



Blockchain Governance Module

PBA Bali

10th September 2025

Welcome!

Kick-Off Meeting

Meet the faculty



Primavera de Filippi



Nathalie Boyke



Lovisa Björna



Tara Merk



Felix Beer



BLOCKCHAINGOV

BLOCKCHAIN-POWERED DISTRIBUTED GOVERNANCE
FOR COMMUNITIES, INSTITUTIONS AND THE WORLD.

We are a 5-year long, transdisciplinary research effort aimed at restoring trust in institutions at the community and global levels, by promoting better on chain and off chain distributed governance practices. We are funded by the European Research Council (grant ID: 865856).



www.blockchaingov.eu

Agenda

- Meet the faculty
- What is this about?
- Why does it matter?
- Educational goals
- Module overview
- Module logistics
- Q&A

Your **governance expertise** is needed!

- Governance is often poorly understood yet essential for the success of a blockchain project;
- There is a noticeable lack of technologists trained in blockchain governance;
- Polkadot is a highly decentralized governance system;
- Your governance expertise is a critical asset for your project's long-term impact and viability.
-

Our educational goal

Promote **governance literacy**

- Equip blockchain technologists with the necessary competences to design and implement effective governance, both on-chain and off-chain.
- Contribute to the professionalization of blockchain governance as a recognised field of expertise.
-

Learning outcomes

- 1. Understand the key governance principles, mechanisms and trade-offs;**
- 2. Develop a strategy for progressive decentralization;**
- 3. Design and implement effective governance innovations;**
- 4. Navigate their political, regulatory and ethical implications;**
- 5. Measure and improve the impact of governance systems.**

Module overview

Schedule

TIME	DAY 1 / WEDNESDAY Blockchain Governance
08:00 AM	Kick-Off Presentation (Primavera, Lovisa, Nathalie)
08:30 AM	Lecture 1: "Introduction to Blockchain Governance" (Primavera)
10:00 AM	Coffee Break
10:30	Lecture 2: "Decentralized Autonomous Organizations" (Nathalie)
11:15	Lecture 3: "Governance Mechanism Design" (Nathalie)
12:00	Lecture 4: "Competency Framework for Blockchain Governance" (Lovisa)
12:30 PM	Lunch
01:30 PM	Regulatory Equivalence
03:00 PM	

TIME	DAY 2 / THURSDAY Blockchain in Public Systems
08:00 AM	Review (Lovisa)
08:30 AM	Lecture 1: "Public Value of Blockchain and Use Cases (Primavera)
10:00 AM	Coffee Break
10:30	Lecture 2: "Fields of Application" (Nathalie Boyke)
11:15	Lecture 3: "Case Study Deep Dive" (Lovisa)
12:00	Lecture 4: "Drivers & Barriers for Public Adoption of Blockchain" (Lovisa)
12:30 PM	Lunch

TIME	DAY 3 / FRIDAY Regulation & Legal Frameworks
08:00 AM	Lecture 1: "Blockchain and Regulation" (Primavera)
09:00 AM	Lecture 2 "Guest Lecture and Q&A: Judith de Boer (Tornado Cash Lawyer)
09:30 AM	Lecture 3: "Crypto Industrial Politics" (Nathalie)
10:30	Coffee Break
11:00	Lecture 4 "Regulatory Equivalence" (Primavera De Filippi)
12:30 PM	Lunch

Module Logistics

Get in touch!



Lovisa Björna

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lovisa@polkadot.academy



Introduction to Blockchain Governance

Lecture 1

Primavera de Filippi

WHY IS THIS COURSE IMPORTANT ?

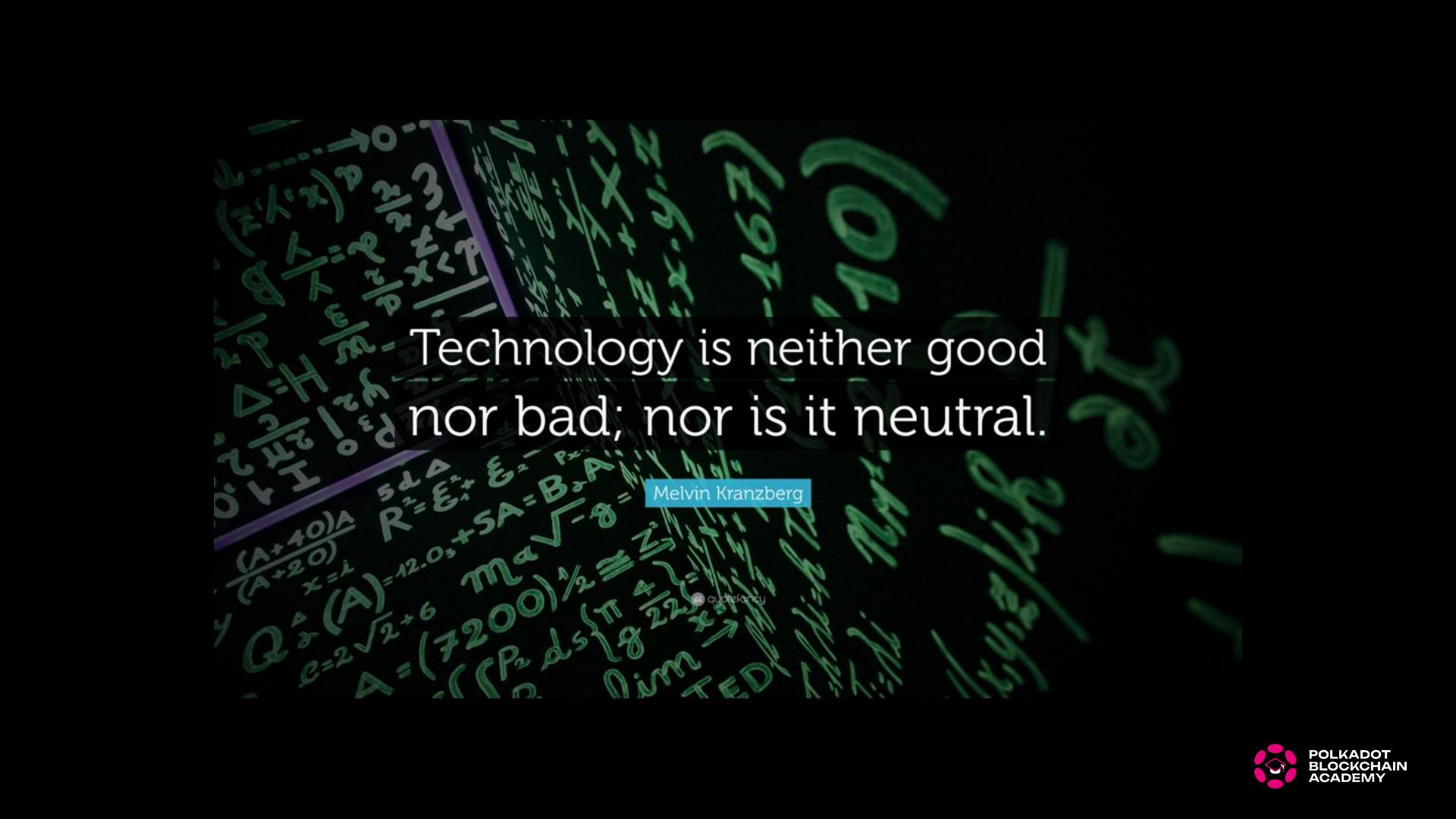


*In a world increasingly governed by technology
those who build and control the technology, govern the world*

Technologists are not politicians:



1. Not elected through democratic mechanisms
2. Not trained to think about politics and governance

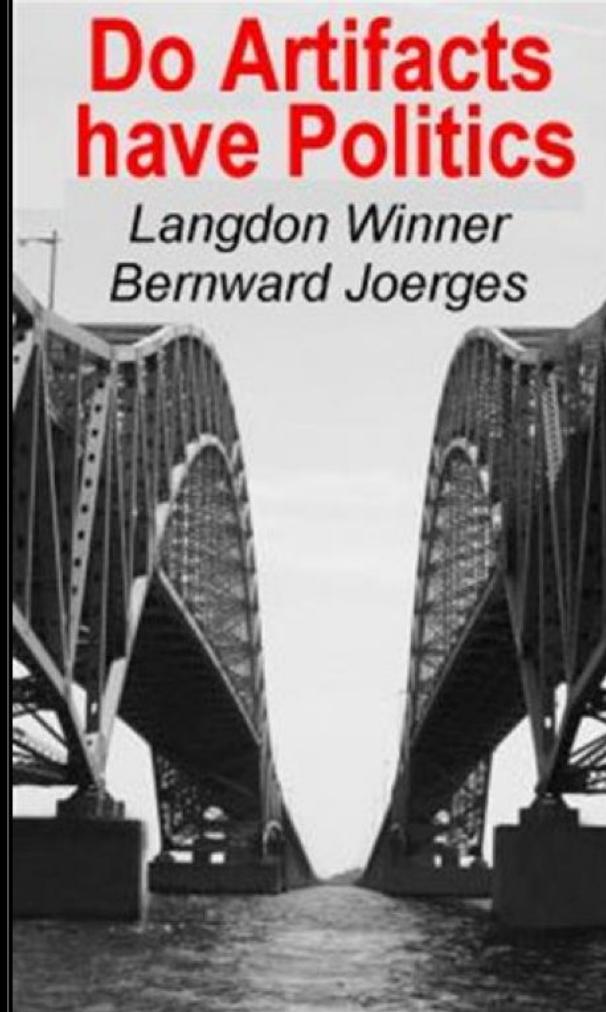


Technology is neither good
nor bad; nor is it neutral.

Melvin Kranzberg

quotefancy

Affordances



Constraints



LOW OVERPASS BRIDGES



HAUSSMANIAN BOULEVARDS



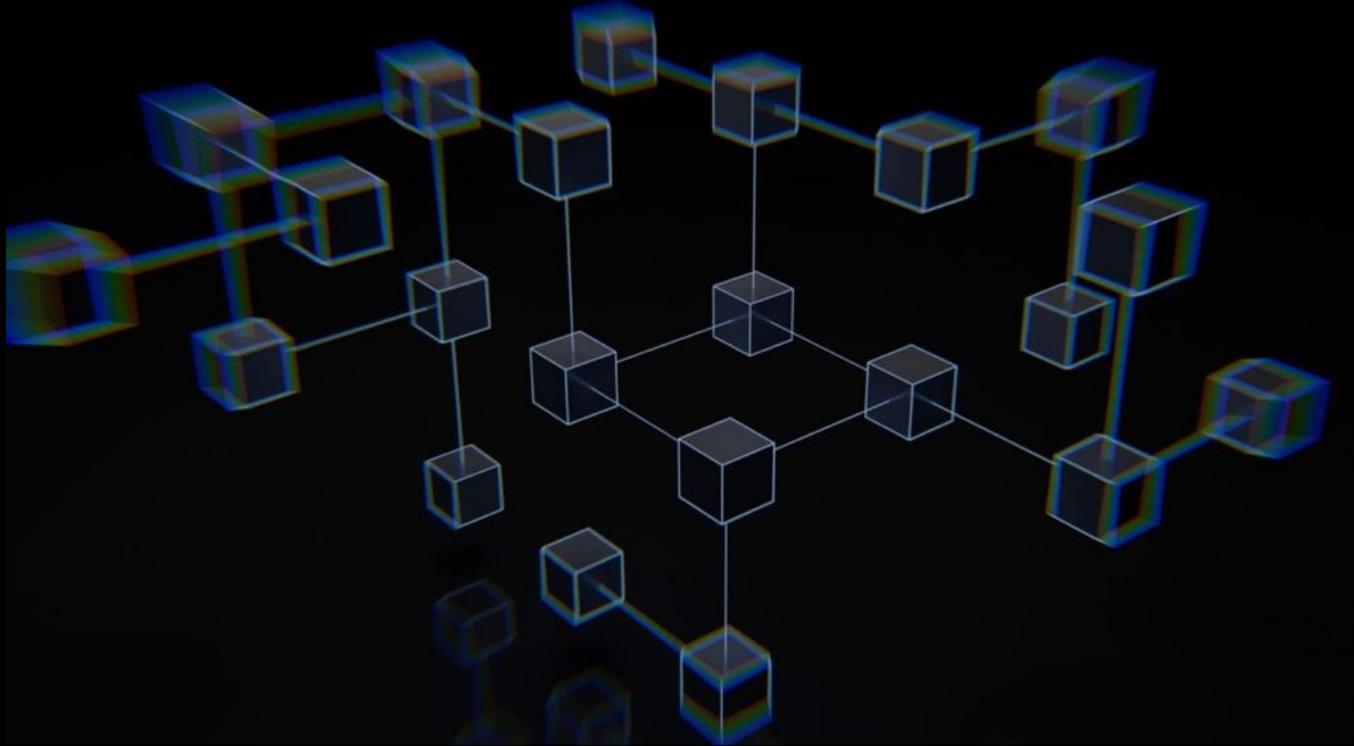
SPEED BUMPS



DIGITAL ARTEFACTS HAVE POLITICS



DIGITAL ARTEFACTS ALSO HAVE POLITICS



BLOCKCHAINS HAVE POLITICS



BLOCKCHAINS HAVE POLITICS



*How to engineer blockchain systems
that provide the right mix of affordances and constraints ?*

TRUST & CONFIDENCE



BLOCKCHAIN AS... TRUSTLESS TECHNOLOGY

Antonopoulos:

"Shift from trusting people ... to trusting math"

"Don't trust, Verify"

The Economist:

"Trust Machine"

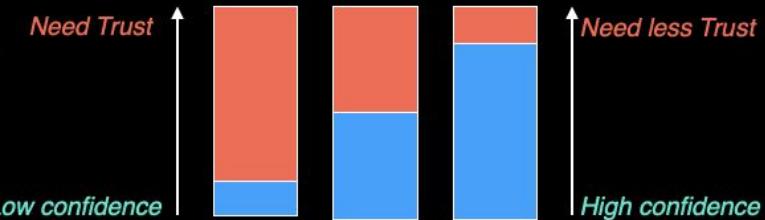
Werbach:

"Trustless Trust"



*It is **not** about **eliminating trust altogether**,
but rather about **maximizing confidence**,
in order to indirectly **reduce the need for trust**.*

- The **higher** the **predictability** of the system,
- The **higher** the **confidence** in the system,
- The **lower** is the **need for trust** in the system.



BLOCKCHAIN AS... CONFIDENCE MACHINE

CONFIDENCE FACTORS

(1) Mathematics & Cryptography

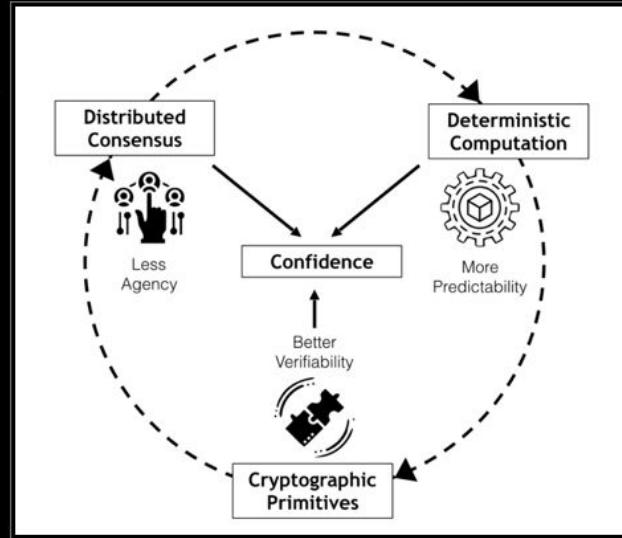
- Hashing functions, Public-Private Keys

(2) Economic incentives & Game Theory

- Utility function
- Distributed Consensus

(3) Expert systems

- Open Source code
- Public verifiability of every operation



BLOCKCHAIN AS... (positive definition)

CONFIDENCE MACHINE

THE RULE OF CODE

"This dark, exhilarating work is the most important book of its generation about the relationship between law, cyberspace and social organization."



CODE AND OTHER LAWS OF CYBERSPACE

LAWRENCE LESSIG

CODE
IS
LAW

RULE OF LAW



ACCESS TO LEGAL REMEDY

Access to timely justice mechanisms for grievance remedies and peaceful resolutions

TRANSPARENCY OF LAW

Laws must be clear, precise, affordable and accessible while protection fundamental rights

EQUALITY UNDER THE LAW

All are equal under the law: it applies equally to all—governments, citizens, companies, etc

INDEPENDENT JUDICIARY

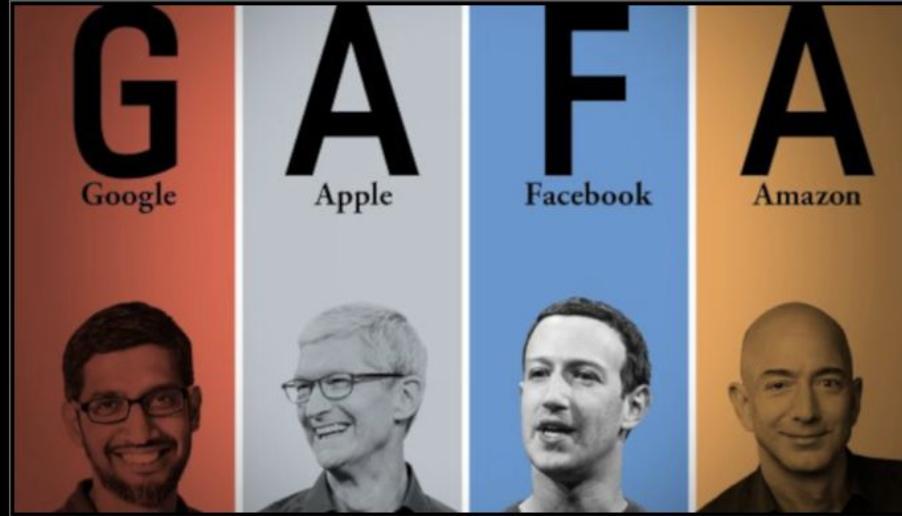
Independent judiciary ensures equality and fairness of law between people & public officials

BY
RULE ~~OF~~ LAW



INSTRUMENTALISATION OF LAW
AS A TOOL OF POLITICAL POWER

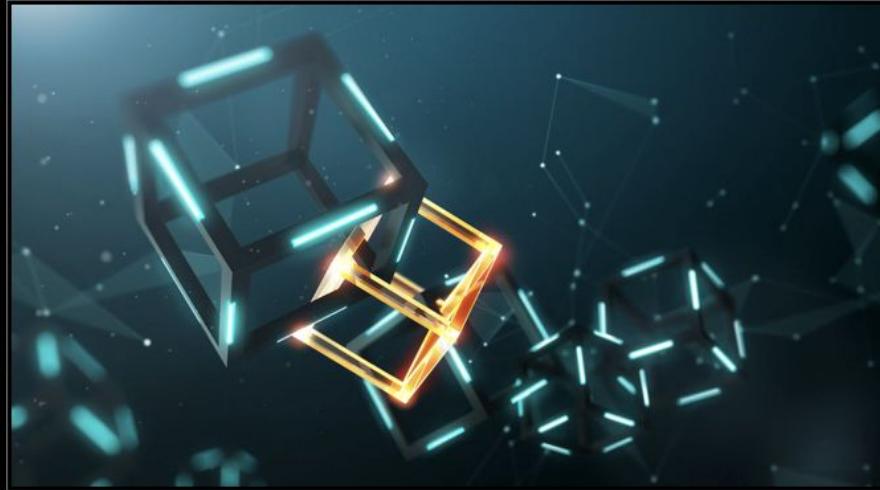
RULE BY CODE



DIGITAL FEUDALISM
FUNCTIONAL SOVEREIGNTY

INSTRUMENTALISATION OF CODE
AS A TOOL OF POLITICAL POWER

OF
RULE BY ~~CODE~~ CODE



TECHNICAL SOVEREIGNTY

No ONE IS ABOVE THE CODE

CODE IS LAW : BLOCKCHAIN AS CONFIDENCE MACHINE



BRINGING TRUST BACK IN



BLOCKCHAINS AS SOCIO-TECHNICAL SYSTEMS

Confidence of on-chain rules depends on the *trust* of underlying off-chain processes

BLOCKCHAIN GOVERNANCE

GOVERNANCE

BY the infrastructure



(on-chain governance)

OF the infrastructure



(off-chain governance)

1. DEVELOPERS



Core Developers



Open Source contributors

TECHNOCRATIC GOVERNANCE

- Decision on who can push to a repository
- Technical decisions are political decisions
- Contentious issues (e.g. forks)

2. MAINTAINERS



Miners

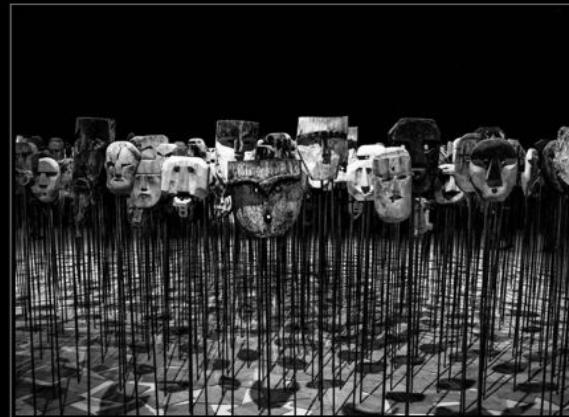


Validators

NETWORK GOVERNANCE

- Distributed consensus
- Hashing power as political power
- Validators as legitimate counter-power

3. END-USERS



Users



Token holders

PLUTOCRATIC GOVERNANCE

- Exit vs. Voice
- Market-based influence (e.g. “whales”)
- Token-based governance (e.g. Carbon voting)

4. NEW INTERMEDIARIES



Super Nodes

- Cryptocurrency exchanges, Blockchain explorers,
- DApps interfaces, Custodian wallets,
- Commercial service providers, etc.



Mining Pools

DELEGATED GOVERNANCE

- Centralized Points of Failure & Control
- Invisible powers that can influence the network

5. EXPERTS



Founders



Influencers

MERITOCRATIC GOVERNANCE

- Tech-savvy individuals are more respected
- Founders hold strong influence in the governance
- Most vocal individuals can influence the public opinion

6. LAWS & REGULATIONS



Policy Makers

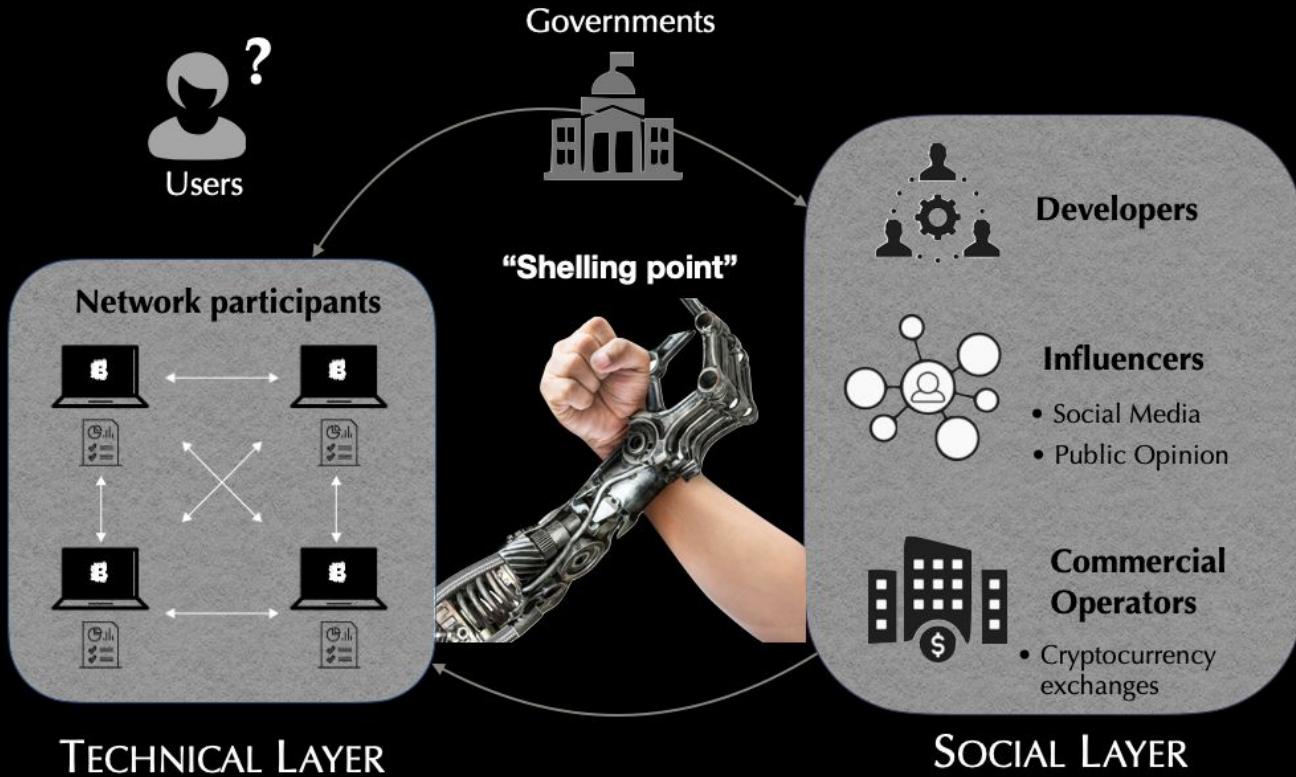


Regulators

EXOGENOUS GOVERNANCE

- Provide legitimacy to specific blockchain applications
- Indirectly influence the decision-making of endogenous actors
- Directly regulate the operations of new intermediaries

POLYCENTRIC GOVERNANCE SYSTEM



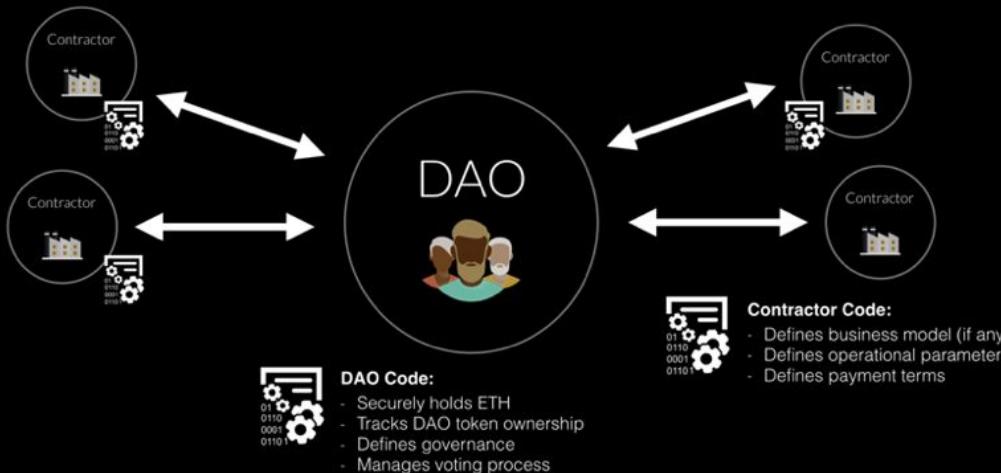
TheDAO



DECENTRALIZED AUTONOMOUS ORGANISATION



- INVEST INTO A VARIETY OF PROJECTS
- TO BENEFIT ITS MEMBERS OR GET A RETURN ON INVESTMENT





Decentralized Investment Fund

DECENTRALIZED INFRASTRUCTURE
WITH PLUTOCRATIC GOVERNANCE STRUCTURE

- BOARD OF DIRECTORS (CURATORS)
- SHAREHOLDERS (CAPITAL INVESTORS)

- AUTONOMOUS
 - LEADERLESS MANAGEMENT
 - GOVERNANCE DEFINED BY CODE

- SELF-SUFFICIENT
 - COLLECT FUNDS NECESSARY TO OPERATE
(OVER \$160 MILLIONS IN CROWD-SALE)

TheDAO HACK



- ATTACKER EXPLOITED A BUG IN THE SMART CONTRACT CODE
- "STOLE" OVER 60 MILLION DOLLARS WORTH OF ETHER

TheDAO HACK



- HOW TO RESOLVE THE ISSUE?
 - SOFT-FORK: CENSOR ALL TRANSACTIONS COMING FROM OR DIRECTED TO THE DAO
 - HARD-FORK: RETRIEVE THE “STOLEN” ETH AND MOVE IT INTO A WITHDRAW ACCOUNT
- BOTH SOLUTIONS REQUIRE COOPERATION BY THE COMMUNITY
 - MINERS (SOFT-FORK), VERIFIERS (HARD-FORK)

INCORRUPTIBILITY + IMMUTABILITY



```
public void go() { x = x + y; y = y + z; System.out.println("in method goParameters, x: " + x + ", y: " + y); } public static void main(String[] args) { go(); } public class PrimitiveParameters { public static void go() { int x = 3; int y = 2; System.out.println("in method go, x: " + x + ", y: " + y); falseSwap(x,y); System.out.println("in method go, x: " + x + ", y: " + y); moreParameters(x,y); System.out.println("in method go, x: " + x + ", y: " + y); } public static void falseSwap(int x, int y) { System.out.println("in method moreParameters, x: " + x + ", y: " + y); int temp = x; x = y; y = temp; System.out.println("in method moreParameters, x: " + x + ", y: " + y); } public static void moreParameters(int a, int b) { System.out.println("in method moreParameters, a: " + a + ", b: " + b); } public static void main(String[] args) { go(); } }
```

```
b = 12;
System.out.println("in method moreParameters, x: " + x + ", y: " + y);
falseSwap(b,a);
System.out.println("in method moreParameters, x: " + x + ", y: " + y);

public static void falseSwap(int x, int y)
{
    System.out.println("in method falseSwap, x: " + x + ", y: " + y);
    int temp = x;
    x = y;
    y = temp;
    System.out.println("in method falseSwap, x: " + x + ", y: " + y);
}

public static void moreParameters(int a, int b)
{
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}
public static void main(String[] args)
{
    System.out.println("in method moreParameters, a: " + a + ", b: " + b);
    go();
}

public static void go()
{
    x = 3;
    y = 2;
    System.out.println("in method go, x: " + x + ", y: " + y);
    falseSwap(x,y);
    System.out.println("in method go, x: " + x + ", y: " + y);
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public void falseSwap(int x, int y)
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    System.out.println("in method falseSwap, x: " + x + ", y: " + y);
    int temp = x;
    x = y;
    y = temp;
    System.out.println("in method falseSwap, x: " + x + ", y: " + y);
}
```

AS THERE IS NO CENTRAL AUTHORITY THAT CAN ENFORCE THE LAW
ONLY COMMUNITY CAN INTERVENE TO APPLY THE RULES
(RULE OF LAW OR RULE OF CODE?)

TheDAO HACK

—COMMUNITY DIVIDE—

CONTRACT SAYS THAT ONLY THE CODE MATTERS
=> DOES CODE VULNERABILITY AMOUNT TO CONSENT?

WORDS OF THE CODE

The attacker simply "used" TheDAO
Restoring the balance would be a theft

INTENT OF THE CODE

The attacker has "exploited" TheDAO
Restoring the balance is fully legitimate

Group Exercise

CASE STUDY: THEDAO

- 1.- Is there a tort? Which one?
- 2.- Who is responsible ?
- 3.- What recourse is available for token holders ?
- 4.- What liability regime can be applied ? Against whom?
- 5.- How to enforce a judicial decision ?

ETHEREUM



ETHEREUM CLASSIC



TAMPER-RESISTANCE + IMMUTABILITY



```
b = 12;
System.out.println("in method go, x: " + x + " y: " + y);
falseSwap(x,y);
System.out.println("in method moreParameters, a: " + a + " b: " + b);
moreParameters(x,y);
System.out.println("in method moreParameters, a: " + a + " b: " + b);
moreParameters(x,y);

public static void falseSwap(int x, int y)
{
    System.out.println("in method falseSwap, x: " + x + " y: " + y);
    int temp = x;
    x = y;
    y = temp;
    System.out.println("in method falseSwap, x: " + x + " y: " + y);
}

public static void moreParameters(int a, int b)
{
    System.out.println("in method moreParameters, a: " + a + " b: " + b);
    a += b;
}

public class PrimitiveParameters
{
    public static void main(String[] args)
    {
        go();
    }
}

public class PrimitiveParameters
{
    public static void go()
    {
        int x = 3;
        int y = 2;
        System.out.println("in method go, x: " + x + " y: " + y);
        falseSwap(x,y);
        System.out.println("in method go, x: " + x + " y: " + y);
        moreParameters(x,y);
        System.out.println("in method go, x: " + x + " y: " + y);
    }

    public static void go()
    {
        System.out.println("in method go, x: " + x + " y: " + y);
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        int temp = x;
        x = y;
        y = temp;
        System.out.println("in method falseSwap, x: " + x + " y: " + y);
    }

    public static void moreParameters(int a, int b)
    {
        System.out.println("in method moreParameters, a: " + a + " b: " + b);
        a += b;
    }
}
```

AS THERE IS NO CENTRAL AUTHORITY THAT CAN ENFORCE THE LAW
ONLY COMMUNITY CAN INTERVENE TO APPLY THE RULES

NEW POWER DYNAMICS



NO CENTRALIZED AUTHORITY
CAN INTERVENE

BLOCKCHAIN SYSTEMS ARE GOVERNED BY THE COMMUNITY
THROUGH DISTRIBUTED CONSENSUS

“

**WITH GREAT POWER,
COMES
GREAT RESPONSIBILITY**

”

SPIDERMAN



Pixr8 News

(1)



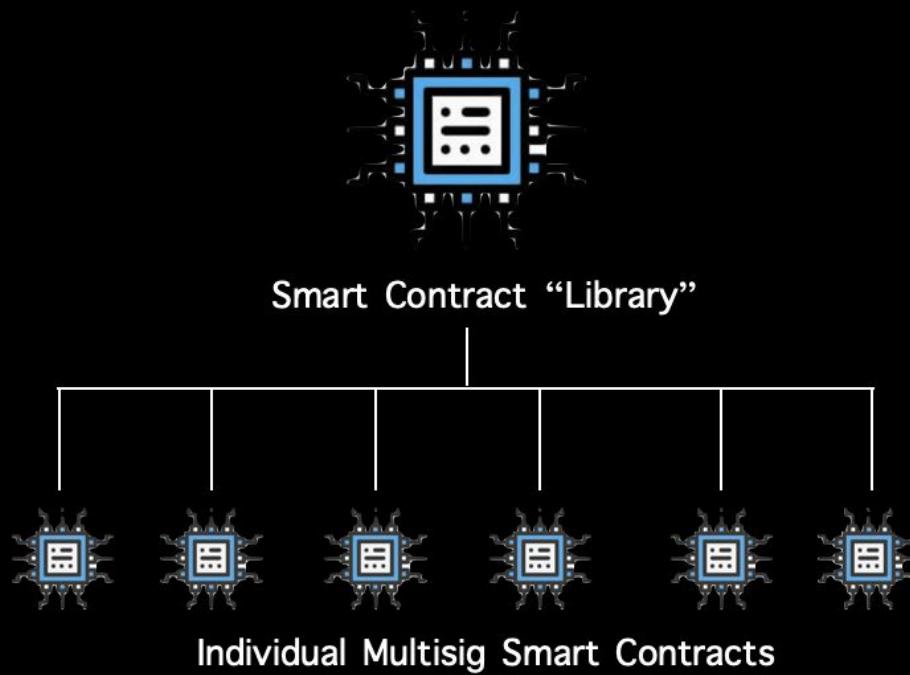
The DAO attack

(2)

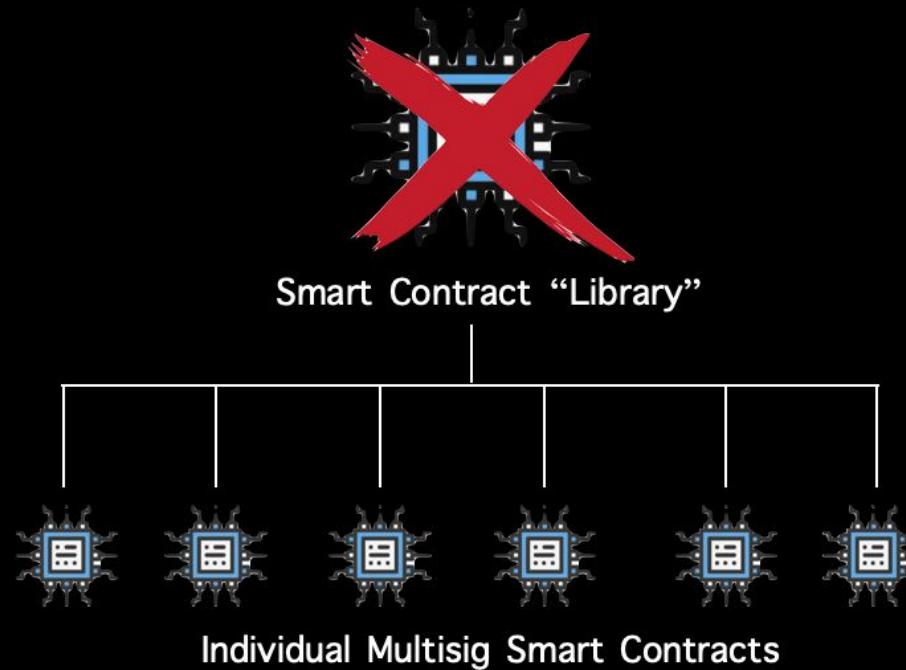


Multi-sig Bug

Multi-sig Wallet FREEZE



Multi-sig Wallet FREEZE



Group Exercise

CASE STUDY: MULTI-SIG

- 1.- Is there a tort? Which one?
- 2.- Who is responsible ?
- 3.- What recourse is available for token holders ?
- 4.- What liability regime can be applied ? Against whom?
- 5.- How to enforce a judicial decision ?

**To FORK OR
NOT TO FORK ?**

Multi-sig Wallet FREEZE

- No Exceptionality
- No Urgency
- No Unfair Enrichment
- More Contentious Issue
- Create a precedent
- Liability & responsibility

The DAO attack



STATE OF EXCEPTION
(without a Sovereign)

Exceptional violation to
the Rule of Code
(immutability)

Multi-sig Bug



LEGISLATIVE PROPOSAL
(without a Parliament)

CONSTITUTIONAL AMENDMENT

Standardized procedure
for lost fund recovery



Lecture 2

**DAOs: Reimagining Institutions for the
internet Age**

It all started with one question.

What if we could run an organization without managers or intermediaries—just by code and collective decision-making?

Driving factors

Distrust in Traditional Institutions

Desire to build systems that don't rely on central intermediaries

The financial crisis of 2008 → DAOs were envisioned as "*trustless organizations*", where rules are enforced by code, not by people.

Smart Contracts as Organizational Infrastructure

Smart contracts can automate agreements without human enforcement

If you can code a contract, why not code an entire **company-like structure**—with governance, treasury, and operations?

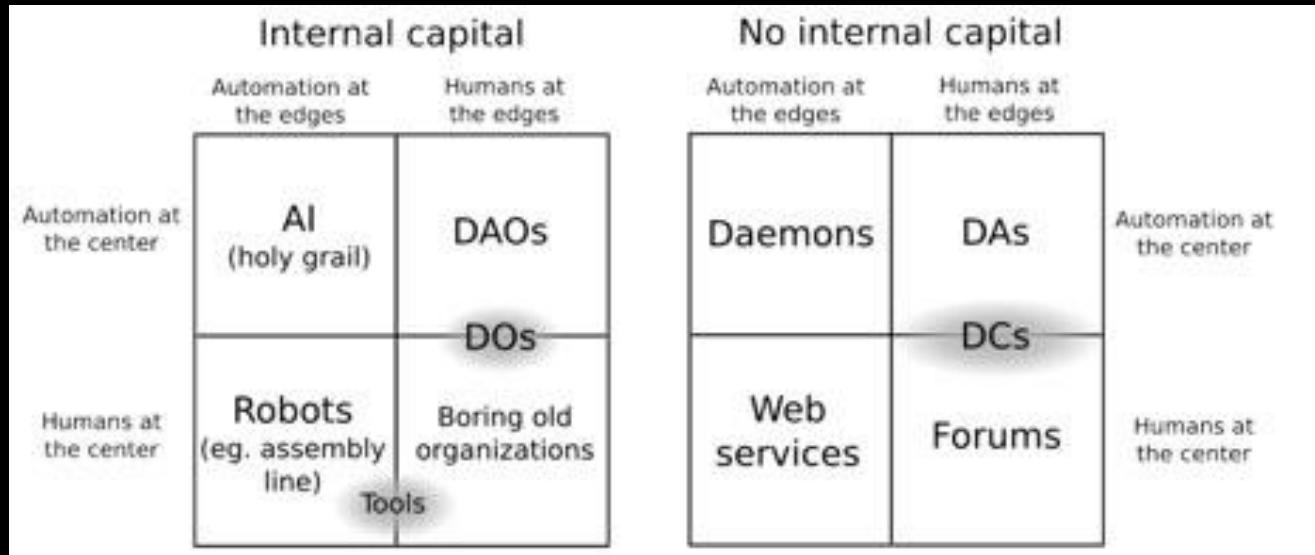
Deeper Ideological Root

DAOs grew out of the *cypherpunk & crypto-anarchist* vision: replacing centralized hierarchies with **self-governing digital communities**

Instead of "trusting people in power," you **trust math, transparency, and the collective will**.

Where DAOs fit in

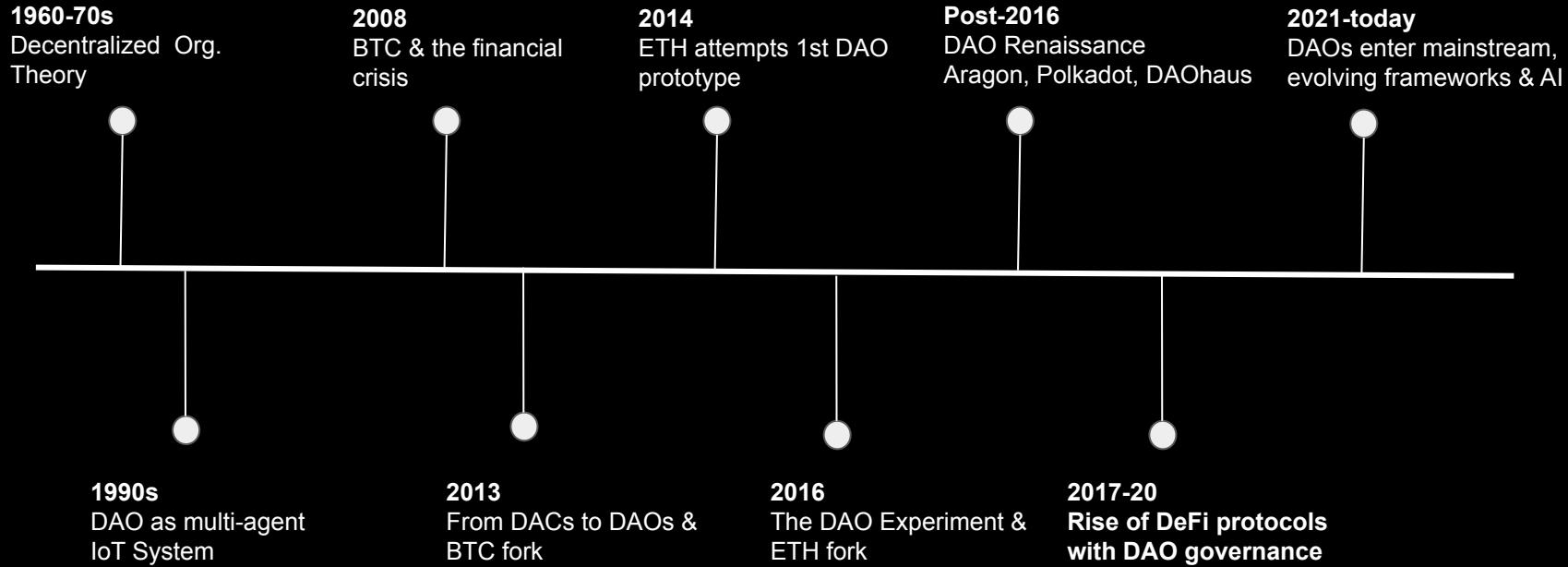
Forms of Organization



DA: Decentralized App
DCs: Decentralized Corporation
DOs: Decentralized Organization
Forums: organization without internal capital, e.g. G8
Daemons: is a background process that runs automatically, usually without user interaction (e.g. email server)

DAOs are a lot less automated than previously imagined!

The evolution of DAOs



Defining DAOs today

A DAO is a **blockchain-based system** that enables **people to coordinate** and govern themselves mediated by a set of self-executing rules deployed on a public blockchain, and whose governance is **decentralised** (i.e., independent from central control).

(Hassan & De Filippi, 2021)

>> The defining characteristic of DAOs is *how people coordinate* not the purpose of coordination

But what is decentralization?

Tech Definition

→ about *system design* and *consensus*.

e.g.

"Decentralized systems are a subset of distributed systems where multiple authorities control different components, and no authority is fully trusted by all others."

(Troncoso et al., 2017)

Political Definition

→ about *redistribution of authority* in governance.

e.g.

"Political decentralization transfers policy and legislative powers from central governments to autonomous, lower-level assemblies and local councils that have been democratically elected by their constituencies..."
(Worldbank, 2024)

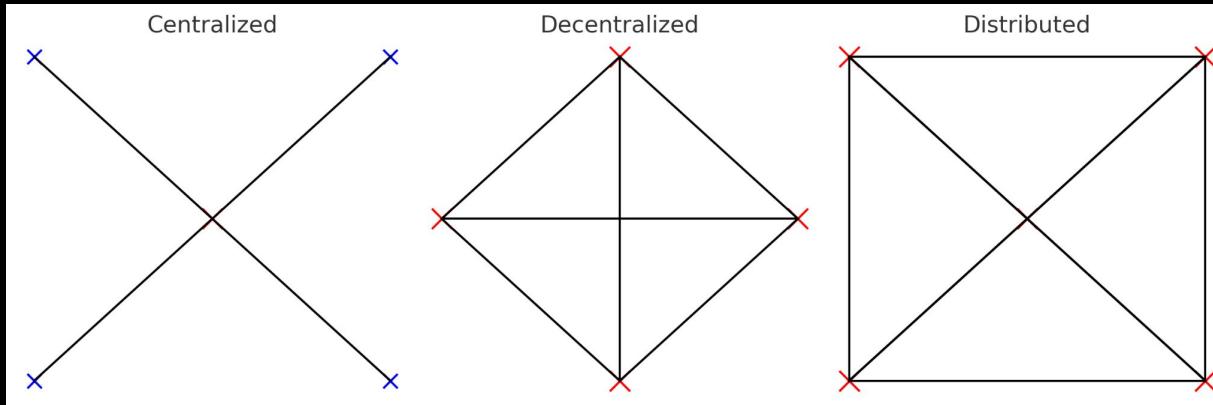
Regulatory Definition

→ about *control and risk* in digital assets (who controls, how tokens are distributed).

e.g.

A system is decentralized if no person has unilateral authority, no issuer owns >20% of tokens, and governance is community-based.
(U.S. Gov. / FIT21 Act)

Decentralization with a technical point of view



Centralised:
a central node
controls everything
(single point of
failure).

Decentralised:
multiple important
nodes, no sole
control.

Distributed:
fully distributed
network, all nodes
are equal &
redundant.

DAOs are not just one thing - they sit on a spectrum

Consideration: Not every decentralized group is a DAO. Some coordinate money, some just coordinate people.

→ The key question: *What is being decentralized?*

Different Flavors of Decentralization

- **People-Centric:** forums, DAOs, decentralized orgs → humans coordinate, blockchain helps.
- **Capital-Centric:** decentralized corporations, protocols with treasuries → money and assets drive the system.
- **Machine-Centric:** AIs, robots, web services → automation and code drive coordination.
- **Hybrids (Most DAOs):** blend of humans + capital + code → e.g., Uniswap, Polkadot, FWB.

Depending on function and purpose DAOs look different

Overview of DAOs

Name	Function	# of Members (Eligible / Active)	Complexity + Key Tension
OpenGov Polkadot	Governing a blockchain ecosystem/ infra	1M+ DOT holders / 5-8K	High - multi-layer referenda, delegation, complex rules Tension: Complexity & voter fatigue
Uniswap	Financial app	360K / 1-2K - significant power asymmetry among token holders	Medium - token-weighted voting, delegation, less layered than Polkadot Tension: Whale dominance, SEC risk
Decentraland	Game/ Metaverse	200K+ / ~100–300	High - mix of token & land votes, broad scope of decisions (technical + social) Tension: Concentrated voting power, apathy
Friends with Benefits (FWB)	Social club/ creative collective	~6k members	Low - lighter governance, community-driven, emphasis on curation/social value Tension: Decentralization paradox

DAOs as a means to govern blockchain protocols

Example: Polkadot OpenGov

Governance Mechanism

- On-chain **OpenGov**: all proposals and votes recorded transparently.
- **Parallel Tracks** (treasury, technical, small tips) → multiple proposals at once.
- **Delegation & conviction voting**: flexible empowerment of experts.
- **Technical Fellowship** replaces centralized councils.

Scope of Governance

- Protocol upgrades, ecosystem rules.
- Treasury funding and community spending.
- Technical evolution and emergency fixes.

Strengths

- All proposals originate from the public → highly decentralized
- Multi-track model increased votes by 1900% in 6month
- Conviction voting aligns long-term incentives.

Weaknesses

- Complex system → steep learning curve.
- Limited participation beyond technical insiders.
- Risk of voter fatigue and concentration in few active delegates.

Takeaway: Polkadot governance is **most technically advanced**, but also **least accessible** to the wider public.

DAOs as a means to govern financial applications

Example: Uniswap

Governance Mechanism

- On-chain with **UNI token voting**.
- Three-stage process: RFC → Temp Check → On-chain Proposal.
- Delegation possible, but quorum thresholds are very high.

Scope of Governance

- Key parameters: protocol fees, token distribution.
- Treasury and ecosystem grants.
- Limited scope (protocol itself largely automated).

Strengths

- Governance minimization = strong credible neutrality.
- Transparent, formalized process.
- Well-established brand and liquidity → influence beyond governance.

Weaknesses

- High quorum thresholds → voter apathy.
- Large token holders (“whales”) dominate.
- Many decisions shift informally off-chain (“politicking”).

Takeaway: Uniswap governance is **formally structured** but suffers from **low participation and whale dominance**.

DAOs as a means to govern virtual worlds

Example: Decentraland

Governance Mechanism

- **Hybrid:** off-chain voting via Snapshot + on-chain execution via Aragon.
- DAO Committee (multi-sig) enacts passed proposals.
- Security Advisory Board oversees Committee

Scope of Governance

- Virtual world rules: wearables, land, names
- DAO treasury grants for builders
- Platform operations

Strengths

- Flexible hybrid model reduces gas cost barrier
- Specialized committees create focus (wearables, governance infra)
- Clear community communication channels (forums, Discord).

Weaknesses

- Voting power extremely concentrated (few wallets dominate).
- Committee + Security Ad.Board = centralized choke points.
- Many token holders disengaged → low legitimacy.

Takeaway: Decentraland governance is **innovative in design** but **paradoxical** — aiming for decentralization while relying on committees.

DAOs as a social club

Example: FWB

Governance Mechanism

- Token-gated membership (~6,000 holders)
- DAO committees and squads for events, partnerships, product building
- Recently formed legal wrapper: Unincorporated Nonprofit Association

Scope of Governance

- Community membership & event funding
- Product studio spin-outs and collaborations
- Strategic direction of FWB as cultural brand

Strengths

- Strong cultural identity + high social capital
- Pioneering DAO-to-company ownership model
- Community-driven, member-led initiatives

Weaknesses

- Governance not fully decentralized (core team + investors dominate)
- Limited scalability compared to protocol DAOs
- Dependency on hype cycles in culture/crypto

Takeaway: FWB is **community- and culture-first**, showing how DAOs can act as **social clubs**, but decentralization is limited.

DAOs embed smart contracts differently depending on their purpose

Membership logic

(who belongs)

→ *FWB*: you prove membership by holding the token

→ *UNI* tokens define who can propose and vote

Decision logic

(how votes are cast/weighted)

→ *Polkadot*: conviction voting (lock longer → more weight), delegates for each track

→ *Uniswap*: high quorum thresholds, delegated UNI voting

Execution logic

(how outcomes take effect)

→ *FWB*: budgets, events, and product spin-outs enacted by the DAO's legal wrapper.

→ *Polkadot*: upgrades and treasury decisions execute automatically on-chain.

Cultural logic

(how values & identity shape use of blockchain tools)

→ *Polkadot*: ethos of “code as law” and highly technical community → favors fully on-chain rules.

→ *FWB*: token = cultural membership card; DAO doubles as a “decentralized Soho House.”

Takeaway: This shows there is no single model of decentralization — DAOs adapt blockchain tech to their specific function and context.

DAOs interacting with the real world

Reality check:

DAOs can't live purely on-chain — they need legal wrappers to hire, contract & bank.

Wyoming DAO LLC (United States, 2021)

What it is: Recognizes DAOs as a new form of LLC

How it works: A DAO can register as a “DAO LLC,” with its operating agreement encoded on-chain (via smart contracts). Members gain limited liability protections

Why it matters: First U.S. state law giving DAOs explicit recognition. Attracts U.S.-based projects wanting legal clarity

Limitations: Tied to Wyoming jurisdiction; (lawyer-heavy, paperwork)

DAO Foundation (e.g., Cayman, Switzerland, Panama)

What it is: Traditional foundation model adapted for DAOs (often in blockchain-friendly jurisdictions)

How it works: The foundation is a legal entity that can sign contracts, hold assets, and represent the DAO. DAO token holders influence it through governance, while a board executes binding decisions. e.g. ETH Foundation, Web3 Foundation etc.

Why it matters: Foundations bridge on-chain governance with off-chain recognition (e.g., hiring staff, owning IP, running grants)

Limitations: Often criticized as “centralizing,” since a board still exists

DAOs need to be designed to fit their function and regulatory requirements

This requires a combination of context dependent on-chain and off-chain governance design.

→ next lecture deep dives into designing governance mechanisms and what to keep in mind when combining different approaches

Exercise: Should it be a DAO?

Step 1: Pick a project idea

Examples:

- DeFi lending protocol
- Global climate donation fund
- Web3 gaming platform
- Private supply chain network for a supermarket

Step 2: Debate DAO vs. Private Blockchain (7min)

Pro-DAO questions:

- Does broad community input add value (innovation, legitimacy, trust)?
- Is it important that anyone can propose/vote?
- Do token incentives improve participation?
- Would transparency and immutability of decisions strengthen the project?

Con-DAO questions:

- Is the project niche or technical (so participation will be too low)?
- Would on-chain votes slow things down compared to a company board?
- Are there regulatory or liability risks if everyone is “in charge”?
- Would a private blockchain with a known operator be cheaper and easier?

Step 3: Pair discussion (5–7 min)

- Each person argues *for* one side.
- Then switch: argue the *opposite side*.



Governance Dynamics

Lecture 3

Nathalie Boyke

- **Lecture & Exercise: Governance Mechanism Design** (1h/TARA & NATHALIE)
 - *What are key design levers for blockchain governance?*
 - *How to design effective mechanisms?*
 - *Present the Blockchain Governance Toolkit*
- *Use slides from lecture 3 & 4 from Lucerne “Governance architectures” and “governance design”*

Governance Mechanisms

PBA Bali

Nathalie Boyke / Tara Merk

Designing blockchain governance is like creating the perfect recipe



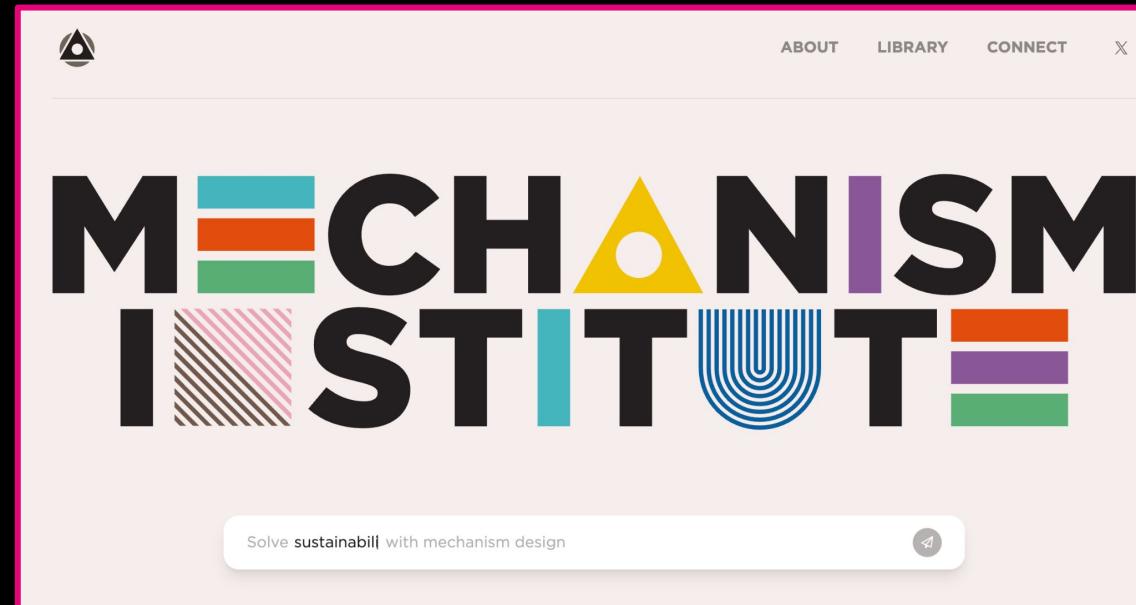
wikiHow to Cook Good Food

Governance mechanisms are like the ingredients to a tasty dish



Depending on the ingredients you chose
you will get different flavors

What ingredients are available?



Check out the MI library to get a glimpse of
what's out there

Mechanisms affect different aspects of governance design



Different mechanisms also create different flavors of governance

Expediency



Participation

Immutability



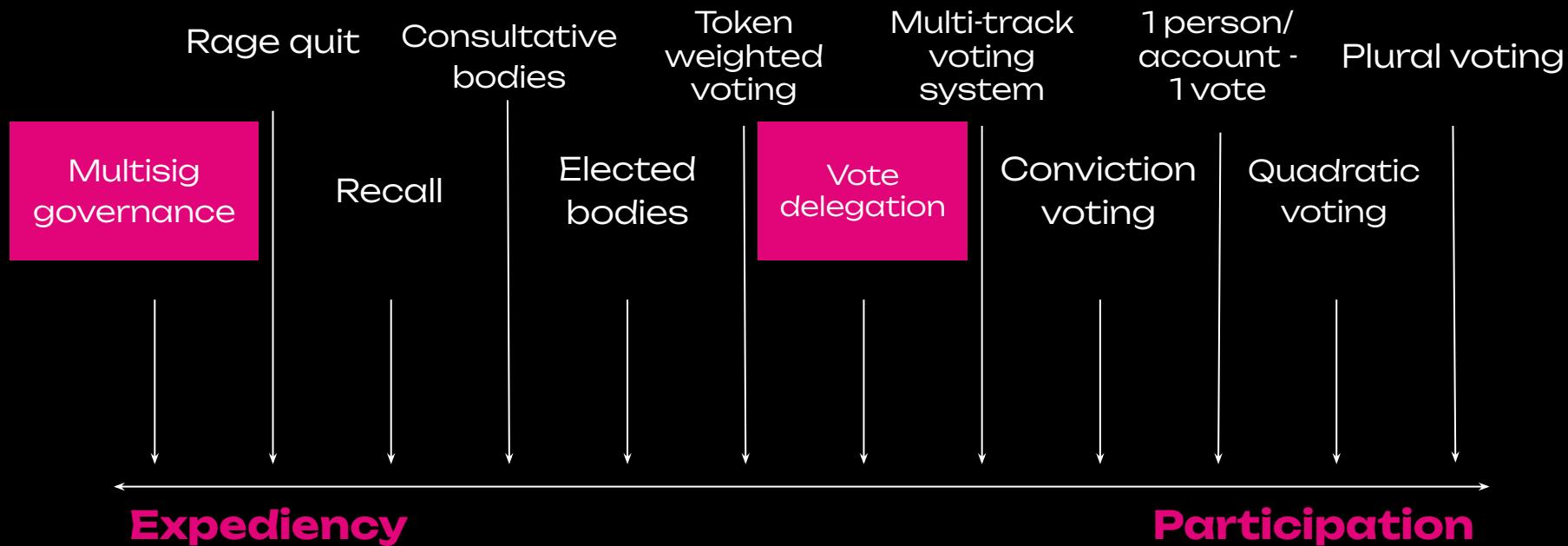
Adaptability

Determinism



Discretion

Pick your ingredients



Case study: Multisig governance



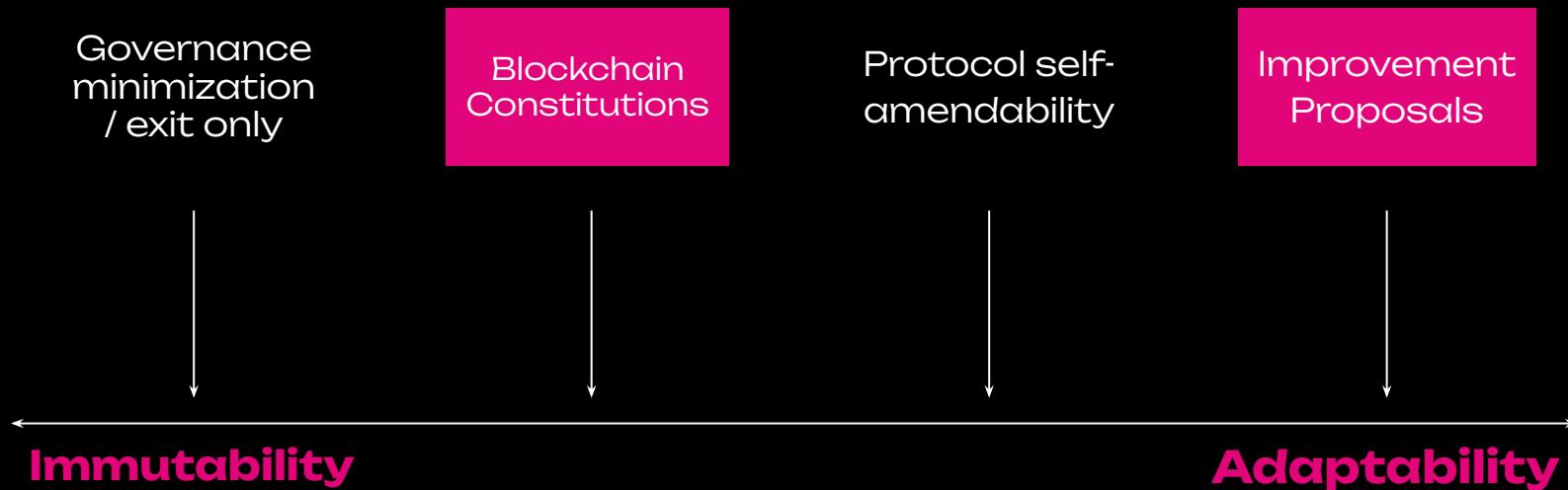
Example: Polygon Protocol Council emergency updates

Case study: Vote delegation



Example: Cardano's DRep system

2: Pick your ingredients



Case study: Blockchain constitutionalism

 **Working Constitution of the Optimism Collective**

 Policies and Templates

 system 

6  Apr 2022

The Optimism Collective is a large-scale experiment in decentralized governance. Our Vision is to sustainably fund those public goods that improve upon the well-being of the Collective and its members. This Working Constitution enshrines governing provisions and principles that, we hope, are calibrated to the ambition of this Vision. It lays the foundation for a fair, democratic model of decentralized governance that's built to last.

1. **This is a “Working” Constitution.** It is exceedingly unlikely that a fixed model of governance will suffice. The Optimism Collective, defined at the outset of this experiment, can appropriately navigate the challenges ahead by constantly updating the Working Constitution.

Constitutions of Web3

* * *

Table of Contents

- I. Introduction
- II. Essay
- III. Constitutions
- IV. Guide
- V. Template

By Joshua Tan, Max Langenkamp, Anna Weichselbraun, Ann Brody, and Lucia Korpas

- [Introduction](#)
- [Part I: Digital Constitutionalism and Web3](#)

[Analyzing DAO Constitutions](#)
[Towards Computational Constitutionalism](#)

The full, comment-enabled version of the paper, including template, [here](#).



**BLOCKCHAIN
CONSTITUTIONALISM:
THE ROLE OF LEGITIMACY
IN POLYCENTRIC SYSTEMS**

Authors: Primavera de Filippi, Morshed Mannan, Kelsie Nabben, Sofia Cossar, Jamila Kamalova, Tara Merk

Example: Optimism's working constitution

Case study: Improvement proposals

```
BIP: 1
Title: BIP Purpose and Guidelines
Author: Amir Taaki <genjix@riseup.net>
Comments-Summary: No comments yet.
Comments-URI: https://github.com/bitcoin/bips/wiki/Comments:BIP-1
Status: Replaced
Type: Process
Created: 2011-09-19
Superseded-By: 2
```

Preview Code Blame 85 lines (54 loc) · 4.84 KB · 

[Raw](#)   

Ethereum Improvement Proposals (EIPs)

ATTENTION: The EIPs repository has recently undergone a separation of ERCs and EIPs. ERCs are now accessible at <https://github.com/ethereum/ercs>. All new ERCs and updates to existing ones must be directed at this new repository. The editors apologize for this inconvenience.

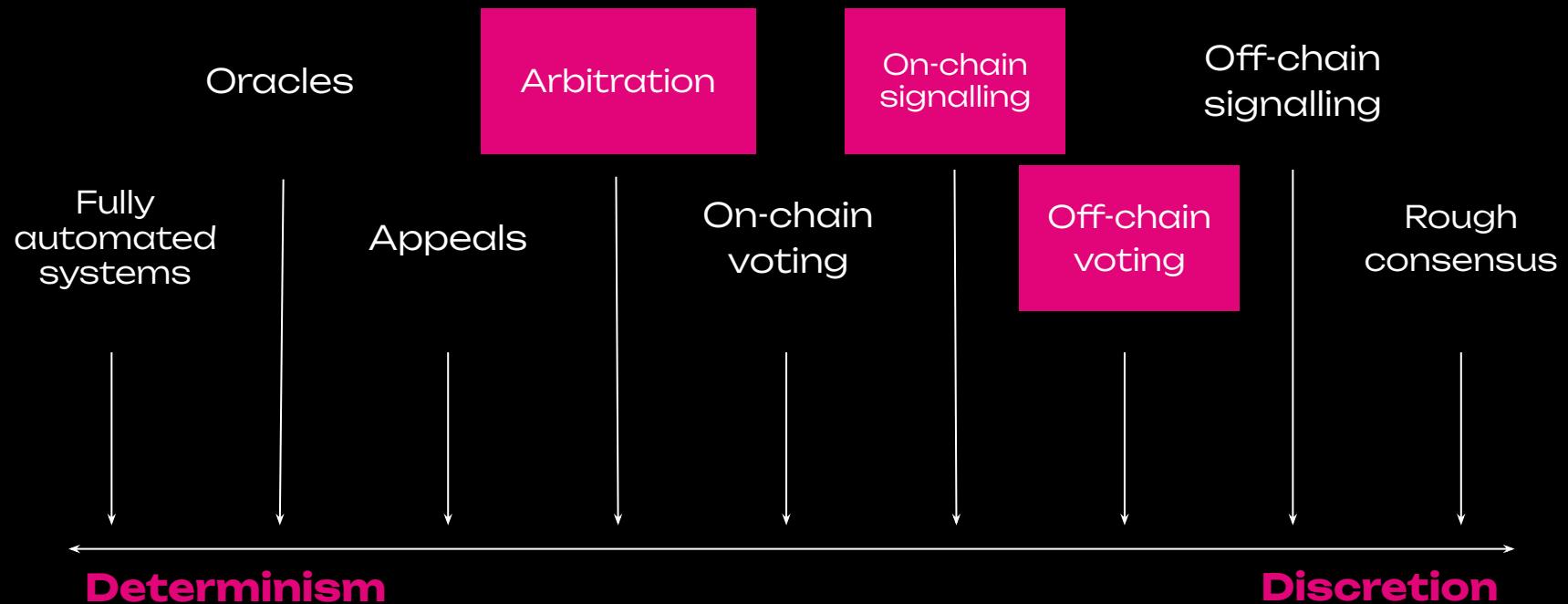
The goal of the EIP project is to standardize and provide high-quality documentation for Ethereum itself and conventions built upon it. This repository tracks past and ongoing improvements to Ethereum in the form of Ethereum Improvement Proposals (EIPs). [EIP-1](#) governs how EIPs are published.

The [status page](#) tracks and lists EIPs, which can be divided into the following categories:

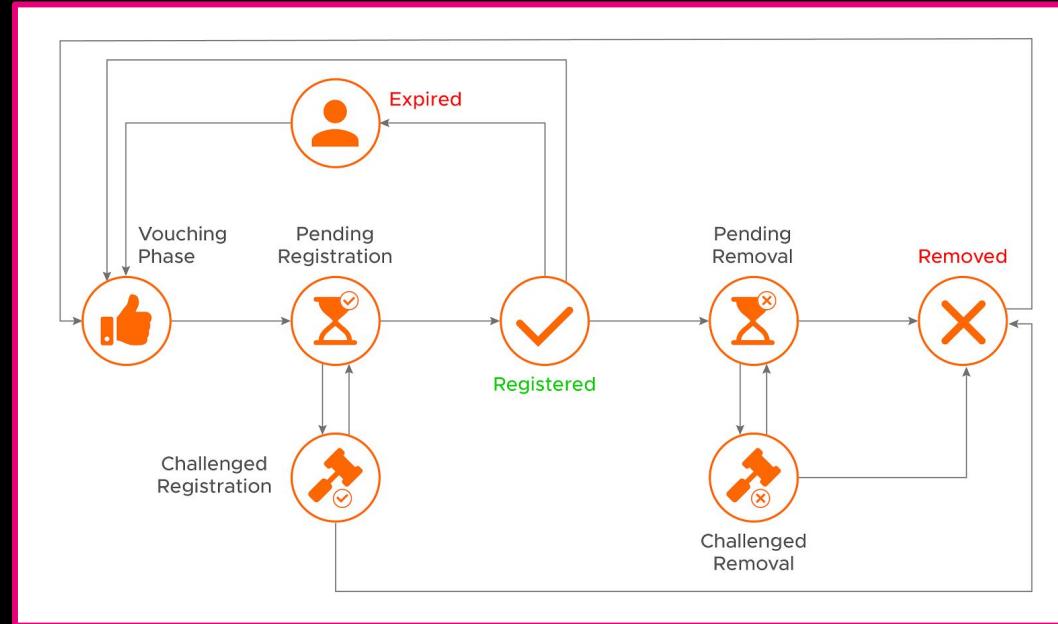
- [Core EIPs](#) are improvements to the Ethereum consensus protocol.
- [Networking EIPs](#) specify the peer-to-peer networking layer of Ethereum.
- [Interface EIPs](#) standardize interfaces to Ethereum, which determine how users and applications interact with the blockchain.

Example: BIPs and EIPs

2: Pick your ingredients

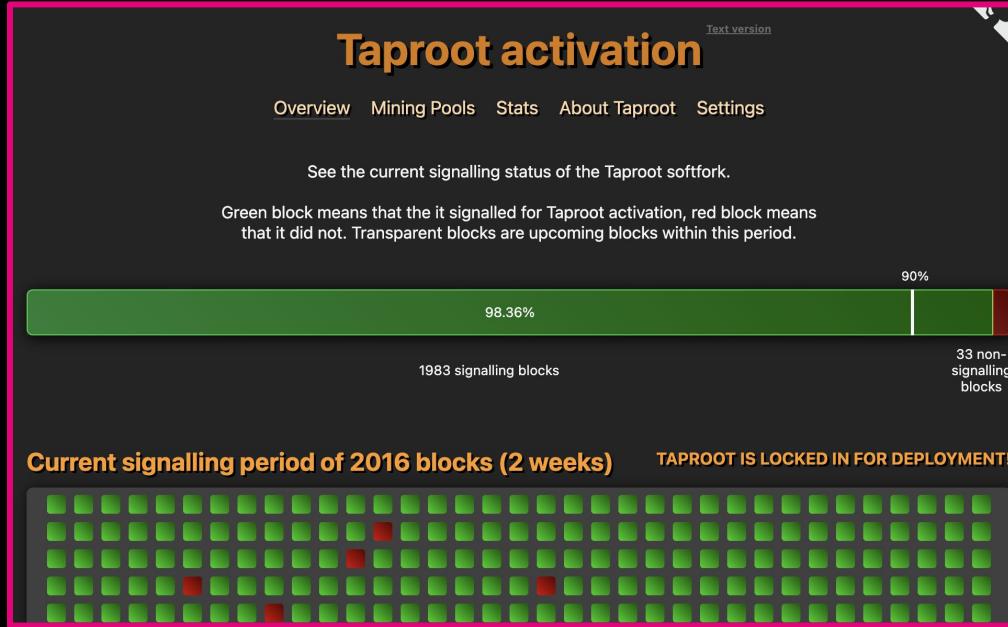


Case study: Arbitration



Example: Proof of Humanity Courts

Case study: On-chain signalling



Example: Bitcoin miner signalling

Case study: Off-chain voting

The screenshot shows a dark-themed web application interface for off-chain voting. At the top left is a yellow lightning bolt icon next to the word "snapshot". On the right is a "Connect wallet" button. A sidebar on the left has three icons: a bar chart, a line graph, and a plus sign. The main content area shows a "Closed" status above the title. The title is "5.4.2] [Social] Funding Request: ENS Public Goods Working Group Term 5 (Q1/Q2)". Below the title, it says "ENS by avsa.eth". To the right of the title is a "Share" button and a three-dot menu. On the far right, there are two sections: "Information" and "Results".

Information

Strategie(s)	IPFS
#bafkrei	Single choice voting
Voting system	Start date
Mar 13, 2024, 10:06 PM	End date
Mar 18, 2024, 10:06 PM	Snapshot
19,428,696	

Results

For	1.3M ENS 89.05%
Abstain	144K ENS 10.01%
Against	14K ENS 0.94%

Example: Snapshot

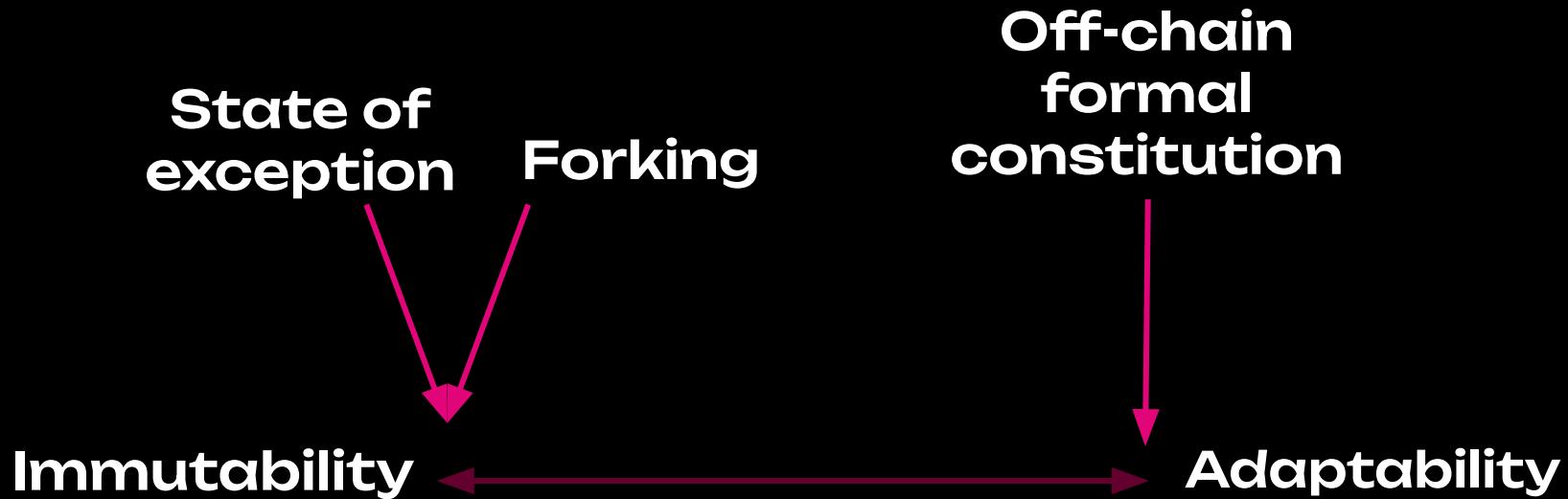
Blockchain governance secret sauce



Keep strong flavors in check



Keep strong flavors in check



Keep strong flavors in check



Exercise

1. Which mechanisms were exploited in this hack? Are they more product or process oriented?
2. Which mechanisms could have prevented this attack? Which mechanisms could have reduced its severity?
3. Would it be desirable to implement such mechanisms? Why? Why not?
4. Argue your case and let's vote!



Blockchain Governance Competencies

Lecture 4

Lovisa Björna

- **Lecture & Exercise: Competence Framework in Blockchain Governance (0.5h/FELIX & LOVISA)**
 - *What are the necessary skills and knowledge to contribute to blockchain governance?*
 - *What are emerging roles and responsibilities in the blockchain governance ecosystem?*



Regulatory Equivalence

Lecture 5

Primavera de Filippi

REGULATORY EQUIVALENCE

MAPPING LEGAL FORMALITIES
TO TECHNOLOGICAL GUARANTEES
IN THE BLOCKCHAIN SPACE



Primavera De Filippi

Harvard / CNRS

@yaoeo

REGULATORY EQUIVALENCE FOR BLOCKCHAIN TECH



- 1. How can Blockchain Systems comply with existing regulations ?*
- 2. How can they streamline regulatory compliance via tech guarantees ?*

2 TYPES OF EQUIVALENCE:



FUNCTIONAL EQUIVALENCE

As regards the tools available to comply with specific legal rules (e.g. electronic contracts, e-sig)



REGULATORY EQUIVALENCE

As regards the means available to achieve a regulatory objective (e.g. lower risks, transparency)

FUNCTIONAL EQUIVALENCE



Functional equivalence allows the establishment of equivalence between two technological artefacts:

- *One that is already covered within the realm of a legal rule*
- *Another that is not (yet) encompassed by it
(e.g., written signatures and electronic signatures).*

FUNCTIONAL EQUIVALENCE



Applying existing legal rules
to novel technologies that serve equal functions

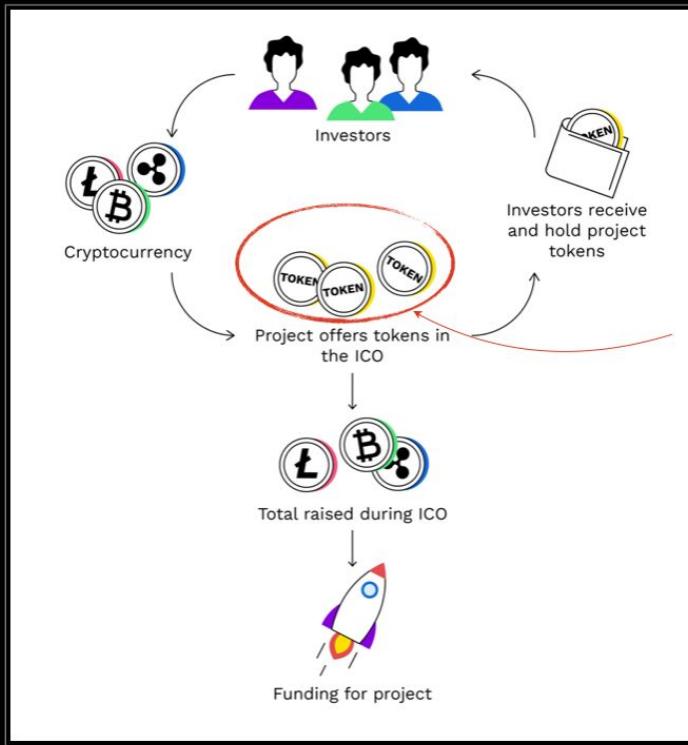


INITIAL COIN OFFERING

IPO vs. ICO



- ISSUE SHARES OF A COMPANY
- CENTRALIZED BY STOCK EXCHANGE
- HEAVY REGULATED BY AUTHORITIES
- ISSUE CRYPTOCURRENCY TOKENS
- OPERATED VIA A SMART CONTRACT
- UNREGULATED ?



Legal Qualification ?

Legal qualification must take into account:

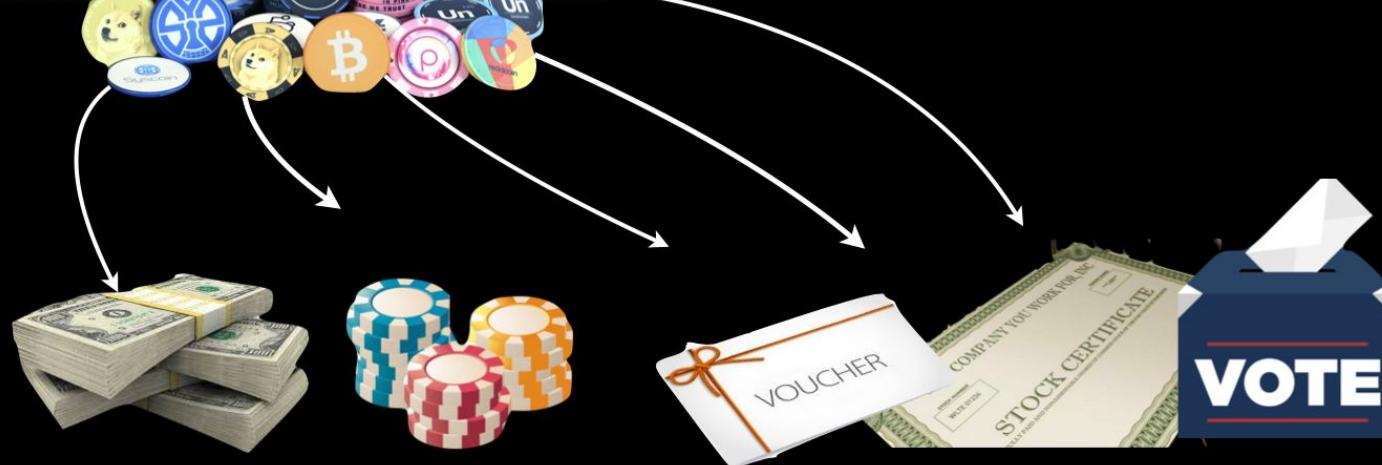
- *the original function of the token (why it was issued)*
- *the practical applications of that token (beyond the control and intention of the issuer)*

FUNCTIONAL EQUIVALENCE



Many tokens usually qualify as multiple classes:

- Payment tokens
- Utility tokens
- Governance tokens
- Investment tokens
- Asset-backed tokens



FUNCTIONAL EQUIVALENCE

Money ?

Commodity ?

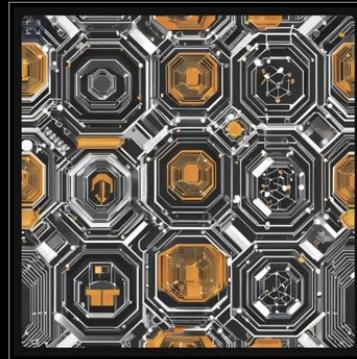
Securities ?



BLOCKCHAIN AS A PLATYPUS

REGULATORY COMPLIANCE ?

Regulatory compliance can be challenging for blockchain systems



(1) Because they need to comply with multiple regulatory frameworks at the same time

(2) Because it is hard to reconcile:

- the expectations of legal system (designed for legacy institutions with counter-party risk)
- the distinctive properties of blockchain systems, which are fundamentally intermediated in ways that do not undermine the basic technological guarantees of blockchain tech.

REGULATORY EQUIVALENCE



From Legal Constraints
to Technical Guarantees

“Don’t trust, Verify”

REGULATORY EQUIVALENCE



Regulatory equivalence establish the equivalence between:

- *the policy objectives of specific legal provisions, and*
- *the implications of adopting a particular technological artefact as an alternative way to achieve regulatory compliance.*

PRINCIPLE-BASED REGULATORY APPROACH

Security laws designed to limit the risk of investors in investment contracts

From a Regulatory Equivalence perspective:

- ★ similar risks should be treated in a similar manner
 - If ICOs pose similar risks to IPOs (in degree and in kind), they should be subject to similar laws
 - If they don't want to fall within existing regulations ICOs must provide lower risks than IPOs



- Escrow System

Progressive disbursing of funds based on Milestones, so that both investors and token issuers are protected



- Locking / Vesting periods

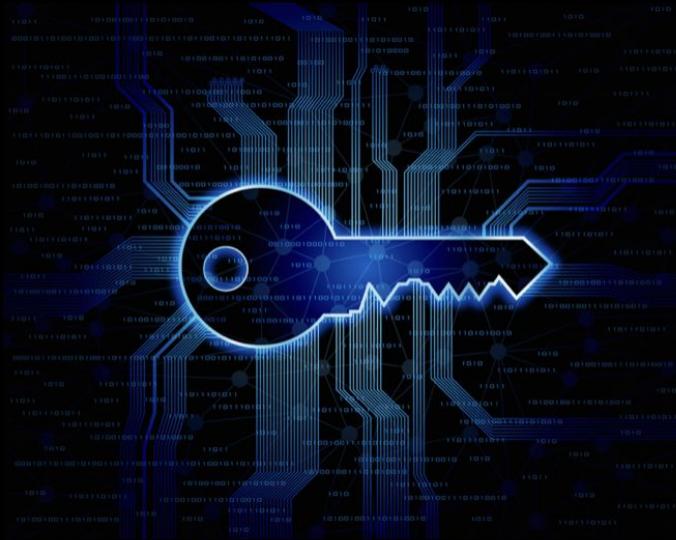
- (1) Ensure the alignment of management team and investors with long-term success
- (2) Prevents ppl to engage into speculative practices such as “pump and dump”.



- Speculative capping

e.g. by offering a constant supply of tokens at pre-determined price (decided by smart contract) regardless of current market price

TECHNICAL ACCOUNTABILITY



PROOF OF RESERVE

—REAL-TIME AUDITING—

Prove the full reserve of funds in custody
reducing the need for additional audits.

KEYLESS WALLETS

—NO CUSTODY—

Provide service to customers without holding their funds
Thus removing counter-party risks of centralised entity



REGULATORY COMPLIANCE

REAL TIME AUDITS



IDENTITY MANAGEMENT



AUTOMATED REPORTING



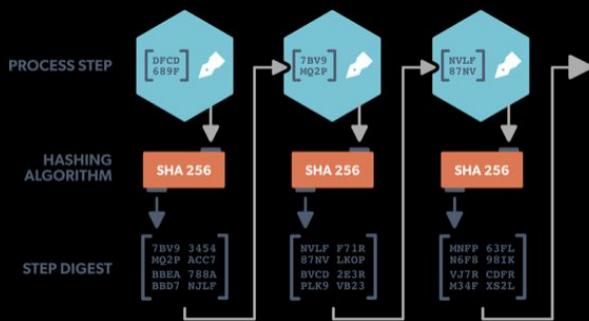
GUARANTEE OF EXECUTION



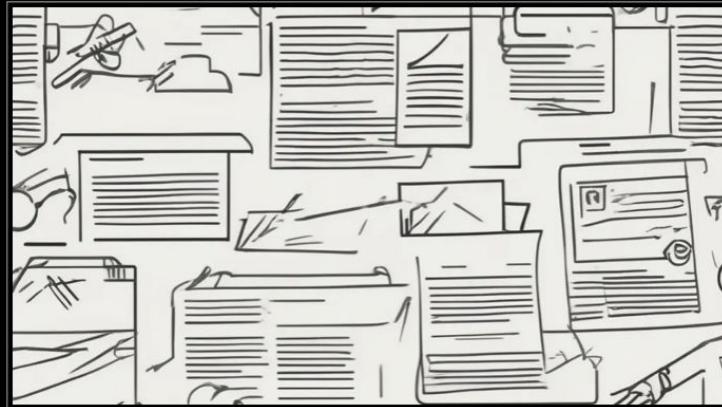
CORPORATE GOVERNANCE

Used to replace traditional corporate rules & bureaucratic procedures for budget approval

MULTI-SIGNATURES —CONTROLLED EXPENDITURES—



PROOF OF PROCESS



CERTIFICATION

- OPERATION CONTROL
- NO MANIPULATION
- EX-POST VERIFICATION
- DATA INTEGRITY

Exercise

GROUP EXERCISE:

- Group of engineers and policy-makers
- Identify a technological solution to a policy problem, leveraging the tech guarantees of blockchain tech
- Explain how this solve for the same policy problem and why it should be recognized as regulatory equivalent



Fish Bowl