structure of a traditional company. We will also look at how individuals or entities can gain membership of a DAO or the most common ways used today to distribute membership, followed by several types and examples of successful DAO, before finally talking about some of the challenges and limitations.

It is key to note that DAOs, like most things in the crypto ecosystem, are rapidly iterating to understand what works and what does not, there are certainly some failed experiments, but we are making significant progress towards building a solid foundation for the future of decentralised internet.

2. What are DAOs?

DAO stands for 'Decentralised Autonomous Organisation'. As the name suggests, it is a community-led entity that collaborates with strangers on the internet and works towards a common goal without the direction of any central authority. A DAO functions based on a set of rules, a sequence of smart contracts written in pieces of code. Each smart contract explicitly describes the consequences of an action. A DAO is transparent in all decision-making, from creating proposals to voting, and everything can be publicly audited anytime.

The governance of a DAO is designed by its members, who vote on proposals and decide the future of the entity/community, whether it's the technical implementation or management of treasury funds. A typical process would be a community member creating a proposal for individuals to vote and decide on the future operation of the protocol. If a predefined consensus level is achieved, the proposal is automatically executed and rejected if the consensus is not achieved.

Some key features of a DAO:

- No Hierarchy: Decisions are made by stakeholders instead of managers or leaders, and there is no hierarchical management
- Full Transparency: The code running a DAO is open source and can be validated by anyone. One can even scan through history to see how decisions were made from the genesis
- Open Access: Anyone anywhere in the world can join a DAO and contribute in whatever way they like. Everyone can become a decision-maker with the ability to vote on proposals
- Censorship-resistance: No authority, including governments, can shut down a DAO as a decentralised network of computers runs it
- Democracy: Any investors or members of a DAO can make proposals to shape the future of the DAO, and decisions are taken democratically.

3.
Why DAOs are Important?

People form organisations to work together and achieve goals to make an impact. As these entities grow, the top management becomes the most critical factor in the long-term success or failure, given that they take all major decisions. An organisation at this point needs to trust a select group of people with the capital, and in their ability to effectively deploy that capital. This was not a huge problem in the time when we had no internet, and almost every individual used to be physically present in the office during working hours. It was relatively easy to build personal relationships and trust people with their decision-making abilities.

But in today's age of internet companies and the global workforce environment, more and more people are working remotely. They collaborate with people from different geographies and cultures, with each having its own unique value system. In such a scenario, DAO provides a near-perfect solution to maintain the sanity of the organisation's objectives and make sure the right decision is being taken and implemented. It coordinates capital and talent almost instantaneously, at scale, and from anywhere in the world.

DAOs enable these new-age organisations to live up to their full potential and open new possibilities for a truly global economy. The most notable examples of DAO entities are crypto protocols, which distribute ownership and decision-making power via innovative ways of token distribution, to make their protocol progressively decentralised. The users receive ownership in the underlying protocol, and their success is directly correlated with the success of the DAO. This has enabled a shift in governance from centralised structure to a community-led, decentralised structure.

The nature of these entities (DAOs) can be of any shape and size. It can range from a small community with a goal of only raising capital for a specific one-time objective to building full-fledge product and services business with automated decision-making and distributed ownership.

With DAOs, one does not need to trust anyone and just believe that the code written will ensure that the objective is met. Since smart contracts are open for anyone to verify, there is no chance of corruption or the fear of any individual favour being entertained. Of course, there are unique challenges that come along with DAOs that are very different from the problems found in traditional organisations. We will discuss those in the latter part of the article.

Table 1: A comparison between a DAO and a traditional organisation

Decentralised Autonomous Organisation (DAO)	A Traditional Organisation
Flat organisation structure, fully democratized	Usually hierarchical organisation structure
To implement any change, DAO members need to vote	Depending on structure, changes can be demanded from a sole party, or voting may be offered
Votes are autonomously tallied, and the outcome is implemented automatically without the internvention from any trusted third party	If voting is offered, votes are tallied internally, and the outcome is implemented manually
Services offered are usually executed automatically in a decentralised, trustless manner	Services offered may require human intervention, or can be delivered through centralised automation, which is prone to manupulation
All acitivities are fully transparent and can be verified publicy	Most activities are usually private with limited public information
Open for anyone to join and contribute	Limited to employees, select few people
Fully Global	Not always global

Source: SEBA Bank, ethereum.org

4.
How Do They Work?

The functioning of a DAO is found in its foundational framework of smart contracts, established by a core team of community members. Smart contracts are open-source computer codes with full transparency. Once these contracts are live on the network, no individual or entity can change the DAO's rules. These rules basically decide the future of the community and manage the treasury.

Now there are multiple types of DAOs, from something as simple as having a charity for a specific cause to a freelancer network to a venture and grants fund that can raise capital from anyone around the world in exchange for the DAO membership, and the community decides how it will be spent. Further, the DAO members will benefit from the organization's success. At the core of each DAO is raising capital to achieve the set goal and make progress towards the mission. The capital is usually raised through offering DAO memberships. It also determines how the governance and voting will work along with other key parts of operations. There are multiple models for DAO memberships.

- Token-based Membership: These are fully permissionless, and anyone can become a member by buying tokens available on decentralised exchanges. One can also earn tokens by means of providing liquidity, and holding these tokens grants access to voting.
- Share-based Membership: These DAOs are slightly permissioned but still open. For a potential member to join the DAO, they must submit a proposal and mention what kind of value they will be bringing to the table in exchange for shares of the organisation. These shares represent direct voting power and ownership. Members are free to leave anytime with their proportionate share of the treasury.
- NFT-based Membership: Some communities can only be accessed by holding a specific NFT from a limited collection set. Membership of such a DAO is slightly difficult, depending on how many number of tokens are issued and how easily they can be traded on the open marketplace. Membership includes voting power and, in some cases, commercial rights to the NFT that individual holders can monetize.

5. The State of DAOs

The use of DAO word for the first time was seen in 2016 but the traction around DAOs has only picked up in the last couple of years. More specifically, the decentralised finance (DeFi) ecosystem projects have popularised the term and are most effectively using them to decentralise their application.

Some people might argue that the Bitcoin network is the first DAO to ever exist just because the network scales through community agreement, even though the network participants are spread worldwide. However, Bitcoin does not have an organised governance mechanism, but instead, miners and nodes signal support for the growth of the network.

Most people do not see Bitcoin as a DAO by today's standards and would consider Dash to be the first true DAO as it has a governance mechanism that allows stakeholders to vote on the use of treasury.

Further, many people consider 'The DAO' on Ethereum blockchain to be the first-ever DAO, created by a company called Slock.it in 2016. They originally set out to provide a service that enables people to rent, sell or share their property without a middleman using blockchain technology. While raising capital for this initiative, they created a DAO, much like a Kickstarter or GoFundMe but with a unique difference. They gave all investors/members a vote in the decision-making process of how to spend the raised capital and thus established a new governance model.

They raised over USD 150 million worth of ether at the time from 11,000 members and held approx. 14% of total ether in circulation back then. It became a decentralised venture capital fund supporting Ethereum projects but was hacked in June of 2016 and lost about 3.6 million ethers, about USD 50 million at that time. To limit the impact of this hack, the community decided to hard fork the network, and that is why we today have Ethereum and Ethereum Classic as two separate blockchains.

Now there are several projects that are built on top of Ethereum and other networks, with each having unique token economics and governance mechanisms. Let us briefly look at how we can broadly categorise these DAO projects for a better understanding.

Protocol DAOs

Decentralised Finance (DeFi) ecosystem projects mostly fall under the category of protocol DAOs. These are the ownership and governance mechanisms for decentralised exchanges (DEXs), borrowing and lending platforms, algorithmic stablecoins, yield optimizers, and many more projects that ensure fair operation and evolution of the underlying protocol in a decentralised way.

Examples

- **Uniswap** is the most popular decentralised exchange on Ethereum, and they launched their governance token called UNI in September of 2020. Token holders can vote to control the protocol's direction, fees, treasury, etc.
- **Aave:** A trustless way to borrow and lend assets on the internet. Token holders can vote on governance decisions such as the addition of new assets, collateralization ratios, and more.
- **Maker:** The governance protocol for the most popular algorithmic stablecoin, DAI, and is considered the original DAO in the DeFi ecosystem. Token holders vote on adjusting the interest rate, the stability fees, and more.

Investment DAOs

These are like traditional venture capital investment funds that pool in capital from multiple sources and allocate it in early-stage start-ups. The only difference is that instead of a limited number of select people making the decision about where to invest, the DAO members can vote on effective capital deployment.

Example

MetaCartel Ventures: This is one of the first for-profit DAOs, and they invest in early-stage decentralised applications (DApps). One of the key advantages of having an investment DAO is that now these opportunities are open for virtually everyone, unlike only accredited individuals, venture capitalists, and angel investors.

Grants DAOs

These are designed to fund new ventures, hackathons, and protocol developments. Usually structured as a separate arm of a larger ecosystem but can also exist independently.

Example

Gitcoin: A platform for open-source application developers. It is operated independently, and the donors can choose which projects they want to contribute to. The governance token is called GTC, and members can vote for the management of treasury, grants, disputes, and more.

Collector DAOs

This type of DAO pools funds to purchase collectible items specifically; it can be both real-world (physical assets) or virtual assets (NFTs). The objective here is to hold, curate, and monetise these unique pieces of art and culture for the benefit of the community.

Example

PleasrDAO: A DAO focused on purchasing only art and collectibles. This is like investment DAOs, but they do not invest in projects, building products, and services; they are only focused on collecting and curating these art pieces.

Social DAOs

Social DAOs enable access to niche communities. One can get access only if they are holding a certain token that can be acquired by paying a membership fee. The social circle of the community is specific to the DAO and can range from anywhere as an art enthusiasts to book clubs and much more.

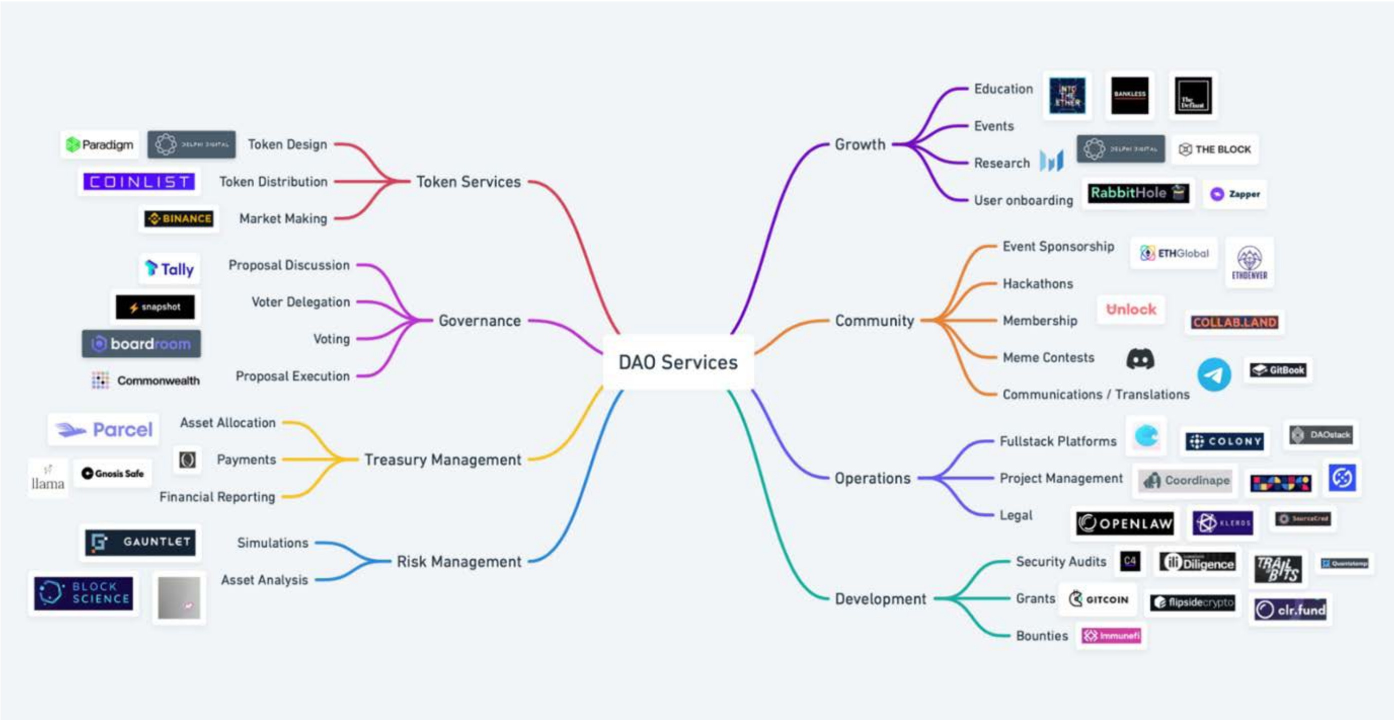
Example

Friends with Benefits: This exclusive social club consists of web3 artists, operators, and enthusiasts. One can only become a member by owning a number of FWB tokens that enable access to gated events and digital collectibles auction galleries.

Other DAOs

The DAO ecosystem is still evolving rapidly, and there are several projects that are still figuring out the best way to enable distributed ownership and decision-making. One interesting implementation is by Aragon, a platform focused on providing DAO tooling and structured as a DAO. Token holders get to vote and decide on the protocol upgrades. As we move forward, we will see more and more community governed projects which can be called DAOs.

Figure 1: DAO Stack



Source: Consensys.net

6.
Challenges/Limitations of DAOs

As mentioned at the beginning of this article, while DAOs provide a viable alternative to the shortcoming of a traditional organisational structure, it also comes with a set of their own unique challenges. It is important to note that these entities are just tools that have incredible potential, but they are still vulnerable to attacks and nowhere near perfect. A lot of fundamental decisions can be coded in the smart contract and members can vote on the future of the protocol, but the cultural and ideological frameworks still needs to be established.

Even though the name includes autonomous, only a limited number of tasks can be entirely automated today, and most activities need interaction with the real world. So, there must be an optimized way for a DAO to deal with several real-world questions and liabilities. Further, if the vulnerabilities cause any damage to the DAO, there must be a system that can hold someone accountable and liable to rectify the issue. If any DAO is purchasing any physical goods, there must be a way to protect and ensure the safety of those goods for the long term. This can not simply be automated today. Thus, there are multiple issues of legality, security, and structure today.

7.
Conclusion

There is no doubt that DAOs offer a compelling way to restructure our organisations and optimize for the progressive democratic development of society. We need to embrace this opportunity and start addressing key regulations, security, and structure issues. Each DAO will have a unique approach to solving these problems and reflect its members' interests. As our world comes closer and closer, DAOs will continue to offer more efficient ways to organise ourselves.

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