COLONY

What We Talk About When We Talk About DAOs

Towards a more perfect organization

Daniel Kronovet

@kronosapiens | @joincolony

COLONY

Some Terminology

Organization

- An entity representing a group with resources and a purpose

Decentralized Organization

- An organization run by *humans* and controlled by *software*

Decentralized Autonomous Organization

- An organization run by *software* and controlled by *software*

The line between the last two is blurry and the terminology is often mixed up. We're going to use DAO because it's used colloquially, although often DO would be a bit more precise. Naming things is hard.

https://blog.ethereum.org/2014/05/06/daos-dacs-das-and-more-an-incomplete-terminology-guide/

COLONY

🔮

Money goes in

Agents agent, by the rules

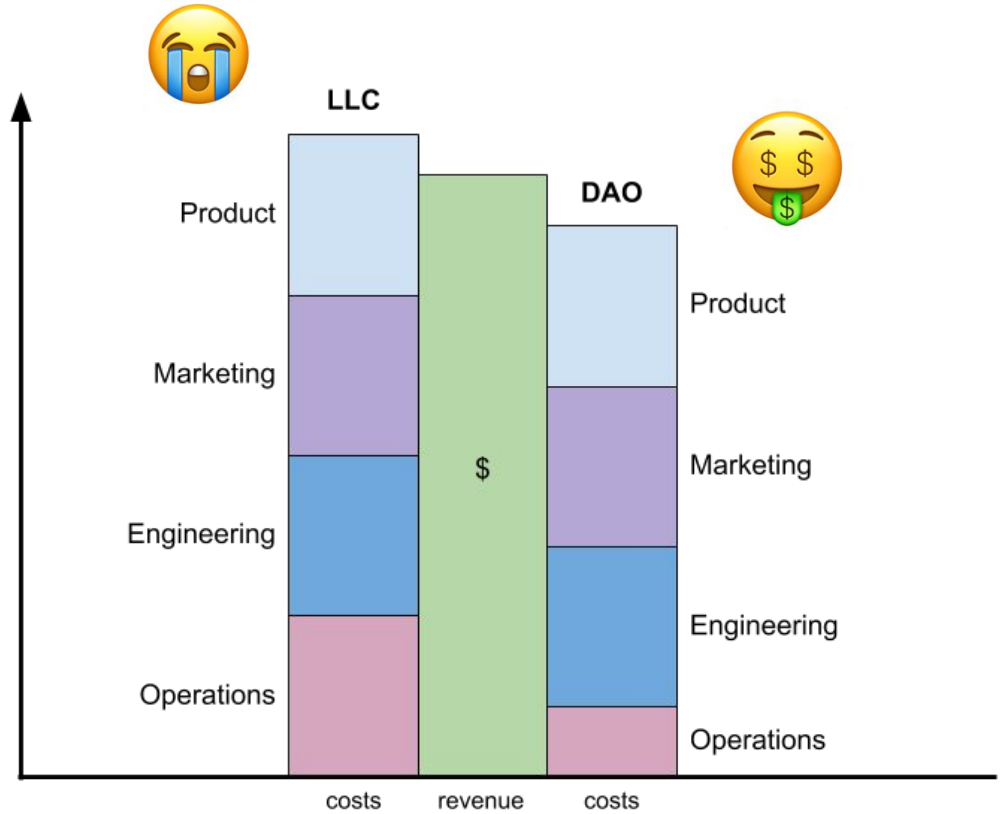Money comes out

This.

↓

Agents agent, by the rules

COLONY

Why DAO?

1. **Technological efficiencies**
   - Manipulate value directly
   - Lower operational overhead

COLONY

Why DAO?

1. **Technological efficiencies**
   - Manipulate value directly
   - Lower operational overhead

2. **New types of organizations***
   - More engagement at all levels
   - Better & faster decision-making

*Note: a lot of these ideas are not new!

SELF-MANAGEMENT PRACTICE FOR ORGANIZATIONS

VALVE

HANDBOOK FOR NEW EMPLOYEES

Can your culture compete?

"94% of problems in business are systems driven and only 6% are people driven."
— *W. Edwards Deming*

Why DAO?

1. **Technological efficiencies**
   - Manipulate value directly
   - Lower operational overhead

2. **New types of organizations**
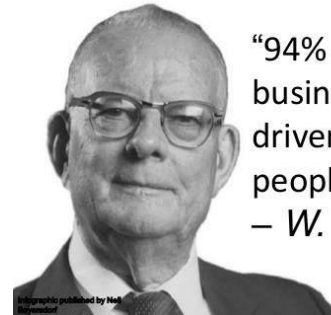   - More engagement at all levels
   - Better & faster decision-making

3. **Prevent censure and capture**
   - "Stateless organizations"
   - Resistant to manipulation

KLINT FINLEY   BUSINESS   06.18.16   04:30 AM

A $50 MILLION HACK JUST SHOWED THAT THE DAO WAS ALL TOO HUMAN

Russian-Style Kleptocracy Is Infiltrating America

When the U.S.S.R. collapsed, Washington bet on the global spread of democratic capitalist values—and lost.

Monday, 17 September 2018

Thanks, Maduro: Nearly 40% of Venezuelan Businesses Closed

Written by Warren Mass

COLONY

CONSENSYS

Multi-Sig Wallet

Vision

- Simple way to collectively manage resources

Achievements

- Minimal interface is easy to deploy and use
- Balances individual autonomy with collective security

Challenges

- No support for more complex coordination
- No support for varying levels of access

Aragon

ARAGON

Vision

- "Unstoppable Organizations" resistant to external influence
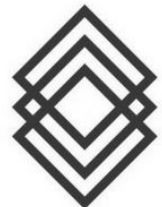
Achievements

- Advanced modularity & permissioning system
- Large community of developers building out ecosystem

Challenges

- Focused on transplanting existing practices to blockchain
- Real bottleneck may be legacy organizational practices

DAOstack

Vision

- Efficient and resilient decision-making for large organizations

Achievements

- "Holographic Consensus" to approximate whole-group decisions
- Several high-profile experiments live or launching

Challenges

- HC mechanism assumes independence of sets of actors
- Focus on discrete pass/fail proposals may be limiting

Colony

Vision

- Create, operate, and monetize digital companies

Achievements

- A dynamic work- and time-driven reputation system
- Granular, org chart-based permissioning and accounting

Challenges

- Focus on autonomy may make global coordination difficult
- Several novel mechanisms may make adoption difficult

Moloch

Vision

- Coordination mechanism resistant to attack and manipulation

Achievements

- Limited interactions lower cognitive burden of participation
- Safety mechanisms align the incentives of participants

Challenges

- Limited interactions may preclude complex coordination
- Emphasis on giving grants, not daily operations

COLONY

... in every political institution, a power to advance the public happiness involves a discretion which may be misapplied and abused.

James Madison, Federalist #41

The ability to improve a design occurs primarily at the interfaces. This is also the prime location for screwing it up.

Akin's 15th Law of Spacecraft Design

Make each program do one thing well.

Doug McIllroy, The Unix Philosophy

The State of the Art

1. Assemble an unstructured blob of text

2. Blob is reviewed by franchised stakeholders

3. Stakeholders assess and submit one bit of input

4. If there are more 1s than 0s, accept the blob

5. Privileged agents interpret and execute the blob

6. Repeat forever

COLONY

COLONY

The State of the Art

1. Assemble an unstructured blob of text

    Unstructured text limits computational analysis

2. Blob is reviewed by franchised stakeholders

    Parsing blobs of text is cognitively demanding

3. Stakeholders assess and submit one bit of input

    This is literally the smallest amount of information

4. If there are more 1s than 0s, accept the blob

    Not leveraging our substantial computing power

5. Privileged agents interpret and execute the blob

    Agents may have hidden incentives, need monitoring

6. Repeat forever

    Sounds like a lot of redundant labor

Beyond Voting

- **Our decision-making paradigm is centuries old**
  - No computers, fewer people

- **Cognitively demanding**
  - Excludes many from participation

- **Overly general in scope**
  - Depends on fallible leadership for interpretation

Our Toolkit

- **Specialized mechanisms ease cognitive burden**
    - MakerDAO, dxDAO: focus on a few numbers
    - Budgeting, elections: more specific than voting

- **More complex inputs & outputs**
    - Let agents express more nuance of opinion
    - Let the output capture more of this information

- **Leverage computational aids**
    - Great with numbers, bad with text

- **Use time as an orienting principle**
    - The global invariant, cheap to use
    - Makes static systems dynamic

COLONY

The State of the Art, Redux

1. Assemble an unstructured blob of text

   Unstructured text limits computational analysis

2. Blob is reviewed by franchised stakeholders

   Parsing blobs of text is cognitively demanding

3. Stakeholders assess and submit one bit of input

   This is literally the smallest amount of information

4. If there are more 1s than 0s, accept the blob

   Not leveraging our substantial computing power

5. Privileged agents interpret and execute the blob

   Agents may have hidden incentives, need monitoring

6. Repeat forever

   Sounds like a lot of redundant labor
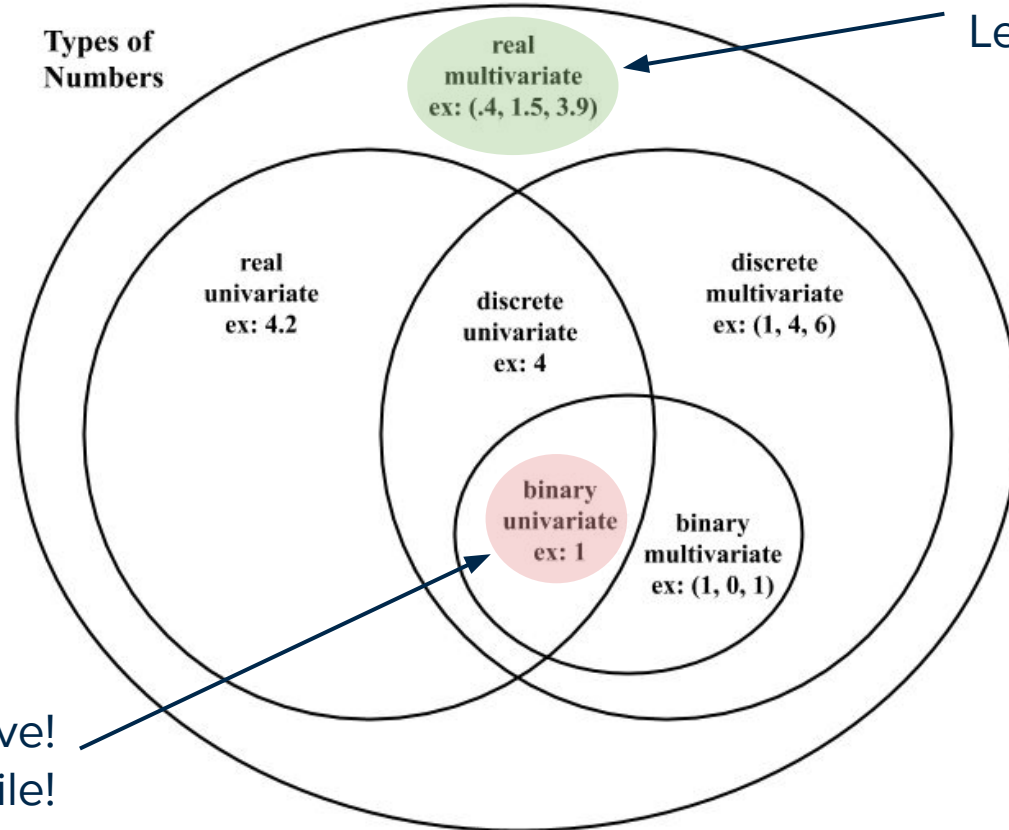
COLONY

Invert, Always Invert

1. Assemble a set of competing funding candidates

   ~~Unstructured text limits computational analysis~~

2. Candidate pairs are reviewed by franchised stakeholders

   ~~Parsing blobs of text is cognitively demanding~~

3. Stakeholders assess and submit one bit per pair

   ~~This is literally the smallest amount of information~~

4. Run preferences through a reliable budgeting algorithm

   ~~Not leveraging our substantial computing power~~

5. Periodically distribute funds based on output

   ~~Agents may have hidden incentives, need monitoring~~

6. Update allocations only as needed

   ~~Sounds like a lot of redundant labor~~

COLONY

BUDGETBOX

Collectively Intelligent Budgeting

Most expressive!
Least versatile!

Types of Numbers

real multivariate
ex: (.4, 1.5, 3.9)

real univariate
ex: 4.2

discrete univariate
ex: 4

discrete multivariate
ex: (1, 4, 6)

binary univariate
ex: 1

binary multivariate
ex: (1, 0, 1)

Least expressive!
Most versatile!

http://kronosapiens.github.io/blog/2019/05/08/coordinating-processes.html

COLONY

Mechanism	Applications	Output Type	Processing
Majority	Voting	Univariate Binary	Cognitive
QV	Voting	Multivariate Binary	Cognitive
FPTP	Electing	Multivariate Discrete	Cognitive
IRV	Electing	Multivariate Discrete	Computational
Score	Electing	Multivariate Real	Cognitive
Dot	Budgeting	Multivariate Real	Cognitive
Spectral	Budgeting	Multivariate Real	Computational

Large design space!

http://kronosapiens.github.io/blog/2019/05/08/coordinating-processes.html

COLONY

Recap

What

- Organizations, run by **humans/software**, controlled by **software**

Why

- Efficiency, productivity, and independence

Who

- Aragon, DAOstack, Colony, Moloch, and more!

How

- Task-specific mechanisms, computation over cognition, **time** ...

COLONY

Thanks, Alliance ✨

Daniel Kronovet

@kronosapiens | @joincolony

colony.io

docs.colony.io

blog.colony.io