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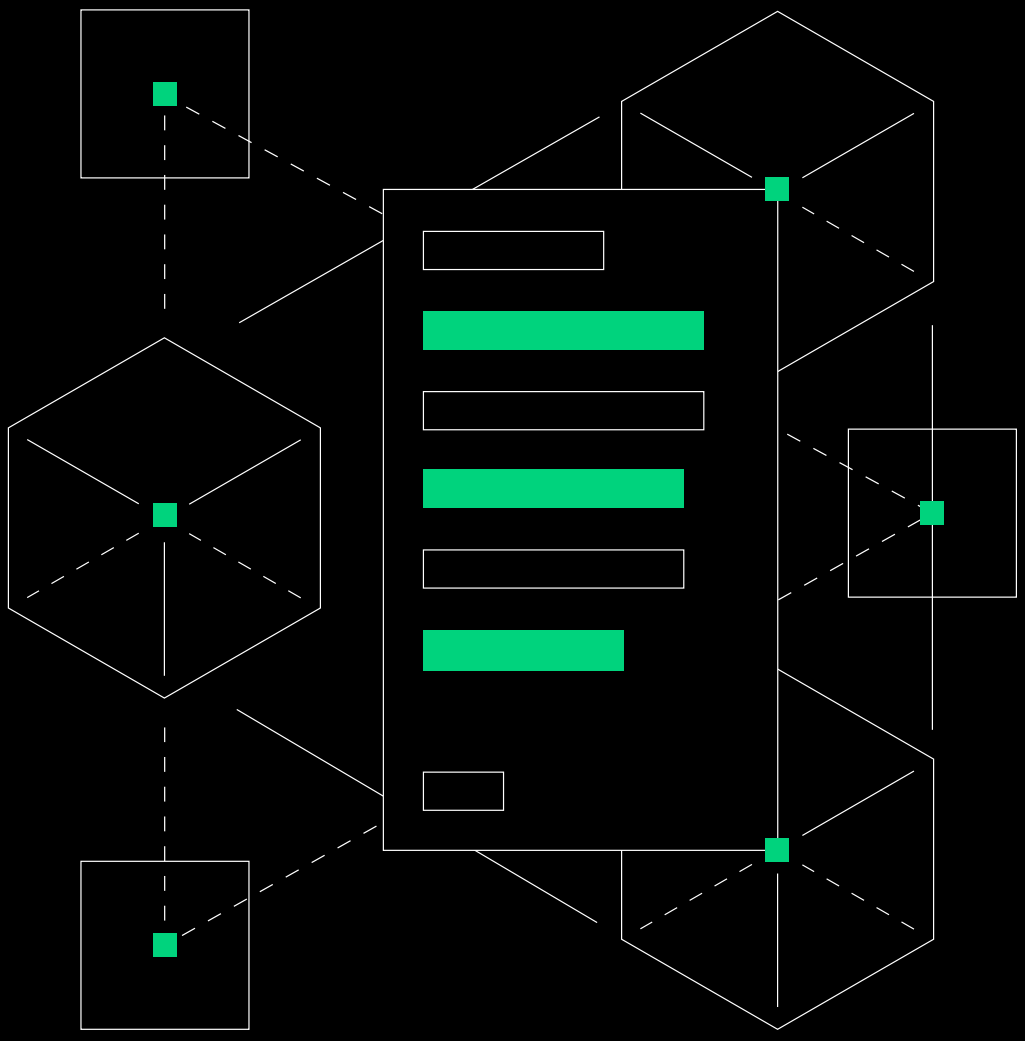
Galaxy Digital Research

DAOs

The Future of Organizing Communities Online

NOVEMBER 24, 2021



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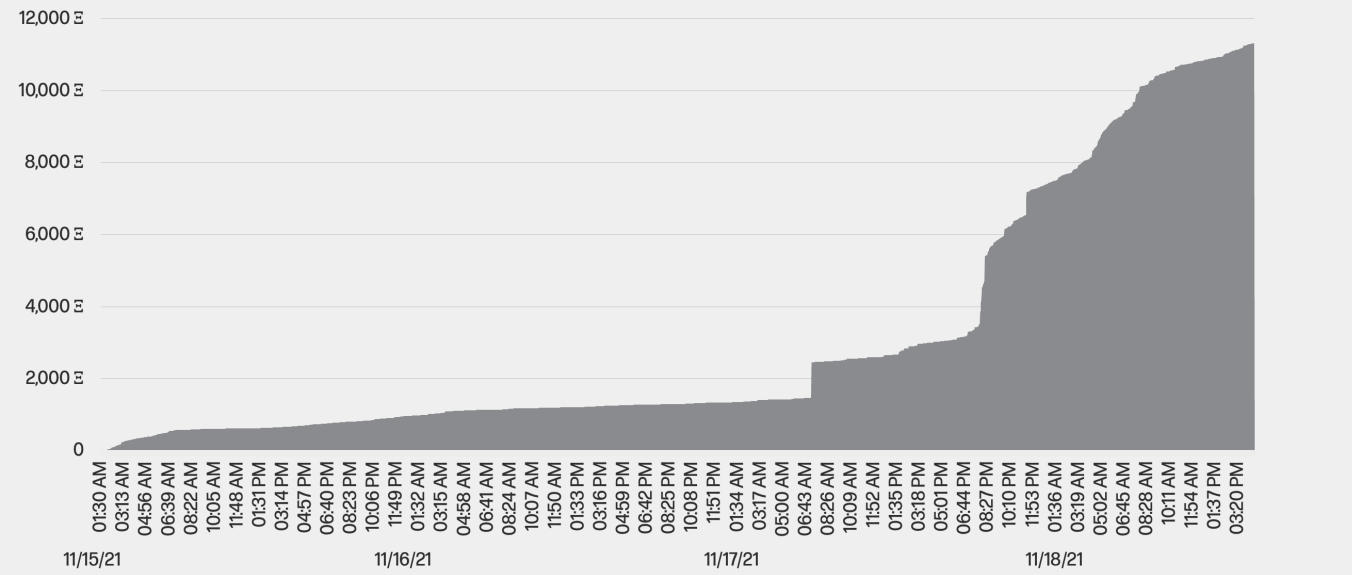
Power to the $PEOPLE

Last week, a DAO almost bought an original printing of the US Constitution. On Thursday, November 18th, 2021, The ConstitutionDAO nearly won an auction at Sotheby's on behalf of its 17,000 donors to claim the only known copy of the US Constitution to be privately-owned. Over the course of a week, The ConstitutionDAO amassed a war chest of almost $50 million for its treasury through grassroots campaigning on the internet. The winning bid of $43.2 million was submitted on behalf of Hedge Fund billionaire Ken Griffin, who was able to outbid the Constitution DAO's full treasury balance after factoring in insurance, storage, transportation, and auction fees. Still, the Constitution DAO drove the price of the rare document far beyond its projected sale value of $15-20 million.

The Constitution DAO raised its funds through Juicebox, an ETH-based crowdfunding tool for deploying DAOs through a simple point-and-click interface. In exchange for donating ETH, participants of the Constitution DAO received $PEOPLE tokens. In anticipation of potentially winning the auction, the value of these ERC-20 based tokens increased on decentralized exchanges, before crashing after the conclusion of the auction. Although the Constitution DAO intends on returning its funds back to the donors, a vocal minority of participants are calling for a repurposing these funds for alternative projects, such as funding lobbying efforts in Washington or procuring another rare artifact on behalf of the DAO's members. And with the median contribution to ConstitutionDAO having been 0.051 ETH ($226 at current prices), should the DAO decide to return contributions, users could find their refunds significantly reduced due to high gas fees on the Ethereum network.

Constitution DAO: Cumulative ETH Raised

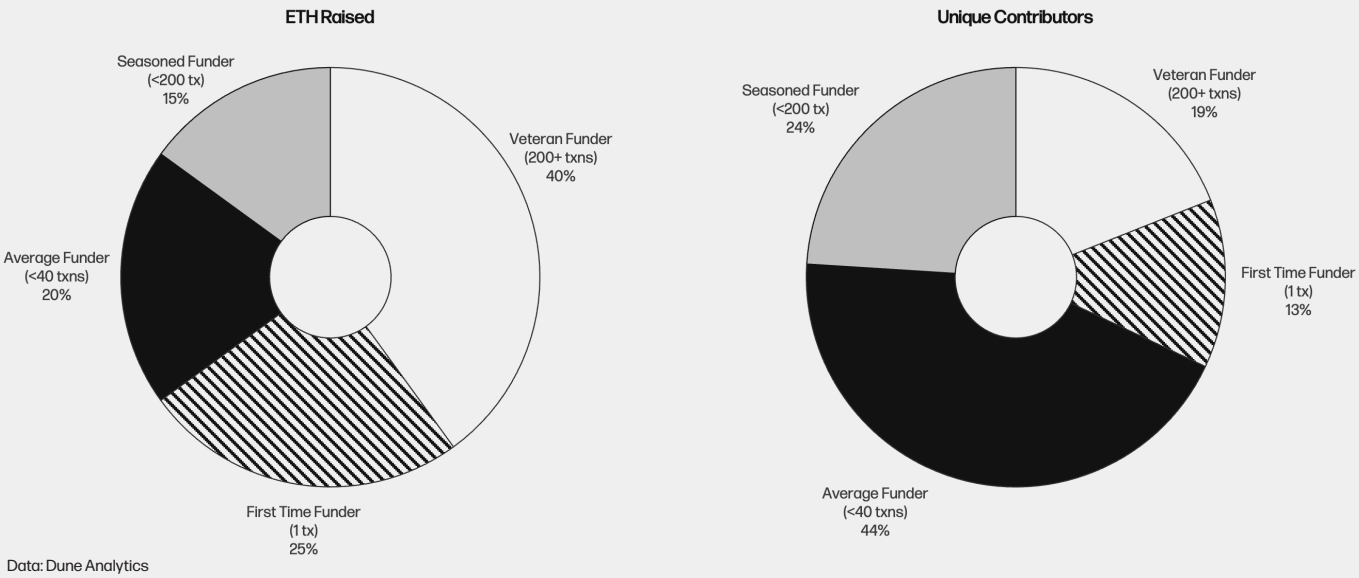
Source: Galaxy Digital Research



Data: Dune Analytics

Constitution DAO: Participation by Contributor Experience Level

Source: Galaxy Digital Research



Data: Dune Analytics

Moreover, the Constitution DAO brought forth several potential issues with DAOs to the forefront of public consciousness. One issue is the very nature of public blockchains. Normally, auction participants would not want their maximum willingness-to-pay to be public knowledge to prevent other auction-goers from outbidding them. However, since Ethereum is a public blockchain, anybody was able to see Constitution DAO's total treasury balance in spite of their best efforts to obfuscate this number from their public-facing website. Once the Constitution DAO lost the auction, there was a cacophony of voices in its accompanying Discord where multiple factions had competing agendas for what they wanted the DAO to do next. Since the Constitution DAO was ultimately governed by a multi-sig instead of a vote cast by its governance token holders, the signers of its treasury's multi-sig were not beholden to the preferences of the broader community. Regardless, these shortcomings seem to be more along the lines of growing pains rather than Achilles heels, and we would expect these types of issues to be resolved as more DAOs emerge in the future.

Even though the Constitution DAO fell short of its ambitious goals, it demonstrated the remarkable pace at which a DAO is able to galvanize thousands of people towards a common goal. The Constitution DAO represents the most media coverage given to DAOs since the infamous hack of "The DAO" in 2016. The magnitude of this moment cannot be overstated. DAOs are here, they are challenging everything we know about how the world works, and yet we are still only scratching the surface of their potential.

DAOs: Communities in Code

DAOs are a tool for organizing communities around a set of shared goals. They are organizations whose rules are codified in the code of a smart contract deployed on a blockchain. Unlike business organizations (like corporations or LLCs) or non-profit organizations (like charities or interest groups) whose rules are codified in a written charter or bylaws, the rules governing DAOs are encoded into the very structure of the organization itself through smart contract technology. What makes DAOs interesting is that they are borderless entities with rules enforced by smart contracts — i.e., they are internet-native organizations run completely on blockchains with no human intervention or central intermediary. In this sense, DAOs mirror the very blockchains that power them, running autonomously in a decentralized, trustless, and peer-to-peer manner. The first-ever DAO, called "The DAO", articulated this defining principle on the front page of its website: *"To blaze a new path in business for the betterment of its members, existing simultaneously nowhere and everywhere and operating solely with the steadfast iron will of unstoppable code."*

As of November 2021, DAOs control over $14 billion through their treasuries. This represents a 10x increase year-over-year since November, 2020 when DAOs only controlled ~$140 million in their treasuries. While 80% of this $14 billion is concentrated in the hands of just 7 DAOs, this massive growth underscores how quickly DAOs are emerging as a tool to influence the world. In leveraging blockchains and smart contracts for their infrastructure, DAOs are positioned to revolutionize how people accomplish shared goals with unparalleled efficiency and groundbreaking innovation.

This report will give a brief history of DAOs, describe what DAOs are, examine the current DAO tech stack, create a taxonomy for major players in the DAO ecosystem, study the legal and regulatory implications of DAOs, and conclude with our take on what the future holds for this fascinating internet-native construct.

A Brief History of DAOs

The concept of a DAO originated in 2013. DAOs were originally called Decentralized Autonomous Corporations (DAC), and were informally referenced by several early Bitcoin proponents, including Vitalik Buterin. The key principles driving DACs were decentralizing corporations, tokenizing their shares, and open sourcing their operations with publicly auditable code. Over time, members of various crypto communities refined this idea of a distributed corporation and generalized it to any organization of people with or without a profit-driven motive. This embodies the concept we see today in Decentralized Autonomous Organizations.

Some may argue that the Bitcoin network itself can be interpreted as the first rudimentary DAO to ever exist. The software is open-source, and a distributed network of miners and developers maintain the integrity of the network. All stakeholders in the Bitcoin network collaborate to enable this internet-native, sound money to exist. However, for the purposes of this report, we do not view blockchain networks, or the distributed communities that participate in their governance, in and of themselves as DAOs. Rather, blockchains can be thought of as a base-layer infrastructure upon which DAOs can be built. In other words, DAOs are applications deployed via smart contracts on top of existing blockchain networks. The most popular blockchain network powering DAOs today is Ethereum, though this may change in the future as alternative layer 1 protocols continue to mature and offer faster transaction speeds coupled with lower fees. To the extent that DAOs continue to explode in growth in the absence of an ETH 2.0 world, we may see an increase in developer activity on alternative layer 1 blockchains for the purpose of building DAOs.

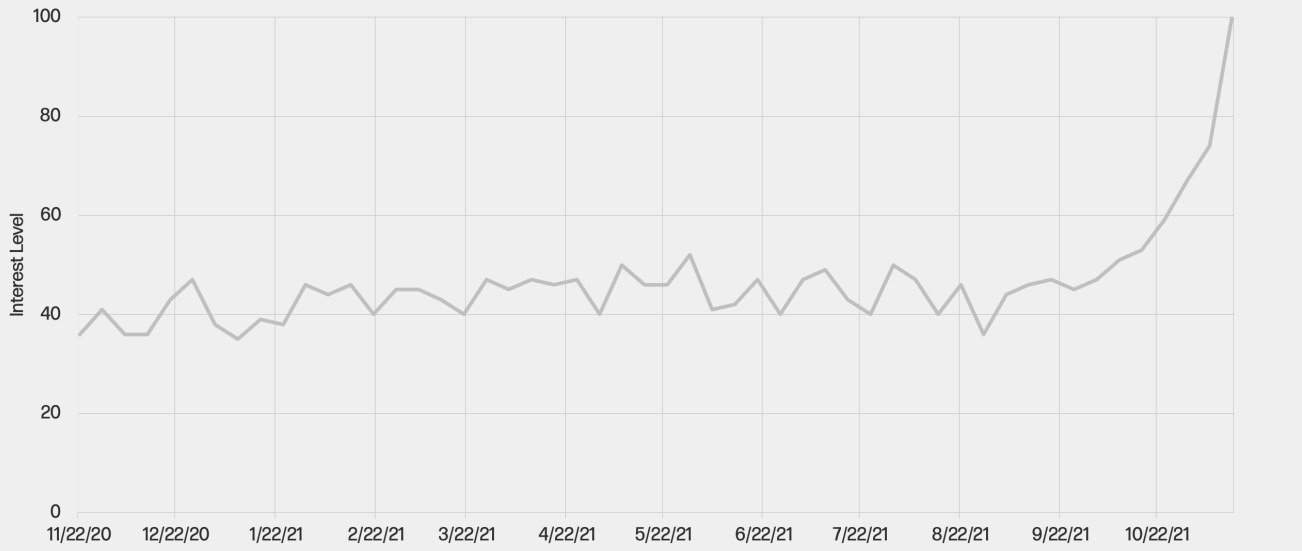
In 2016, the first DAO to ever exist was created, called "The DAO". At the time, over 14% of all circulating ETH across 11,000 addresses was invested in The DAO in exchange for its tokens. That sum, contributed to The DAO, was worth $150m at the time and $58B at today's prices. Its purpose was to be a distributed and community-led venture capital fund that would invest its treasury in projects based on community votes. However, just three months after its initial launch, The DAO was hacked and 40% of the ETH ($60m) was stolen from its treasury. While this first experiment with DAOs was unsuccessful, it nonetheless opened the door for organizing distributed communities with code written into self-executing smart contracts, deployed on top of blockchains. And it was just the beginning.

What is a DAO?

At their core, DAOs are like other forms of organizations that have existed for hundreds of years. One real-world analogue to a DAO would be a traditional corporation. Like DAOs, corporations organize groups of people around specific sets of goals. Shareholders vote for a board of directors, the board of directors chooses executives to run the corporation, and the executives make decisions about the day-to-day operations and long-term vision of the corporation. Corporations have a hierarchical structure and they are run in a top-down manner. DAOs, on the other hand, at least today, are much flatter organizations. A DAO's token holders will vote on proposals to be implemented for the entire DAO community. Some DAOs implement voting mechanisms such as quadratic voting, which limit the influencer of the biggest token holders on the network. This contrasts with corporations of today which are primarily run entirely by their largest shareholders,

Constitution DAO: Keyword Interest Over Time

Source: Galaxy Digital Research



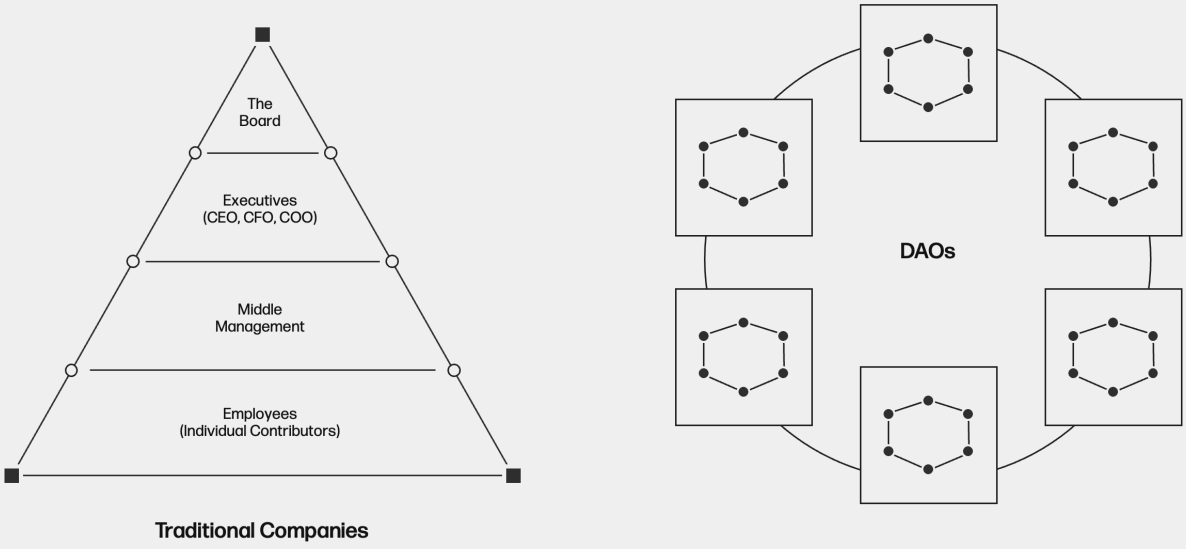
Data: Dune Analytics

with the impact of minority shareholders remaining mostly limited. Additionally, workstreams in DAOs also operate in a less hierarchical manner than corporations, with new proposals coming from anywhere in the DAO's community.

DAOs are pools of money ready to be deployed by their community. While this is not necessarily true of every single DAO, it is generally the case for most prominent DAOs in operation today. This pool of money, referred to as the DAO's treasury, is what allows a DAO to transform its ideas, voted and ideated on by its community, into real-world action. Much of what a DAO does centers on the idea of coordinating decisions around using the DAO's treasury in order to advance its mission. In many ways, this concept parallels how corporations reinvest their profits to grow their underlying business and fulfil the fiduciary duty to their shareholders. The reason why DAOs have recently been feasible from a technical standpoint is because of the innovations enabled by smart contracts on blockchains like Ethereum.

Organizational Structure

Source: Galaxy Digital Research



Key Trait	DAO	Corporation
CORPORATE STRUCTURE	Flat, distributed	Hierarchical, Centralized
OWNERSHIP	Tokens	Shares
COMMUNITY UPDATES	Discord, weekly/monthly calls, Github, Twitter	Annual shareholder meetings, fiscal year reporting schedule, quarterly earnings calls
THIRD-PARTY AUDIT	Activity is transparent via open-source code built on permissionless blockchains	Activity is semi-transparent (publicly traded companies) or opaque (private companies)
REVENUE	Token economics of the project	Business model of the corporation
CAPITAL	DAO treasury	Balance sheet
GOVERNANCE	Automatic voting via blockchain transactions	Manual voting via corporate procedures
GEOGRAPHY	Borderless, global, internet-native	Local, subject to laws of country business is conducted in

Where the machinations of corporations are fairly opaque, DAOs are open and transparent. Even publicly traded corporations with audited financials are only required to update their shareholders on a quarterly or periodic basis. Publicly traded company financials also only represent a snapshot of the organization's capital at the time the financials were generated. Corporations have also, in the past, employed accounting tricks to manipulate their financial picture to their shareholders. This rigidity in prevailing corporate reporting structures can be manipulated by malicious actors, and this has historically led to suboptimal outcomes for the company's shareholders. The Enron accounting scandal of the early 2000s is one of many examples that illustrates this. The potential for fraud, lack of transparency, and limited opportunities for minority shareholders to contribute to a given company are just a few aspects of corporations that leave room for improvement. DAOs represent a logical next step for a new type of internet-native organization to potentially fill some of the gaps left by legacy corporate structures.

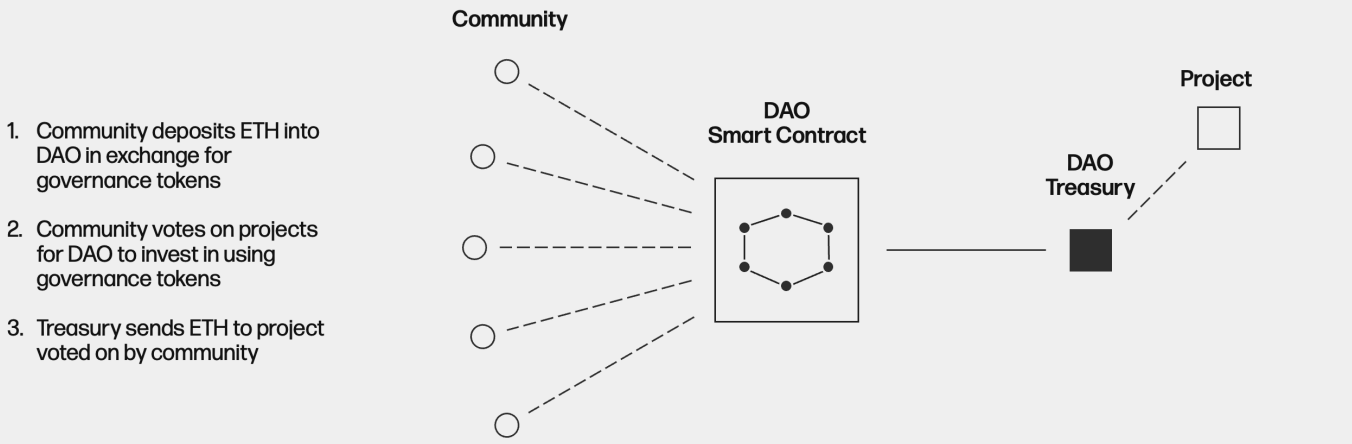
DAOs differ from corporations in that they leverage blockchains to facilitate monetary flows and governance tasks. Both of these processes are typically facilitated by a token issued by the DAO. The borderless, trustless, and decentralized nature of DAOs, and cryptocurrencies more broadly, means anybody with a crypto wallet can participate in a DAO. Since DAO activities can be traced on permissionless blockchains, they are also much more transparent and auditable than traditional corporations. Without the administrative burden of existing corporate procedures, DAOs have the agility to completely reinvent how people and capital organize. Instead of quarterly financials, DAOs can display their treasury balance on a public website, or anyone can audit it on the blockchain itself. Instead of earnings calls tied to an SEC filing, DAOs can host calls or videoconferences at any cadence. Correspondence can be communicated through web-based tools like Discord, Telegram, and Twitter instead of email or physical mail. Proxy votes can be held at moment's notice, with votes immediately available and tracked on the blockchain. While DAOs are still in the early stages of breaking the mold for how people self-organize, these obvious advantages are impossible to ignore, and we expect to see DAOs spearhead more innovations that create additional utility.

How DAOs Work

DAOs are novel ways to organize and require and make use of new tools and platforms.

Example: DAO Investing in an External Project

Source: Galaxy Digital Research



Data: Dune Analytics

DAOs marry rules with code. In fact, this is one of the simplest ways to think of how DAOs work — they are a set of rules attached to a governance structure embedded in code. This concept of embedding rules and governance structures into code is accomplished with smart contracts. Smart contracts, applications that automatically run when predetermined conditions are met, are the foundational pillar underpinning all DAOs. Concretely, one example of a rule encoded in a smart contract could be *"all proposals must be GitHub pull requests (pieces of code to be added to a codebase) that can be merged with the DAO's GitHub repository, without any conflicts."* Continuing this example, one example of a governance structure encoded in a smart contract could be *"if a majority of token holders vote yes on a proposal, where the proposal is a GitHub pull request, then merge the proposed pull request with the DAO's main GitHub repository."*

Smart contracts are deployed to and executed by blockchains like Ethereum. In exchange for gas fees paid to the network, the executer of a smart contract, whether that executer is an end-user or the DAO itself, can be sure that the code will be run at a future time. Therefore, DAOs need blockchains in order to truly be autonomous organizations. Without blockchains, there is no way to guarantee that a line of code will be run at an arbitrary point in the future. Through smart contracts, DAOs can execute activities in a trustless, decentralized manner. And if not deployed on a public decentralized blockchain, there's no guarantee that the DAOs code is secure, reliable, and permanent.

Beyond smart contracts, there have also been two recent developments in the blockchain space that enable DAOs to be built with substantially lower barriers to entry than ever before. The first development is **the rise of automated market makers** (AMMs), such as Uniswap. Without AMMs, DAOs would not have the liquidity needed on a secondary market to take full advantage of the market mechanics that comes with launching a tradeable governance token. The second development is **the rise and maturation of DAO tooling**, such as Gnosis Safe, which has made the process of creating a DAO achievable and easy for the masses. We detail several key components of DAO tooling in the following section.

In the below diagram, we illustrate a simple example of how an investment DAO could potentially work. In this example the end-user deposits ETH into the DAO's smart contract. They receive the DAO's governance tokens in exchange for their ETH. The user can then vote on investment ideas proposed by the DAO's community using their governance tokens to cast their ballot. Proposals that successfully pass a vote will trigger the DAO's smart contract to send ETH from its treasury into the address of the proposed project, thus funding the project. Over time, the value of the DAO's collective investments could accrue and cause the underlying governance token's price to go up, as that governance token represents some rights on the underlying value of the treasury (such as determining where else it distributes tokens). This is how value is delivered to token holders implicitly. In share-based token models, oftentimes a share of tokens may be redeemable for a percentage of the DAO's treasury at any time. We describe the different types of DAO memberships in the next paragraph.

DAO memberships generally fall into two categories.

- **Token-based membership**. Token-based DAOs are typically permissionless in nature and offer tokens that are traded freely on decentralized exchanges. Users can also earn tokens from the DAO in exchange for providing services to the DAO. An example of this would be a liquidity provider contributing to a liquidity pool on Uniswap. The tokens associated with token-based DAOs are primarily used for governance where each token represents a vote for or against a proposal. Because the tokens can be acquired freely under this model, voting power can be bought or sold on the open market.
- **Share-based membership**. In contrast to token-based DAOs share-based DAOs are not necessarily open for anyone to join. Instead, they often screen prospective members before allowing them to join and require them to deposit some form of tribute (such as ETH or DAI) before they are issued the share-based tokens. While these share-based tokens have similarities to those offered by token-based DAOs, they differ in that they are directly redeemable for the share-based DAO's treasury (hence the name). MolochDAO was the first prominent DAO to popularize this type of framework, and this structure has since been emulated by several other DAOs.

Unpacking a DAO's Tech Stack

There are 4 pillars of a DAO's tech stack. These 4 pillars embody a DAO's key activities: acquisition, financing, collaboration, and governance. We will go through each of these key pillars and highlight a few of the more popular tools, across both web 2.0 and web 3.0, that DAOs use to accomplish these key activities today.

4 Pillars of a DAO's Tech Stack

Source: Galaxy Digital Research

Acquisition

Acquisition is the process by which a DAO goes from an idea to a thriving community. A DAO's acquisition process is crucial to ensuring that its community grows over time. Today, Twitter is an extremely popular piece of any DAO's acquisition stack. Many people in the crypto space rely primarily on Twitter to identify new projects in the space that pique their interest. While this may change in the future, Twitter, today, is the de-facto social media platform of choice for both crypto enthusiasts and DAOs to connect with one another.

In addition to Twitter, Mirror, a decentralized blogging tool, is another piece of a DAO's acquisition stack. Mirror bills itself as a "Web 3.0" version of Substack or Medium where all content is put on-chain. By creating a crypto-native approach to content management, Mirror equips its bloggers with several crypto features that dovetail nicely into the operations of a DAO: editions (NFTs), crowd sales, auctions, token races and splits. Outside of Mirror's crypto feature set, the main reason a blogging platform is an important acquisition channel comes down to education and SEO. Blogging platforms allow organizations to share their vision, what they are working on, and what they are looking to accomplish in a long form writing format that is not possible on a platform like Twitter. By using a third-party service like Mirror, a DAO ensures its content reaches the largest prospective audience possible while picking up organic pageviews from the SEO affiliated with a blogging platform. This tends to be the favored approach over putting all content on a proprietary DAO website, which might be too new to have high domain-authority and/or backlinks.

Financing

The next pillar in the DAO tech stack is financing. Financing refers to both raising and securing the funds needed to run a DAO. Financing is perhaps the most crucial piece of the tech stack since DAOs are essentially just treasuries run by their communities under autonomous rules. It goes without saying, the DAO's treasury needs to be secure and robust. The ramifications of a DAO's treasury getting compromised can be catastrophic, like what was seen with "The DAO" hack in 2016.

Gnosis Safe, an open-source platform for managing ETH-based digital assets, is the industry-standard choice for managing DAO treasuries. There are two key reasons for this. First, Gnosis supports multi-sig for distribution of funds. This ensures that multiple trusted parties need to sign off on any transaction in order to disburse assets from the DAO's treasury. Second, Gnosis Safe supports all ERC20 tokens as well as ERC721 (NFTs). This makes Gnosis a simple place to centralize several assets on behalf of the DAO, streamlining its financial operations. Additionally, the UI for Gnosis can be accessed via a browser, mobile device, or desktop. Gnosis also supports most crypto wallets for signing transactions, including MetaMask, Ledger, Trezor, and WalletConnect. These aspects, coupled with the name recognition and trust of the Gnosis brand, make it a compelling multi-sig, treasury management solution for DAOs.

Securing a DAO's treasury is just one of its financing activities. A DAO must also distribute its social/governance tokens to its community. Once a DAO decides on its token's initial supply, anchor exchange rate, and allocation percentages, it will need to execute the actual distribution of these tokens in a safe and scalable manner. One approach for accomplishing this combines an ENS domain with a crowdfund campaign on Mirror. ENS domains are useful because they translate hexadecimal Ethereum addresses into human-readable text that makes it easy for users to send funds to. Mirror, the decentralized blogging platform discussed earlier, can also facilitate crowd sales on behalf of DAOs. Participants in the crowd sale can then exchange Ethereum for the DAO's governance tokens. Mirror handles the mechanics of this on-chain exchange while giving the DAO a hosted a web page. Think of this webpage as an on-chain version of Kickstarter where the DAO's crowd sale and use of its funds are described in detail for the community.

Collaboration

The third pillar of activities that comprises a DAO's tech stack is collaboration. This aspect of DAO operations has the most overlap with the web 2.0 world since people are already accustomed to collaborating with each other in virtual spaces. One popular tool for this is Discord, which is a digital communication platform with the ability to facilitate text, audio, and video messages. Discord also supports bots which can help with user onboarding and user authentication. Collab-Land is a web 3.0-enabled Discord Bot that DAOs add to their servers in order to assign roles to new members based on their token holdings. Collab-Land can automatically unlock channels based on the user's holdings of the DAO's governance/social token. Once DAOs set up a Discord "server" organized by various channels, they use the platform as a home base for weekly/monthly calls, announcements, informal polls, and meeting notes. Outside of Discord, DAOs also use collaborative notetaking tools such as Google Docs, Notion, and Roam, all of which are a web 2.0 tools. Google drive is particularly useful for DAOs as a repository of files with real-time collaboration features for documents and presentations.

Governance

The fourth and final pillar is governance. Governance refers to a DAO's process for pitching, finalizing, and voting on proposals. While there are no one-size-fits-all approaches to governance, many DAO proposals start with a simple Google Doc shared in the DAO's Discord with a small subset of the community. Once the initial proposal is decided on, a draft is shared with the broader DAO community through a publishing platform like Mirror. A link to the proposal will make its rounds through the DAO community through Twitter, Discord, and Telegram chats as members start to form opinions on the proposal's merits. When it is time for the community to vote on the proposal, a DAO will leverage a tool called Snapshot to facilitate the vote. During times where ETH gas fees are very high, tools like Snapshot have emerged as the preferred vehicle for casting DAO proposal votes because the voting takes place off-chain and does not cost users any gas. A DAO can integrate with Snapshot by simply adding a record on their associated ENS to allow votes to be viewable at that address. So long as the community member's wallet contains the DAO's social/governance tokens, they will be able to vote for a proposal on Snapshot without paying any gas.

The Tech Stack of DAO's

Source: Galaxy Digital Research

Protocol	Acquisition	Financing	Collaboration	Governance
SOCIAL MEDIA Twitter	Intrigue new users	Promote crowdfund	Share news	
NOTETAKING Notion, Roam, Google Drive			Create shared wiki	Share/edit proposals
DOMAIN NAME Ethereum Name Service		DAO identity		Connect with Snapshot
PUBLISHING Mirror, Medium, Substack	Educate new users	Crowdfund	Share updates	Share final proposals
COMMUNICATIONS Discord, Telegram			Talk to fellow members	Ideate on proposals
DISCORD BOTS Collab-Land, MEE6			Private channels for holders	
WALLET Metamask, Ledger, Trezor		Identify key stakeholder		
MULTI-SIG Gnosis Safe		Secure treasury		
GOVERNANCE Snapshot				Vote for/against proposals

Data: Dune Analytics

DAO Metrics

We examined on-chain data to understand the growth and size of the DAO ecosystem.

DAO growth is accelerating rapidly. Today, there are already a handful of DAO "unicorns," i.e., DAOs with greater than $1B in capital controlled by their treasuries. The grassroots nature of communities building DAOs means that a large amount of capital is being deployed in ways that have never been seen before. Perhaps the most interesting example of this is exemplified by the recent run-up in the Treasury associated with the ConstitutionDAO. The ConstitutionDAO started as a group of 8 friends who wanted to pool money together to buy the last privately-owned copy of the US Constitution. In the span of just a few days, ConstitutionDAO managed to raise over $45 million dollars from 8,000 members, galvanized by the mission of owning a piece of US history.

While treasury sizes for DAOs are increasing at an impressive rate, it is interesting to note that most large DAO treasuries are at the mercy of market forces for the underlying governance token. Most DAO treasuries hold only their native governance token. This idiosyncratic exposure could cripple the ability for DAOs to withstand the punishment of a bear market. Of the top 10 DAOs by treasury size, only 2 have meaningful diversification (>10% allocated to tokens outside of native governance token) in their treasury.

Top 10 DAOs by Treasury Balance

Source: Galaxy Digital Research

DAO Name	Treasury Balance
Uniswap	$3,630,775,833
BitDAO	$3,227,095,090
Olympus DAO	$1,037,463,047
Lido	$899,707,082
Compound	$875,269,864
Radicle	$686,966,960
Aave	$601,437,265
ENS	$250,155,917
ShapeShift	$231,015,282
Rarible	$218,245,094

Data: As of 11/22/21

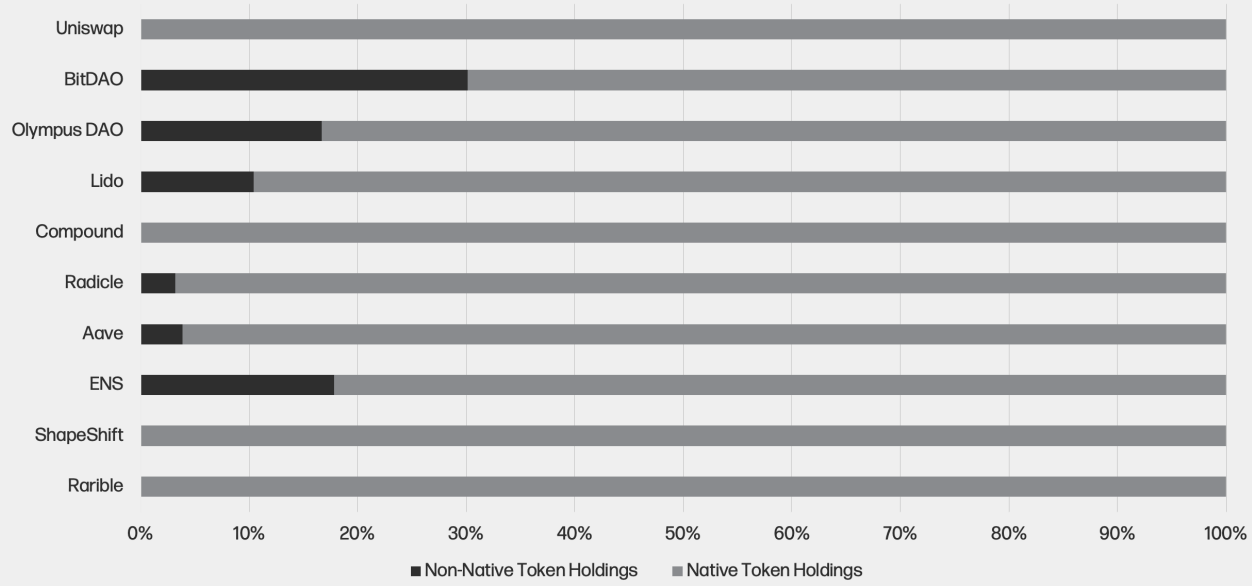
Over time, it will be important to study how treasury management for DAOs matures. We would expect to see an increase in treasury management strategies emerge, likely delegated to members voted by the community. This is no different than how corporations with large balance sheets manage their all their assets.

The combined market capitalization of major DAO governance tokens exceeds $35bn today.

Many of the largest DAOs exist to manage the treasuries associated with DeFi or Web 3.0 projects that generate revenues from user activity. When we compare the market capitalizations of these governance tokens to their protocol revenues and treasury values, we find a wide range of ratios.

Percent of Top 10 DAO Ttreasuries Allocated in Native Tokens

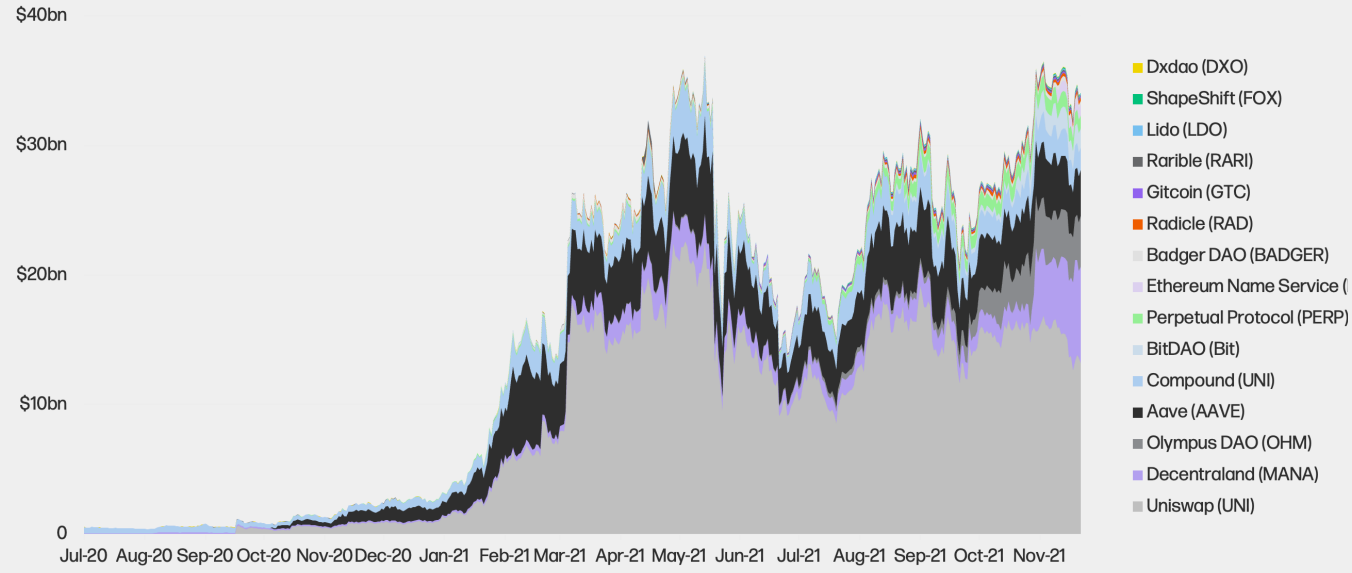
Source: Galaxy Digital Research



Data: DeepDAO, as of 11/22/21

Market Capitalization of major DAO governance tokens exceeds $35bn today.

Source: Galaxy Digital Research



Data: CoinMarketCap, CoinGecko

Top 12 DAOs w/ Protocol Revenues

Source: Galaxy Digital Research

Protocol	Market Cap	Protocol Revenue*	Treasury Value	MCAP/Revenue	MCAP/Treas
UNISWAP (UNI)	$9,935,340,426	$219,400,000	$3,706,892,918	45.28	2.68
AAVE (AAVE)	$3,570,103,754	$50,200,000	$584,634,265	71.12	6.11
KUSAMA (KSM)	$3,026,869,199	$4,700	$157,766,789	644,014.72	19.19
COMPOUND (COMP)	$1,771,591,242	$34,200,000	$859,283,902	51.80	2.06
SUSHISWAP (SUSHI)	$1,646,721,108	$48,800,000	$20,572,989	33.74	80.04
YEARN.FINANCE (YFI)	$1,144,012,665	$26,000,000	$16,472,950	44.00	69.45
ETHEREUM NAME SERVICE (ENS)	$1,002,058,608	$6,800,000	$251,310,107	147.36	3.99
PERPETUAL PROTOCOL (PERP)	$847,693,033	$2,300,000	$185,255,484	368.56	4.58
LIDO (LDO)	$234,827,387	$28,000,000	$859,742,298	8.39	0.27
BALANCER (BAL)	$233,066,698	$10,200,000	$96,911,111	22.85	2.40
CRYPTEX (CTX)	$51,733,333	$10,000	$97,915,702	5,173.33	0.53
POOLTOGETHER (POOL)	$24,957,020	$133,200	$37,394,583	187.37	0.67

DAOs selected based on DAO categorization by DeepDAO
*30 Day Cumulative Revenue 10/24/21-11/22/21
Data: DeepDAO, Token Terminal, CoinGecko

DAO Taxonomy

There are many types of DAOs already and it is helpful to categorize them in order to understand the breadth and depth of this emerging space.

Types of DAOs

DAOs come in many shapes and sizes. In this section, we present a market map of DAOs with a short description of what they do. The primary goal of this list is to provide a high-level taxonomy of the rapidly growing DAO landscape. We will start with a brief description of the main categories DAOs fall under:

- **Infrastructure DAOs**: DAOs that build the tooling upon which other DAOs are built.
- **Investment DAOs:** DAOS that pool capital and expertise to invest in a portfolio of assets and/or projects.
- **Grants DAOs**: DAOs that donate capital to causes and projects that align with the their mission.
- **Protocol DAOs**: Power that has been (or will be) transferred from a project's core team to its community.
- **Collector DAOs**: Like investment DAOs, but focused on acquiring NFTs or other non-fungible assets.
- **Social DAOs**: Communities centered on social capital, sometimes gated by a token with an in-person component.
- **Creator DAOs**: DAOs enabling creators to fractionalize and distribute their work to fans and supports.
- **Guild DAOs**: Talent coordination in a crypto-native age where contractors connect directly with projects/jobs.
- **Media DAOs**: DAOs that alter the economics and incentive structures of content producers and content consumers.

Market Map of Select DAOs

Source: Galaxy Digital Research

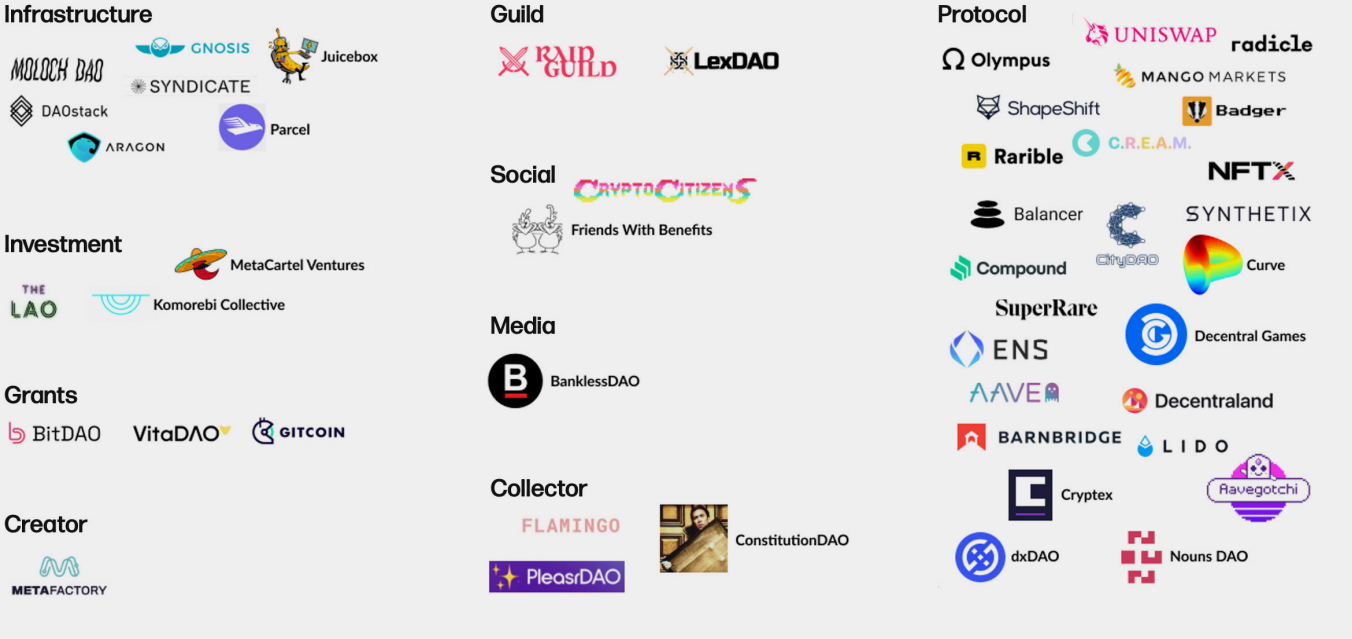


Table of Select DAOs

In this table, we provide a small sampling of interesting DAOs either based on its treasury size, its community engagement, or its unique mission. We classify these DAOs based on our taxonomy above and offer a brief description of what they do.

DAO	Type	Description
PleasrDAO	Collector	Joint investment in culturally significant NFTs
bitDAO	Grants	DAO focused on growing the DeFi ecosystem via grants and token swaps
OlympusDAO	Protocol	An algorithmic reserve currency to compete with the dollar
Flamingo DAO	Collector	Joint NFT investment DAO for accredited investors in the US
The LAO	Investment	Member-directed, venture capital fund for accredited investors in the US
Moloch	Infrastructure	"Minimum viable DAO" for funding Ethereum 2.0 grants, popular framework
Komorebi Collective	Investment	Investment DAO focusing on female and non-binary founders
Friends with Benefits	Social	Social club DAO that accepts members by application only
MetaCartel Ventures	Investment	Venture capital fund for accredited investors in the US
ConstitutionDAO	Collector	DAO pooling money to buy the last privately-owned copy of the US Constitution
Aragon	Infrastructure	Suite of products for building and supporting DAOs
GnosisDAO	Infrastructure	DAO governing the Gnosis ecosystem through prediction markets
ShapeShift DAO	Protocol	DAO managing development of ShapeShift's wallet and trading platform
MetaFactory	Creator	Crowdfunding platform for community-owned brands
Raid Guild	Guild	DAO collective of Web 3.0 designers, builders, and consultants
Uniswap	Protocol	Governance DAO for the Uniswap protocol
ENS	Protocol	Human-readable Ethereum addresses for websites and wallets
Lido	Protocol	DAO governing Lido's liquid staking product suite
Compound	Protocol	Governance over Compound's algorithmic, autonomous interest rate protocol
Aave	Protocol	Borrow/lending protocol controlled by AAVE token holders
Radicle	Protocol	Decentralized version of Github governed by RAD token holders
Rarible	Protocol	Go-to-market product suite for NFT projects and ideas
SuperRare	Protocol	Managing and curating SuperRare's NFT marketplace, governed by RARE token
Badger	Protocol	Bitcoin-focused DeFi products
Decentraland	Protocol	Decentralized virtual world, powered by MANA tokens
NFTx	Protocol	Decentralized NFT marketplace governed by NFTX token holders
Gitcoin	Grants	Protocol for funding open-source development and governed by the GTC coin
Balancer	Protocol	Liquidity protocol for automated portfolio management, governed by BAL tokens
DxDAO	Protocol	Focused on growing the DeFi ecosystem, governed by DXD tokens
cityDAO	Protocol	Building blockchain cities in real life, starting with a parcel in Wyoming
Bright Moments	Social	Specializes in live NFT minting experiences, DAO access granted to NFT holders
Mango Markets	Protocol	Decentralized, cross-margin trading powered by Solana and Serum
Synthetix	Protocol	Responsible for management of the Synthetix Protocol treasury
CREAM Finance	Protocol	Decentralized lending protocol governed by CREAM token
Decentral Games	Protocol	DAO-controlled casino in the metaverse, leverages DG tokens
Curve DAO	Protocol	Decentralized stablecoin trading and staking governed by CRV token holders
Barn Bridge	Protocol	Tokenized risk protocol for hedging, governed by BOND tokens holders
Cryptex	Protocol	Total crypto market cap token powered by CTX governance token
Nouns DAO	Protocol	Experimental DAO with daily auctions of "Noun" NFTs used for governance
Aave Gotchi	Protocol	DAO governing Aave Gotchi's supply, a playable/dynamic NFT
Vita DAO	Grants	Financing early-stage longevity research, governed by VITA tokens
Syndicate DAO	Infrastructure	Decentralized investing protocol for creating investing syndicates
LexDAO	Guild	Decentralized engineering guild
DAOHaus	Infrastructure	Decentralized community management platform for DAOs
Juicebox	Infrastructure	Sandboxed, ERC-20 platform for launching community-driven DAOs
DAOstack	Infrastructure	Open source, point-and-click platform for launching DAOs
Parcel	Infrastructure	Treasury management for DAOs, plans to decentralize fully
BanklessDAO	Media	Billed as the world's first media and culture DAO for crypto

Legal Status & Regulation

Because DAOs can replicate or replace corporations and other types of organizations, they both challenge existing legal frameworks and perhaps create a need for new ones.

SEC's 2017 "The DAO Report"

The SEC first released an investigative report about DAOs in 2017. In this seminal report, which studied The DAO following its infamous 2016 hack, the SEC proffered an initial interpretation on the application of U.S. federal securities laws to The DAO's offer and sale of DAO Tokens, including an analysis of the threshold question as to whether DAO Tokens are securities. In reviewing the unique facts and circumstances surrounding The DAO and its issuance of DAO Tokens, the SEC found that (1) DAO Tokens satisfied the conditions of the *Howey Test* and thus qualified as securities under the federal securities laws and, therefore, (2) The DAO's initial offering of 1.15 billion DAO Tokens in exchange for approximately 12 million Ether constituted an unregistered offering of securities.

In applying the *Howey Test*, the SEC concluded that purchasers of DAO Tokens had a reasonable expectation of profit based on the managerial efforts of others. According to the SEC, The DAO's success depended on The DAO's founders—Slock.it and its co-founders—and the founders' hand-picked "Curators" who, among other things, maintained ultimate control within The DAO over which proposals could be submitted to The DAO token holders for a vote. The SEC highlighted in its report the fact that because any proposal submitted for a vote by a token holder to the broader DAO community first required the approval of these Curators, including proposals for removing The DAO Curators, the Curators exercised significant control over the management of The DAO. Because the founders and Curators retained such significant control over the management of The DAO, DAO token holders "had little choice but to rely on their expertise." Although the SEC took no enforcement actions against The DAO, their report served to put the broader crypto industry on notice for potential securities law violations.

Wyoming's DAO Law

Earlier this year, Wyoming passed the "Wyoming Decentralized Autonomous Organization Supplement," a law that would officially grant legal company status to DAOs, provided that they are organized as limited liability companies (LLCs) in the state. This bill was motivated by prevailing crypto-legal thought leadership which sought to extend limited liability protections traditionally afforded to shareholders of corporations and LLCs to DAO members. Before Wyoming's DAO legislation, DAO members had one of two suboptimal choices when assessing their legal liability vis-à-vis their membership in a DAO: (A) they could form an LLC to control the DAO, which would give the DAO members limited liability protection but would also subordinate the DAO rules to the rules of the articles of organization of the LLC (thereby undermining the primacy of the DAO governance structure) or (B) they could do nothing, in which case the DAO would be treated as a general partnership under US state law. If they chose (B), as many have, then each member of the DAO could be jointly and severally liable for any claims against the DAO.

The Wyoming law eliminates this Faustian bargain and allows DAOs to be treated as LLCs, with all the attendant benefits of limited liability protection without the tradeoff of subordinating the DAO rules to the LLC articles of organization. In fact, under Section 17-31-115, the Wyoming legislation explicitly provides that "[w]here the underlying articles of organization and smart contract are in conflict, the smart contract shall preempt any conflicting provisions of the articles of organization," thereby codifying into law the primacy of the DAO governance structure over traditional structures.

Open Questions

It is clear there are still several open questions surrounding the legal treatment of DAOs and how this legal treatment will progress over time.

- **At the state level**, it will be interesting to watch which states will attempt to capture some of the economic value, and subsequent tax revenue, generated by DAOs. We may start to see fast followers to Wyoming race to build favorable regulatory environments for DAOs who incorporate in their state. Will Wyoming be to DAOs what Delaware is to C-Corps?
- **At the federal level,** it seems that pushback from regulators to adopt any pro-DAO stances stems from the difficulty in applying and enforcing federal securities laws that were originally written in the early 20th century – during an era that predated the very concept of the internet, let alone blockchains. Until more regulatory clarity is granted by an act of Congress, either through new legislation or an amendment, we will likely continue to see a tepid response from federal regulators.
- **Decentralization matters**. Had the management of The DAO in 2016 been more decentralized, it is possible the SEC might not have classified its tokens as securities and the token issuance as an unregistered securities offering. The fact that The DAO had curators who maintained the discretion to arbitrarily decide which proposals would go to a vote meant that The DAO, from a regulatory standpoint, was dependent on centralized managerial efforts. Future DAOs will need to consider their level of decentralization in order to avoid scrutiny from the SEC.

- **What about taxes?** Right now, there are 3 key scenarios a DAO needs consider in order to ensure compliance with existing US tax code: taxation of a DAO's governance tokens, taxation of a DAO's treasury activities, and taxation of income paid to contractors hired by a DAO. In all 3 of these scenarios, there is a mix of both ordinary income and realized gain/loss events that are happen in the eyes of the IRS. How many DAO members are reporting token airdrops as ordinary income? How many DAOs are considering the tax implications of liquidity mining programs, grants, and/or treasury management activities? In the event that a DAO hires an independent contractor, how could it ensure tax reporting requirements of a 1099 without knowing the social security number of its contractor?

Outlook

Despite these many open questions, it's clear that DAOs are massively innovative and here to stay. DAOs are poised to be the next breakthrough for organizing humanity:

- **DAOs are built for the future of work.** DAOs integrate seamlessly with 21st-century workflows that are optimized for bytes rather than atoms. Where the coronavirus pandemic accelerated this trend towards working and communicating almost entirely though bytes, DAOs embed this trend into their very DNA. Their built-in economies achieved through governance tokens coupled with their borderless, decentralized nature allows them to operate with a level of flexibility that has become a necessity in this post-COVID world. This flexibility is not limited to the overarching structure of the DAO itself — it flows through to all a DAO's members. Concretely, instead of an organization qualifying employment based on anachronistic 40-hour workweeks, DAOs can rely on project-based and results-based workstreams. This frees up time for workers to have other pursuits, including finding additional work with other DAOs. Job postings may find themselves transformed into bounty programs, a better gauge of performance on-the-job. Job interviews, rife with a lack of standardization and selection bias, may no longer be the predominant method for screening potential candidates. Instead, DAOs can simply flag home-grown talent by directly messaging their most impressive community members and contributors. Discord reputations, Github stars, and Mirror articles will trump stacks of resumes. Monogamous employment may even become the exception rather than the norm as DAO participants can diversify their paid services across more than one DAO.

- **DAOs have a number of advantages over other business structures.** DAOs are able to streamline both the capital acquisition process and the deployment of capital through algorithmic and/or blockchain-based voting systems. This allows DAOs to be more agile and responsive than legacy business structures which can be bogged down by layers of bureaucracy coupled with the potential for human error. It also means that DAOs can scale to be very large with minimal increases in overhead costs since they are built on permissionless blockchains that are purpose-built to transact at-scale in a low-cost manner. Most importantly, DAOs are able to include a wider variety of stakeholders than traditional business structures, empowering more people to participate in governance decisions and eliminating layers of management in the process.

- **DAOs need to consider the tradeoffs of being on-chain vs off-chain.** In the case of the Constitution DAO, there was a very high degree of centralization needed for it to fulfill its mission. This is because a physical person would ultimately need to participate in the Sotheby's auction and wire US Dollars to an escrow agent in the event that the DAO won. It is not yet possible to conduct these types of real-world transactions on-chain. As a result, The Constitution DAO relied on the good faith of the multi-sig keyholders that when the holders released the funds, the person or entity to whom the funds were released would be sufficiently vetted to ensure that such person would not run off with the $48+ million in funds the ConstitutionDAO had amassed from its donors. On the other hand, DAOs that are able to operate completely on-chain, such as investment DAOs that invest ETH in exchange for a token made available on an automated market maker, could potentially operate entirely through smart contracts calls. In this latter case, it would be unnecessary, and potentially dangerous, to centralize power over the treasury in the hands of a few multi-sig keyholders. By comparing and contrasting these two extreme examples, one can start to understand the architectural trade-offs a DAO might make in order to achieve its mission without introducing points-of-failure that could endanger its participants.

- **Voting is just the beginning**. Today, low voter participation is one of the most common criticisms of DAOs. It is hard to make the argument that a DAO is credibly decentralized if most of its major decisions are being made by a very small minority of individuals. For many of the world's largest DAO's by treasury size, voter participation remains abysmal. Yet voting remains a major selling-point that DAOs use to market themselves to the masses in order to make them appear more democratic than they actually are. This has led many DAOs to be DINOs: decentralized-in-name-only. DAOs that hope to embrace the

tenets of decentralization understand that voting is just one tool, and other tools will be equally important in effectuating its community's collective participation. DAOs will need to invest in increasing the level of coordination and organization amongst its members in an organic and scalable manner. Today, this might mean more Discord channels and weekly community calls. Eventually, we may start to see a whole suite of tools built to facilitate DAO decentralization and voter participation.

- **D2D is the next B2B.** DAO-to-DAO partnerships are a key innovation enabled by DAOs that will unlock a step-function improvement over traditional organizational structures. The capabilities of a DAO are magnified by many orders of magnitude when synthesized with the capabilities of other, complementary DAOs. For example, instead of a DAO potentially getting turned down for a loan from bank or centralized exchange, it could instead get a loan from another DAO, purpose-built for evaluating and pricing the creditworthiness of DAOs using on-chain data. Today, we are already seeing D2D coordination happening at a small scale with many DAOs relying on AMMs managed by DAOs for liquidity of their accompanying governance tokens. But we have only just started to explore the scope and capabilities offered by D2D partnerships. It is not hard to envision a future where DAOs can band together to out-coordinate existing power structures such as corporations or even governments in order to accomplish their goals. It will be interesting to monitor the extent that DAOs will rely on other DAOs for functions such as financing, treasury management, investments, and other activities going forward.
- **How decentralized is a DAO really?** This is perhaps the biggest vulnerability for DAOs exploited by regulators, critics, and malicious actors today. Just as there are many flavors of DAOs, there are differing levels of decentralization and automation that are highly dependent on the nature of any given DAO's mission. Even if a DAO has over 10,000 token holders, if its treasury is controlled by a 3-of-5 multisig then that DAO is not very decentralized at all. Furthermore, the ConstitutionDAO has shown us that it is still nearly impossible to automate certain tasks that require real-world involvement, thus introducing a weak link in its operational procedures. Defining decentralization in a DAO in and of itself is an incredibly challenging proposition. Does decentralization refer to the underlying blockchain that a given DAO is using? Or does it refer to how decentralized a DAO's token holders are? Does decentralization refer to how decentralized a DAO's treasury disbursement approvals are? How important is decentralization in the first place? Should some key decisions of a DAO be centralized? How does a DAO determine which central parties to delegate decisions to? How does one measure and prove the level of decentralization for a given. DAO? We contend that decentralization is incredibly important to the safety and security of both the DAO itself and its members. In the absence of decentralization, a DAO loses its most salient feature while exposing it to the same perils that have plagued traditional organizations for hundreds of years.

Legal Disclosure

[i]Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO, available here: https://sec.gov/litigation/investreport/34-81207.pdf

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