IOTA DAO Pioneers

May/June 2022

A three-week learning circle on the future of cooperation and governance.

Session 1 prep

Welcome to the IOTA DAO Pioneers learning circle!

First of all, thank you all. So much interest in the topic is great and gives us confidence that we can achieve great things together! So give yourself some kudos for being part of this!

We have set this up to give DAOists in the ecosystem a way of preparing, learning, and understanding the basics and tools needed to successfully start and run a DAO. We hope that some of you will begin your own DAOs together with us, and we will all be able to learn from these DAOs to develop a fantastic DAO Framework.

We have opened an #iota-dao-pioneers channel in the IOTA Discord, where we can chat about this course. You shall get your "DAO-Pioneer Class of 2022" role in the #get-your-badges channel.

A reminder: You will be sent prep tasks at least a few days before each Friday session (allow 1 hour) and homework at the end of each session (allow 1 hour). To get the most out of the course, you should set aside at least 2 hours per session to review the notes, read some of the links provided, and ensure you've understood everything we've covered. So that's a minimum of 6 hours per week for maximum benefit (1-hour prep, 2 hours live, 2 hours revision, 1 hour homework).

Additionally, Antonio and Holger will be available every day for a minimum of one hour (Antonio - European time zone, Holger - American evening/Asian morning) for a casual collective learning chat where we can explore some of the content we provide in the links here together.

The first hour of the Friday live sessions will be used to underline some of the key points from the preparatory reading/watching, as a tour towards the rest of the notes from the session, and sometimes to go live, do some demo usages of tools.

For this first session, our approach is to provide you with a "map of the territory" along with a ton of high-quality content and then leave it up to you to pick which areas you want to explore

deeper. We won't have time to cover everything in detail. We suggest you use the 2 hours of revision time to read more about anything you found particularly challenging or exciting.

OK, here's the prep for the first session:

This short video pitch by DAOHaus may be a good starting point

- DAOhaus - What is a DAO? - YouTube

From there, check out some content on the development of organizations, game theory, and coordination failure:

- Watch Coordination Games - Christopher Coyne (8m)
- Read Know Thy Enemy: Coordination Failures by Kevin Owocki
- Read Why decentralization matters by Chris Dixon
- Play The Evolution of Trust: an interactive guide to the game theory of why & how we trust each other.

Read at least one of the following articles:

- A Prehistory of DAOs (by Kei Kreutler)
- DAO Landscape (by Coopahtroopa)
- A beginner's guide to DAOs (by Linda Xie)

Listen/watch to at least one of the following and start/join a discussion offering some of your findings and opinions on the DAO-Pioneers Discord channel:

- DAO Panel | Kain Warwick, Coopahtroopah, Tracheopteryx (Bankless, Aug 2021)
- Slaying Moloch | Ameen Soleimani & Kevin Owocki (Bankless, Oct 2020)
- The evolution of civilization, Vishal Kavnani, Jack du Rose, Aaron Fisher - Collectively intelligent podcast (August 2021)
- Building the right culture for DAOs, Punia, and Tracheopterix (Yearn finance) - MCON Denver 2021
- Collection of Videos from MCON DAO conference 2021

Week 1: Introduction to DAOs

Game Theory and Coordination

- Game theory & coordination failure
- The evolution of coordination
- Smart contracts

DAOs

- What is a DAO?
- Why DAOs - what problems do they solve?
- An overview of the DAO space
- Structure of DAOs

Game theory & coordination failure

- Introduction to Game Theory

Conclusions from Coordination Games - Christopher Coyne:

How to solve coordination problems:

1. **Formal standards**: Rules that are codified by certain parties/rules about how parties are supposed to act and/or
2. **Social conventions:** A regularity followed by people belonging to a group/a shared expectation of the correct way to behave

(It seems this isn't a binary, it's more a spectrum of formality. What's important is that there's **communication** and **agreement** on **rules/conventions**.)

We strongly encourage every one of you to play the following game at least one time (it takes around 20 minutes). It would be great if you could share your findings/thoughts on our Discord channel about it.

The Evolution of Trust: an interactive guide to the game theory of why & how we trust each other

Conclusions from The Evolution of Trust:

Game theory has shown us the three things we need for the evolution of trust:

1. REPEAT INTERACTIONS

Trust keeps a relationship going, but you need the knowledge of possible future repeat interactions *before* trust can evolve.

2. POSSIBLE WIN-WINS

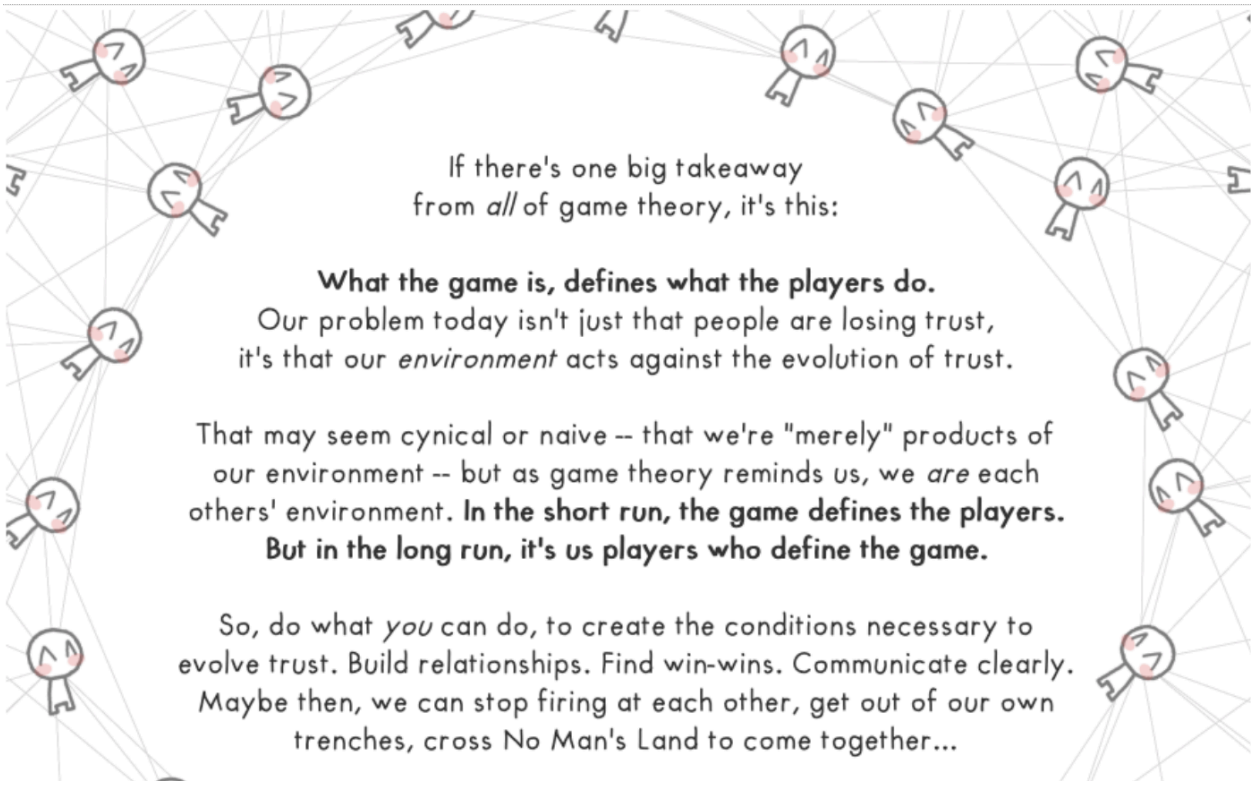
You must be playing a non-zero-sum game, a game where it's at least possible that *both* players can be better off -- a win-win.

3. LOW MISCOMMUNICATION

If the level of miscommunication is *too* high, trust breaks down. But when there's a little bit of miscommunication, it pays to be *more* forgiving.

Of course, real-world trust is affected by much more than this. There's reputation, shared values, contracts, cultural markers, blah blah blah. And let's not forget...

...the *biggest* lesson. →



"Build relationships. Find win-wins. Communicate clearly."

Key passages from Meditations On Moloch (OG essay on slatestarcodex.com, audio version here)

"Things are easy to solve from a god's-eye-view, so if everyone comes together into a superorganism, that superorganism can solve problems with ease and finesse."

"The two active ingredients of government are laws plus violence – or more abstractly agreements plus enforcement mechanisms. Besides governments, many other things share these two active ingredients and can act as coordination mechanisms to avoid traps.

For example, since students are competing against each other (directly if classes are graded on a curve, but always indirectly for college admissions, jobs, et cetera), there is intense pressure for individual students to cheat. The teacher and school play the role of a government by having rules (for example, against cheating) and the ability to punish students who break them.

But the emergent social structure of the students themselves is also a sort of government. If students shun and distrust cheaters, then there are rules (don't cheat) and an enforcement mechanism (or else we will shun you).

Social codes, gentlemens' agreements, industrial guilds, criminal organizations, traditions, friendships, schools, corporations, and religions are all coordinating institutions [that aren't governments] that keep us out of traps by changing our incentives."

From Know Thy Enemy: Coordination Failures:

"If only there was a technology that allowed groups of humans to choose to easily coordinate with one another! A transparent substrate for trust games where everyone knows where they stand and whose rules can't be changed on you.

My belief is that this is the ultimate legacy of smart contracts. We can now program our values into our economic system—the final form of a stateful internet could allow us to coordinate the actions of multiple economic actors and therefore could solve coordination failures."

More on coordination:

- 33 - Slaying Moloch | Ameen Soleimani & Kevin Owocki (Bankless podcast)
- Kevin Owocki: It's all Coordination
- Coordination Problems: What It Takes to Change the World
- Code is Law? Smart Contracts Explained – Finematics
- Coordination, Good and Bad (Vitalik Buterin)

The evolution of coordination

- Developmental Perspective on Organizations

- Reinventing Organizations YouTube channel
- Human Coordination lessons applied to DAOs - collectively intelligent podcast

Ownership of organizations

Looking at how traditional organizations work can teach us a lot about DAOs.

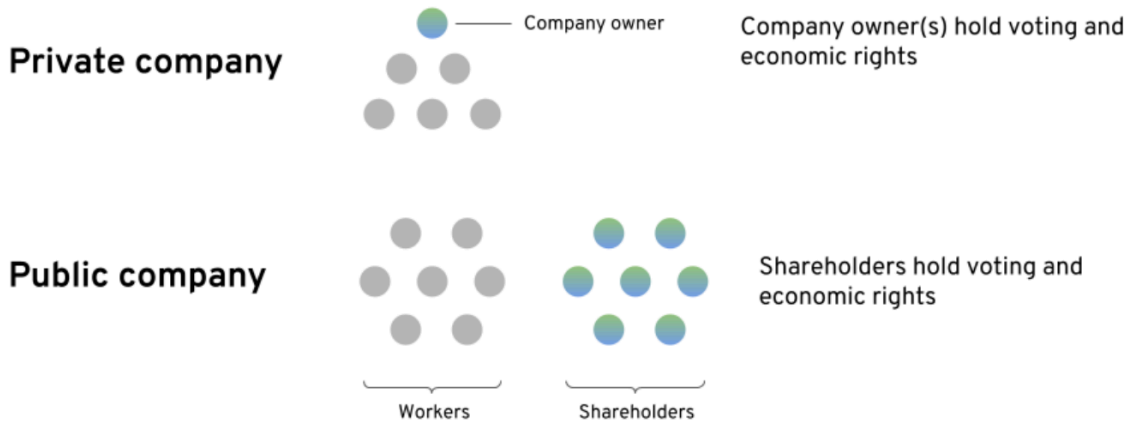
- 11 Practical Steps Towards Healthy Power Dynamics at Work (take note of *Step 11. Share the ownership!*:)

  "My concern is that words like "non-hierarchical" and "self-organizing" [can] create a smokescreen, masking the real power dynamics that are ultimately determined by the **ownership structure**."

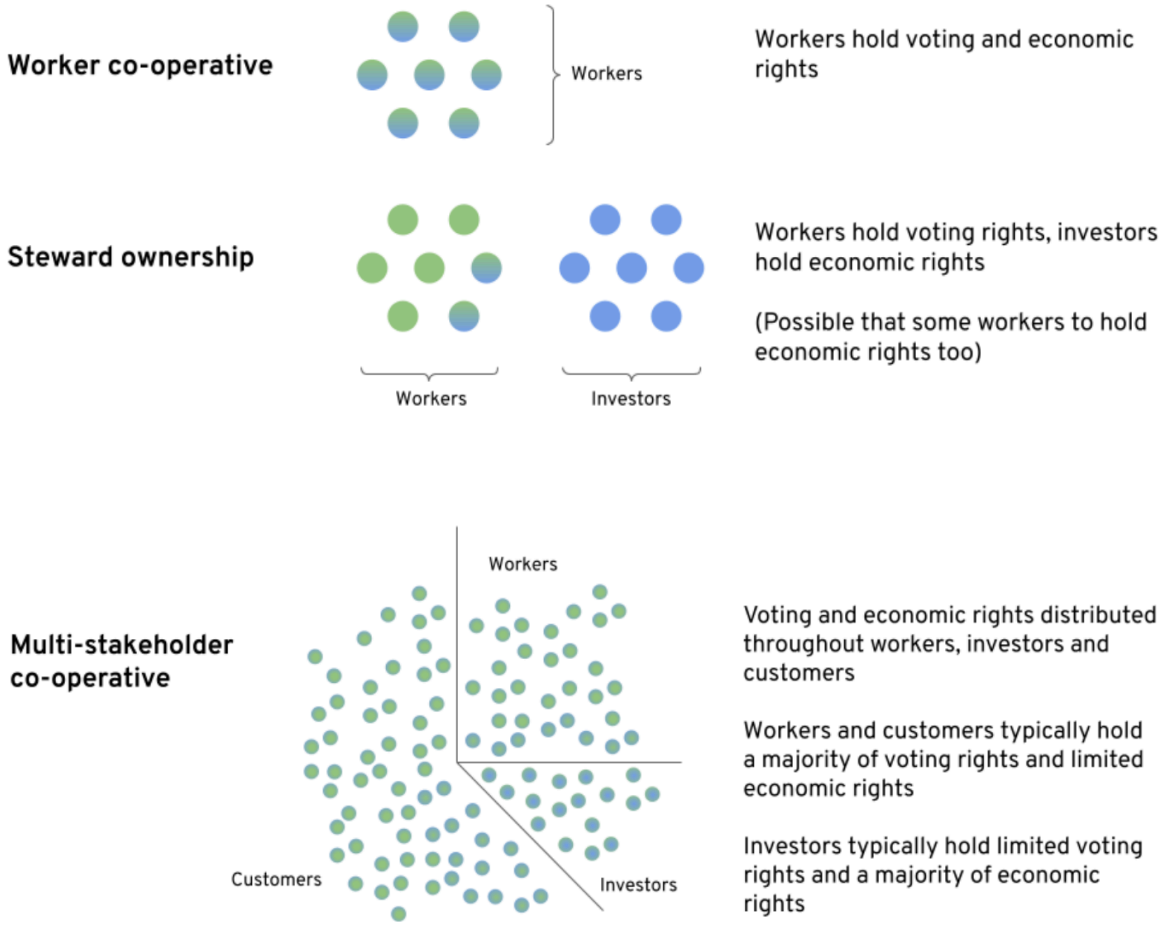
There are **two distinct types of ownership rights** relevant to organizations:

1. **Voting rights (green):** who gets to make the decisions (most importantly, who can fire you!)
2. **Economic rights (blue):** who has a claim on company profits

Traditional:



Worker led / steward - led:



Companies or DAOs - what's the difference?

Fascinating comparison between Protocols, nation-states, and companies by Packy McCormick**:** **https://www.notboring.co/p/designing-token-economies?s=r**

The easiest analogy for protocols is that they're like corporations, but digital. DAOs are Digitally-Native Corps.

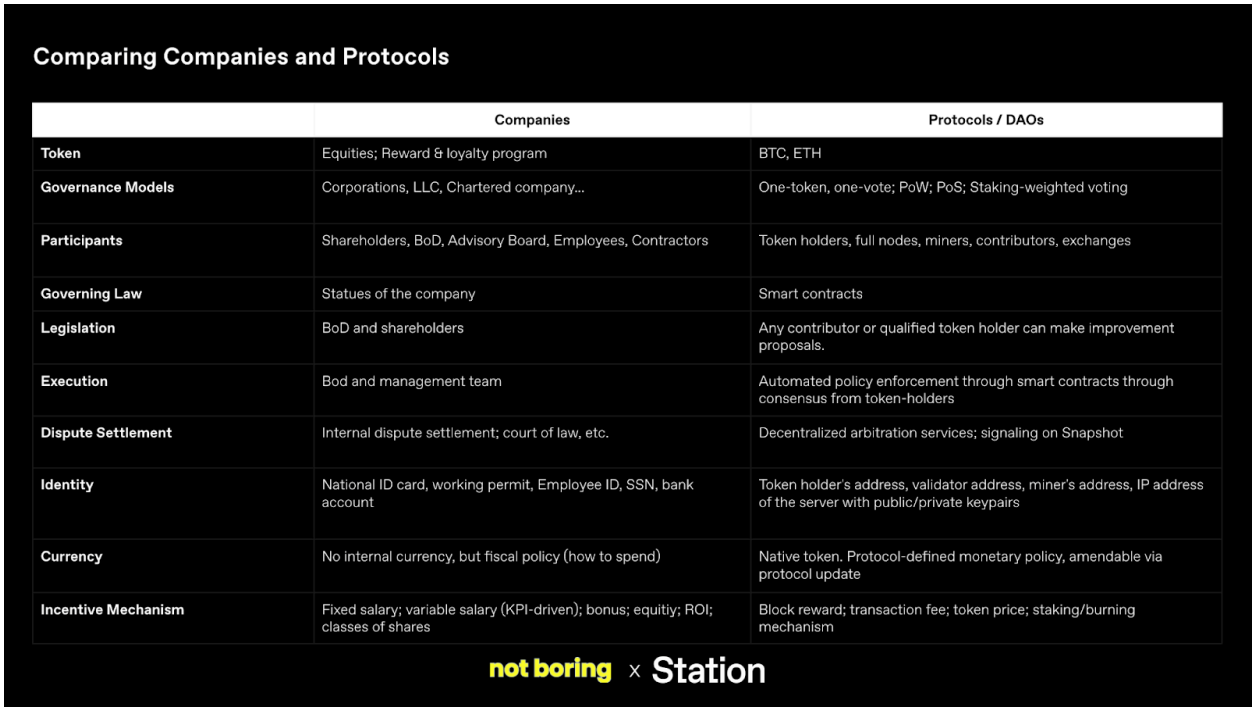
Definitions

A quick pause here to define three key terms will pay dividends throughout the piece.

Protocol: a system of logic that coordinates exchange between suppliers and consumers of a service, based on rules written into the code. SMTP, which coordinates email, and Ethereum, are both protocols. Only Ethereum captures value, thanks to ETH tokens.

Token: a unit of value universally recognized and enforced by the system that issues it. There are different kinds of tokens – including governance tokens, DeFi tokens, non-fungible tokens, security tokens – all designed to do different things. Tokens are code, and as such, can be programmed to do nearly anything their creator dreams up.

DAO (Decentralized Autonomous Organization): a group organized around a mission that coordinates through a shared set of rules enforced on a blockchain. (Linda Xie) DAOs govern protocols once the protocol has a token and is fully decentralized.



Comparing Companies and Protocols

	Companies	Protocols / DAOs
Token	Equities; Reward & loyalty program	BTC, ETH
Governance Models	Corporations, LLC, Chartered company...	One-token, one-vote; PoW; PoS; Staking-weighted voting
Participants	Shareholders, BoD, Advisory Board, Employees, Contractors	Token holders, full nodes, miners, contributors, exchanges
Governing Law	Statues of the company	Smart contracts
Legislation	BoD and shareholders	Any contributor or qualified token holder can make improvement proposals.
Execution	Bod and management team	Automated policy enforcement through smart contracts through consensus from token-holders
Dispute Settlement	Internal dispute settlement; court of law, etc.	Decentralized arbitration services; signaling on Snapshot
Identity	National ID card, working permit, Employee ID, SSN, bank account	Token holder's address, validator address, miner's address, IP address of the server with public/private keypairs
Currency	No internal currency, but fiscal policy (how to spend)	Native token. Protocol-defined monetary policy, amendable via protocol update
Incentive Mechanism	Fixed salary; variable salary (KPI-driven); bonus; equitiy; ROI; classes of shares	Block reward; transaction fee; token price; staking/burning mechanism

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With a quick glance at the table above, it's striking that DAOs and companies do many of the same things. Both have "tokens" of sorts, both need to establish governance models, both write governing laws, etc. A closer inspection shows that there are major differences within key line items.

Governance is where the analogy breaks down most cleanly: corporate governance and protocol governance are very different. The former relies on centralized management, while the latter relies on the good judgment of token holders.

Protocols can run like corporations for a while in the beginning, when the founders and core team need to make the fast, life-or-death decisions startups need to make. But after they've progressively decentralized, protocols need to fully hand over the reins to their communities. This presents a difficult trade-off: it's challenging for a protocol to retain both corporate-like efficiency and include token holders in decision-making.

Comparing Countries and Protocols

	Countries	Protocols / DAOs
Token	USD, EUR	BTC, ETH
Governance Models	Autocracy, Oligarchy, Democracy	One-token, one-vote; PoW; PoS; Staking-weighted voting
Participants	Citizens, temp immigrants, tourists, for-profit, non-profit	Token holders, full nodes, miners, contributors, exchanges
Governing Law	Constitution	Smart contracts
Legislation	Any member of the parliament can make proposals to create or revise legislation.	Any contributor or qualified token holder can make improvement proposals.
Execution	Governing body transforms new legislation into operationally feasible processes and manages oversight of compliance with rules through institutions like tax services, police, military, etc.	Automated policy enforcement through smart contracts through consensus from token-holders
Dispute Settlement	Judiciary (interprets law, dispute resolution), small cause courts, district court, supreme court, international court	Decentralized arbitration services; signaling on Snapshot
Identity	ID, Passport, EIN	Token holder's address, validator address, miner's address, IP address of the server with public/private keypairs
Currency	National currency: monetary policy defined by fiscal policy in coordination with central bank	Native token. Protocol-defined monetary policy, amendable via protocol update
Incentive Mechanism	Taxation; penalty; implicit incentive via gov spending; retirement insurance; social security; medicare	Block reward; transaction fee; token price; staking/burning mechanism

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The blockchain protocol establishes the constitution and the governing laws of the nation state, while the participating actors in the network are citizens of the network, thereby subject to the network's law and policies.

Many of the things that national governments need to do, protocols need to do. They need to establish governance, a rule of law, balance of powers, public goods funding, identification standards, trade policy, a currency (or two), and much more.

The monetary policy, such as token emission rate (inflation rate), is defined in the protocol and determines under what conditions new tokens get minted. The fiscal policy regulates taxation and government spending, usually in the form of transaction fees and reinvestment of DAO treasuries into ecosystem development.

Not surprisingly, as many would-be nation builders have discovered over the millennia of human history, designing the governance structures, rules, and policies to coordinate people and economies is hard.

Smart contracts

From What is Ethereum? (EthHub):

"While the word "contract" brings to mind legal agreements, in Ethereum, "smart contracts" are just pieces of code that run on the blockchain and are guaranteed to produce the same result for everyone who runs them. These can be used to create a wide range of Decentralized Applications (DApps) which can include games, digital collectibles, online-voting systems, financial products, and many others."

From Chapter 7: Smart Contracts and Solidity of Mastering Ethereum:

"The term smart contract has been used over the years to describe a wide variety of different things. In the 1990s, cryptographer Nick Szabo coined the term and defined it as "a set of promises, specified in digital form, including protocols within which the parties perform on the other promises." Since then, the concept of smart contracts has evolved, especially after introducing decentralized blockchain platforms with the invention of Bitcoin in 2009. In the context of Ethereum, the term is actually a bit of a misnomer, given that Ethereum smart contracts are neither smart nor legal contracts, but the term has stuck. In this book, we use the term "smart contracts" to refer to immutable computer programs that run deterministically in the context of an Ethereum Virtual Machine as part of the Ethereum network protocol—i.e., on the decentralized Ethereum world computer.

Let's unpack that definition:

Computer programs

Smart contracts are simply computer programs. The word "contract" has no legal meaning in this context.

Immutable

Once deployed, the code of a smart contract cannot change. Unlike traditional software, the only way to modify a smart contract is to deploy a new instance.

Deterministic

The outcome of the execution of a smart contract is the same for everyone who runs it, given the context of the transaction that initiated its execution and the state of the Ethereum blockchain at the moment of execution.

EVM context

Smart contracts operate with a very limited execution context. They can access their own state, the context of the transaction that called them, and some information about the most recent blocks.

Decentralized world computer

The EVM runs as a local instance on every Ethereum node. Still, because all instances of the EVM operate on the same initial state and produce the same final state, the system as a whole operates as a single "world computer."

- This leads to the huge problems the ETH blockchain faces (excessive, unpredictable fees, no scalability, very low throughput. Every node in ETH MUST compute every smart contract that is operating!
- IOTA Smart Contracts solves this by allowing multiple (hundreds/thousands) parallel blockchains to work together connected through the Tangle.
- https://wiki.iota.org/smart-contracts/overview
- https://files.iota.org/papers/ISC_WP_Nov_10_2021.pdf

DAOs

Great recent overview articles hosted on web3 writing platform mirror.xyz:

- A Prehistory of DAOs – an essential piece by Kei Kreutler
- A beginner's guide to DAOs
- DAO Nation

- The Rise of Micro-Economies
- DAOs & Creators: Resources to Get Started Today
- The Eightfold Path to DAOism
- Full-Time DAOs
- A peek into DAOs: Part 1 of 3
- A peek into DAOs: Part 2 of 3

Overviews elsewhere:

- DAOresearch/awesome-daos: An awesome list for DAO stuff
- The ABCs of DAOs (1729)
- How to DAO: Answers for Beginners (Aragon)
- DAOs - The new frontier in Coordination (report by Bankless & Gitcoin)
- Live by the DAO, DAO by the DAO (Decrypt)
- An introduction to DAOs (pet3rpan)
- Moloch Primer for Humans
- DAOs May Be the Future of Work, but Don't Bet on Them Being the Next Big Asset Class

MCON:

- MCON is a brilliant DAO-focused conference
- Takeaways from MCON, a gathering of DAOists

Newsletters:

- Bankless DAO newsletters: https://banklessdao.substack.com/
- Boardroom's This Week in DAOs and Stateless Weekly

What is a DAO?

- "magic internet communities that allow members to coordinate funds and resources" (DAOhaus)
- "internet-native entities with no central management which are regulated by a set of automatically enforceable rules on a public blockchain, and whose goal is to take on a life of its own and incentivize people to achieve a shared common mission" (Aragon)
- "A DAO is an online community that jointly controls a cryptocurrency wallet to pursue common goals, such as running a business or charity." (Aragon)
- "A DAO is a commitment to share value with a community. A Telegram group with 10 members and 1 ETH is a DAO. A DeFi protocol with $1B+ of assets governed on-chain by 10,000+ token holders is a DAO. Regardless of size, DAOs look to solve core missions - evolving a group chat into a success-driven community." (Coopahtroopa)
- "a group chat with a bank account" (Ameen Soleimani)
- "A DAO is an organization that meets the following criteria:

1. All members have at least some direct control over the org's assets and actions, and
2. Nobody other than the members can shut it down" (@spengraph)

- "a blockchain-based multi-stakeholder co-operative" (@daoist321)

Is a DAO still a DAO if it's just a 1/n multisig? Or even n/m? 🤔

If I quit this 'DAO', can I take with me a proportional share of the assets of the DAO's treasury?

From Aragon's What's a DAO?:

DAOs allow people to:

- **Attract and incentivize contributors:** DAOs incentivize contributors by giving them a say in the future of the organization.
- **Pool funds:** DAOs use cryptocurrencies, allowing people all around the world to pool funds.
- **Govern those funds together:** DAOs allow people to channel common funds towards common missions collaboratively.

From DAOHaus:

- **Shared Treasury:** Community funds are held by the DAO itself and distributed through Proposals.
- **Voting & Proposals:** Proposals can be used for all types of decisions like distributing funds, allocating shares, and even interacting with other applications and communities.
- **Fluid Membership:** Members are added and removed through proposals and may leave at any time. Shares allow for truly distributed ownership.

Why DAO? Check the manifestos of some of the DAO platforms:

- Metacartel Values & Mission
- Metacartel Manifesto
- Soonaverse Manifesto
- https://docs.soonaverse.com/en/soonaverse-dao

Some common themes: *freedom, sovereignty, co-creation, community*

From The Dao of DAOs:

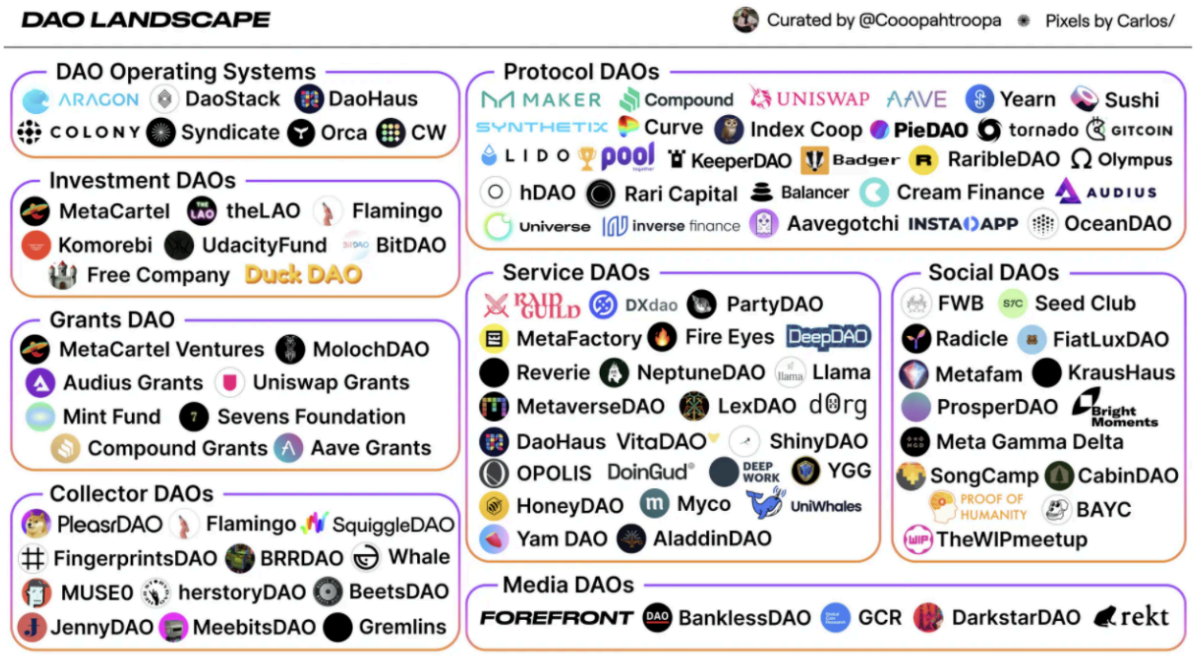
"DAOs are all about maximizing stakeholder value. The users and contributors are also the investors and owners. While community ownership seems weird and novel and almost hippie, it's actually a more natural model than a few outside investors and board members dumping a bunch of money into a company and deciding what it should do. We do it the way we do because, until now, it's been too hard to coordinate having a lot of small owners/stakeholders who all get a say in decision-making. Technology is finally enabling the more natural model."

Some of the benefits of DAOs over traditional partnerships and co-operative structures:

- Minimal startup costs
- Minimal entry/exit costs for participants
- Full transparency
- Censorship resistance
    - Censorship-resistance
    - What Is Censorship Resistance?
- Global-by-default/borderless
- Crystal-clear (unambiguous) and incorruptible organizational processes/policies
    - Makes it easy for participants to switch between DAOs
    - Minimizes cost/friction of inter-organizational co-operation
- Easier to raise capital (vs tradfi community share offer)

See also Past, Present, Future: From Co-ops to Cryptonetworks section *Where co-ops fall short*

An overview of the DAO space



- Deep DAO: DAO Ecosystem Overview
- DAO Landscape
- What is a DAO? Mapping Out the Ecosystem
- 15 Ways the World is being Transformed by DAOs
- The DAO Ecosystem- Organizations for the Internet Age
- Open Source DAO Market Research
- DAOs - The new Coordination frontier - Gitcoin DAO research
- The rise of decentralized organizations

Breakdown of different types of DAO, based on DAO Landscape by Coopahtroopa:

- No-code DAO Operating Systems / Frameworks
    - DAOhaus
        - DAOHaus Version 2 is Ready
    - Colony
        - How to build a DAO on Colony
        - (Re)Introducing Colony
    - Aragon
        - Powered By Aragon
        - Aragon - The fight for freedom (video)
        - Powered By Aragon (video)
    - DAOstack
        - Introducing DAOstack (v2) (video)
    - Gnosis Safe and Multisafe
        - Gnosis Safe: The DAO OS - Beth McCarthy @ The DAOist Paris
        - Introducing SafeSnap: The first in a decentralized governance tool suite for the Gnosis Safe
        - New: Zodiac: The expansion pack for DAOs
            - gnosis.github.io/zodiac
            - DAOHaus Adopts Zodiac to Enable Moloch DAOs to Manage Gnosis Safes
    - Aragon, DAOstack, Colony & Moloch
    - Soonaverse
- Grants DAOs
    - MetaCartel Grants
    - AAVE Grants
    - Moloch DAO
- Protocol DAOs
    - Uniswap
    - Polkadot
    - Yearn finance

    - Aave

Voting platforms for protocol DAOs:

- Compound Governance (forked by many protocol DAOs)
- Open Zeppelin Governance - new set of contracts by the popular Plattform
- Snapshot (off-chain voting) - What is Snapshot? The Decentralized Voting System
- Tally (on-chain voting) - Interview with Tally co-founder Dennison Bertram on DeFi Prime

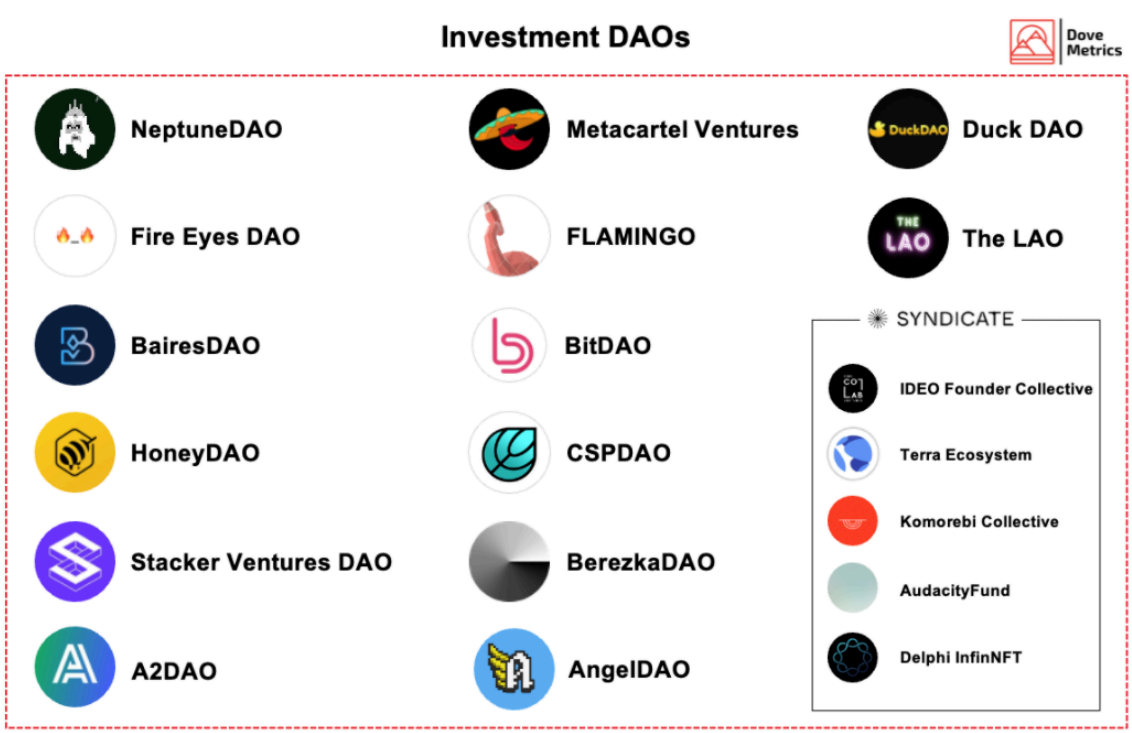
Stories of some protocol DAOs:

- Understanding Index Coop Pt 1 - by Kerman Kohli - DeFi Weekly
- The Gitcoin/GitcoinDAO Egregore is Emerging
- FWB Season Three: Creative Cooperation

"Right now, Gitcoin is known for Gitcoin Grants, which is based on a really powerful coordination mechanism, quadratic funding. But what if instead of building ONE coordination mechanism, we built a generalized generator function of ALL coordination!!! If GitcoinDAO can successfully be a Schelling point for builders of all types of coordination tools, then we could help solve some of the systemic coordination problems in the world."

Investment DAOs

- MetaCartel Ventures
- Syndicate DAO's investment clubs framework
- The LAO
- Dove Dispatch: Venture Investment DAOs
- How DAOs Are Reshaping Investment
- Venture DAOs: So Hot Right Now
- The Future of Venture Capital Will Be Decentralised



Service DAOs

- Raid Guild
- Bankless DAO
- IOTA Content creators
- LexDAO
- dOrg
- DXdao
- 1hive

Social DAOs

- Forefront ✨
- Social Token Refresh — Mirror
- Social Token Paradox — Mirror
- Community DAOs — Mirror
- We're (in) the money
- Seasons & Longevity of Community Tokens

Collector DAOs

- PleasrDAO
- SquiggleDAO

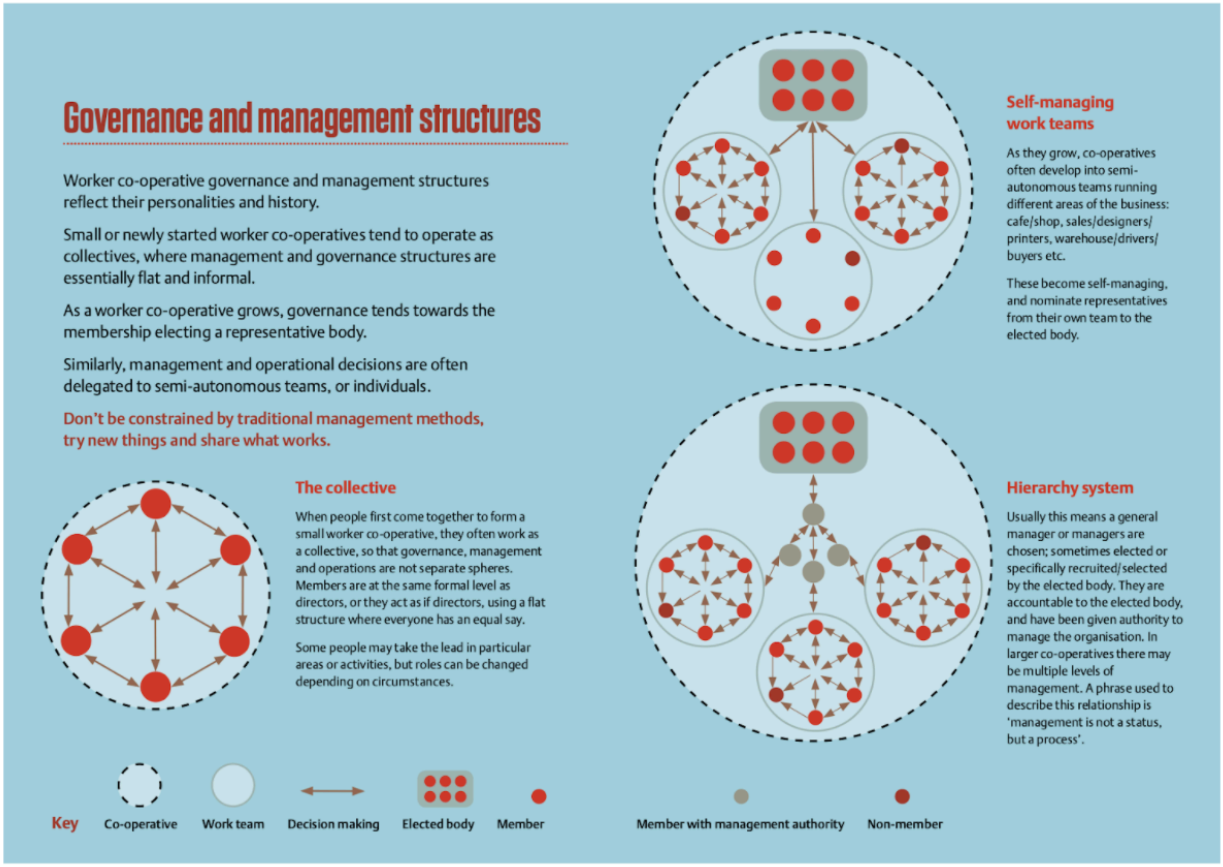
Media DAOs

- Introducing Media DAOs
- Bankless media

Structure of DAOs

- Shaping your Community's Contribution Zones — Mirror
- The Spartan Council (Synthetix)
- DAOs first capital formations (Synthetix)
- How to set up a Bankless DAO (BanklessHQ)
- Decentralization is not Binary (Annika Lewis)

Something the co-op movement figured this out a long time ago: DAOs (like co-ops) don't need to be totally non-hierarchical.



From [*The worker co-operative code*]

From [The Spartan Council]:

"The proposal above attempts to balance the speed of iteration with avoiding a descent into plutocracy. It attempts to remain close to the status quo of one person one vote by allowing smaller holders to delegate to a council member that will represent them."