Decentralization
Applications and Challenges

ETH Zurich, Nov 21
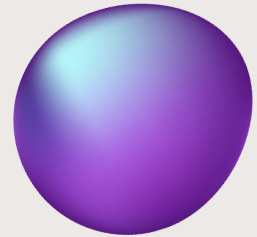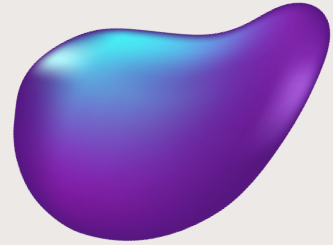
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Agenda

Definitions

★ Blockchain is a shared, immutable ledger for recording transactions, tracking assets, and building trust between participants.
Blockchains are based on the trade-off between three critical aspects: security, decentralization and scalability

★ Polygon is a multi chain scalability solution for the Ethereum ecosystem that aims to become the Value Layer for the Internet through unlimited scalability and unified liquidity, powered by ZK technology

★ A decentralized autonomous organization (DAO), in generic terms, is a type of bottom-up entity structure with no central authority in which all members participate in decision-making and whose processes are governed by smart contracts

On Decentralization

Decentralization in the blockchain ecosystem is applied in different ways depending on the scope:

★ Blockchain Infrastructure Decentralization

★ Blockchain Protocol Decentralization

★ Entities Decentralization

Decentralization applies to a set of both technological and social components

Polygon 2.0 vision
A blueprint for the future

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Unlimited Scalability.
Unified Liquidity.

Agenda

1. **Protocol Vision**

2. **Protocol Architecture**

3. **Staking Layer**

4. **Interop Layer**

5. **Tokenomics and Value accrual**

6. **Governance**

How are we unique?

Unlimited scalability and unified liquidity, powered by ZK technology

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How will we compete?

1. Tech

2. Tokenomics

3. Governance → Community

Components of Polygon 2.0

Impact

Protocol Vision

{ PoS → ZK

Architecture

Interoperability

→ Validators, Stakers, Devs, Users

Governance
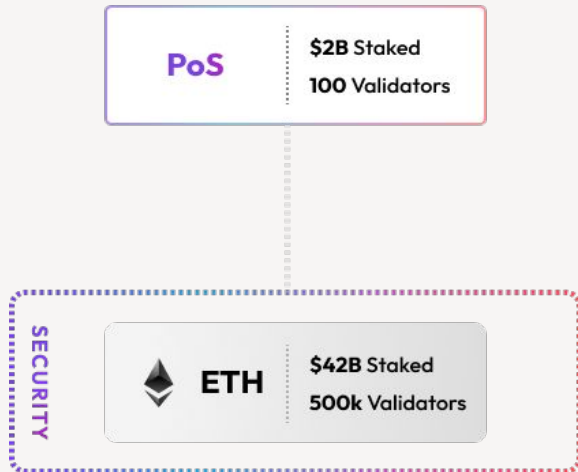
→ Community, Validators

Tokenomics

→ Investors, Validators, Stakers

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PoS → ZK Upgrade

Now

- One of the most successful chains in crypto
- USD $2.7B bridged

Future

- A ZK-powered Validium
- Compatible with the shared ZK bridge
- First Type-1 zkEVM
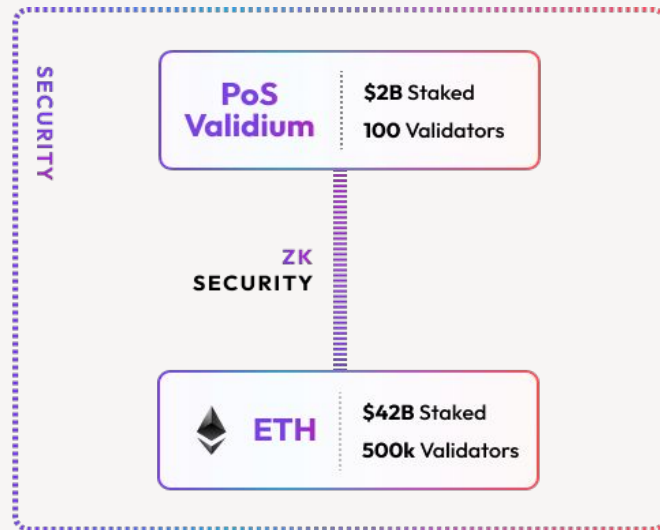
Protocol Vision

A network of ZK-powered L2s, with rollups and validiums available in single- and multi-sequencer modes.

A shared ZK bridge for low latency and seamless interoperability.

Using Polygon will feel like a single chain with unbounded blockspace. Unlimited scalability, unified liquidity.

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	Cost	Security
Rollups	High	High
Validiums	Low	~High

Polygon Stack

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Staking Layer (Key Goals)
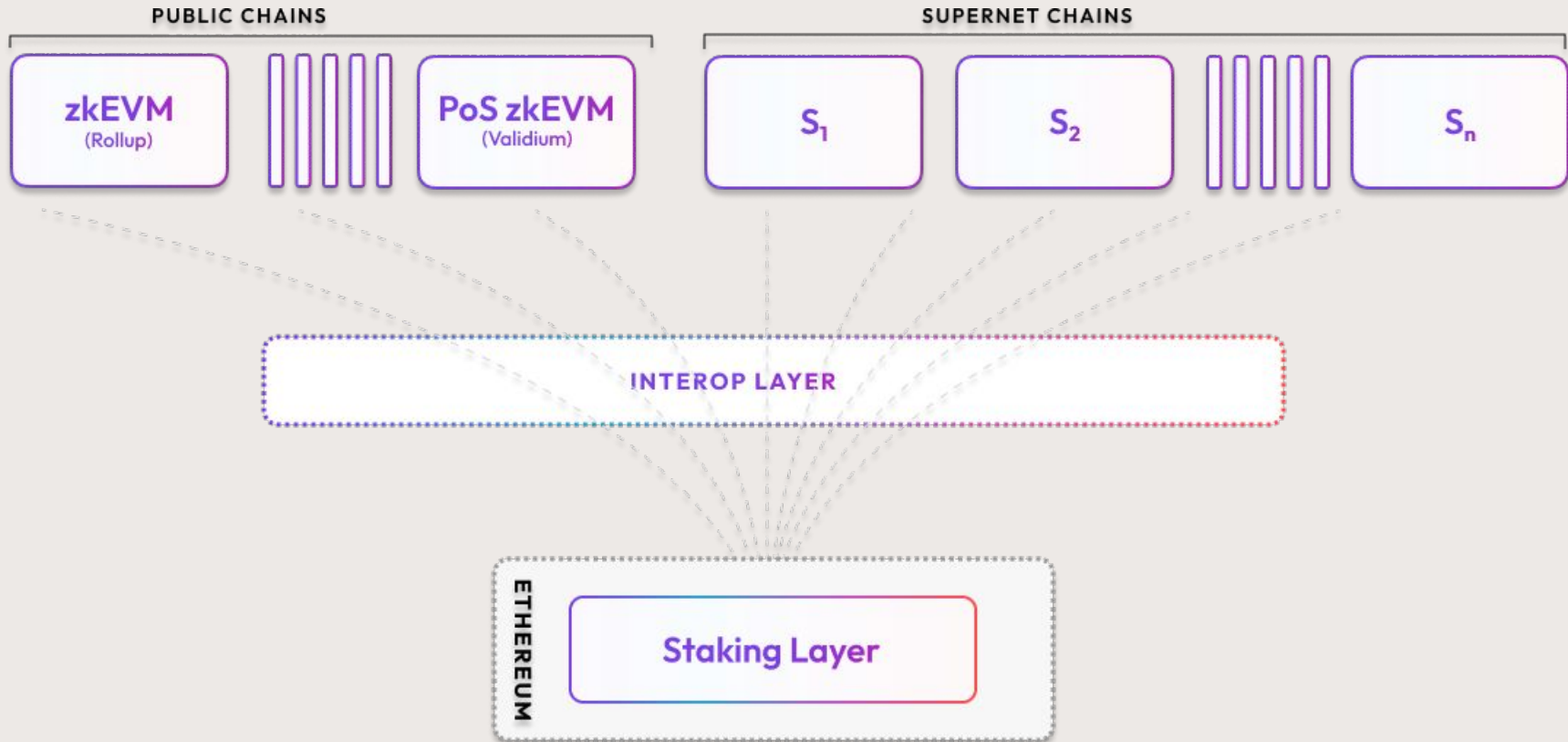
★ Decrease the opportunity cost for validators

★ Decrease operational difficulty for Supernets

★ Increase the security of the Polygon Ecosystem

★ Increase cross-chain interoperability

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Staking layer

Staking Hub- Stakers & Roles

Staker A

DAC Role

Stake Tokens

Staker B

Restake tokens

DAC Role
Prover Role

Stake Tokens
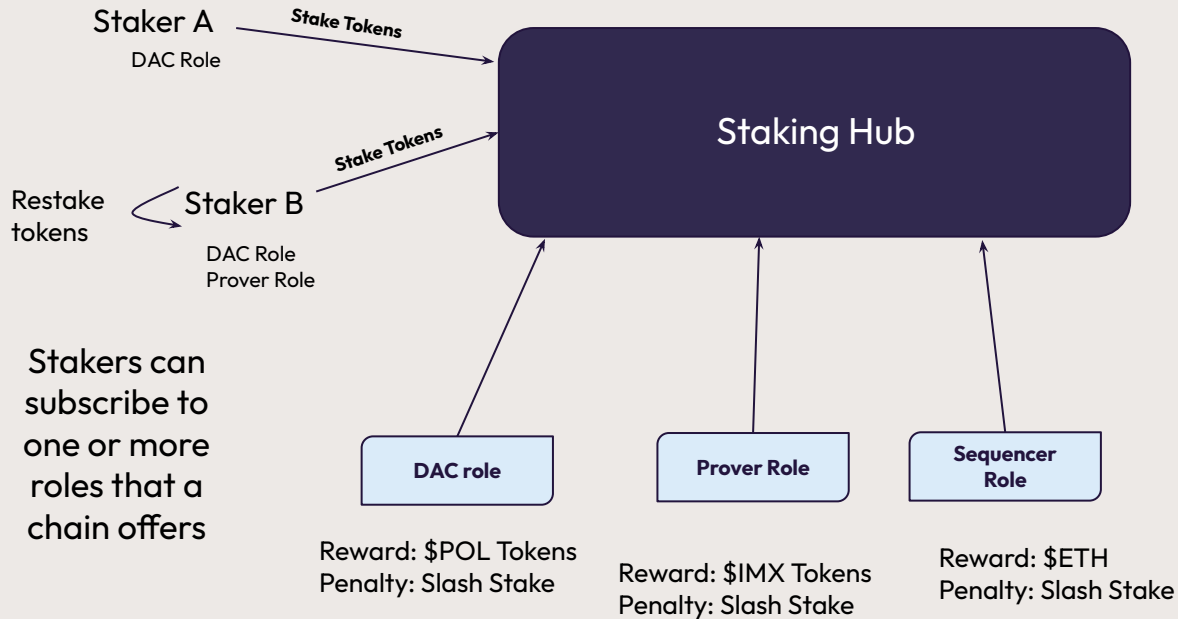
Staking Hub

Staking Hub is a marketplace with different staking conditions and users can subscribe to those roles

Stakers can subscribe to one or more roles that a chain offers

DAC role

Reward: $POL Tokens
Penalty: Slash Stake

Prover Role

Reward: $IMX Tokens
Penalty: Slash Stake

Sequencer Role

Reward: $ETH
Penalty: Slash Stake

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Aggregation / Interop Layer
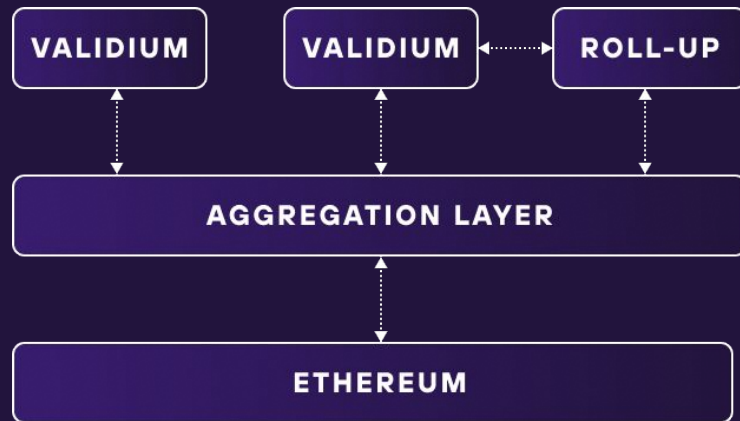
Interop Layer

The Interop Layer is a core component of Polygon 2.0. It's a network of staked nodes that **aggregates proofs from Polygon chains** and posts updated chain states to Ethereum. It can be understood as a shared sequencer of chain states, guaranteeing instant and atomic composability and providing unified liquidity at scale.
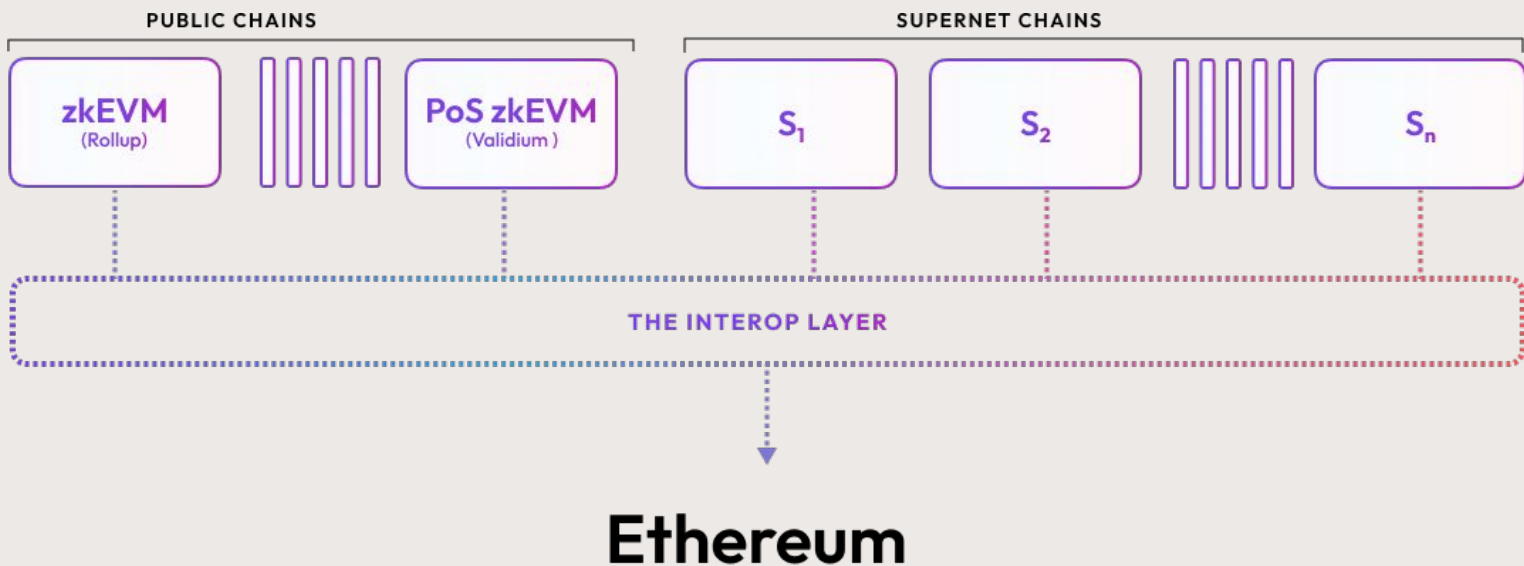
Plonky 3 Prover

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1. **EVM Client**

2. **zkEVM + Miden**

3. **Plonky3**

Proposal for token upgradeability

$POL

Polygon POS

Polygon zkEVM

Polygon Supernets

MATIC was created for a single chain (PoS) and Polygon 2.0 is a multi-L2 ecosystem

POL is the 3rd gen native asset - hyperproductive token

$MATIC

PoS
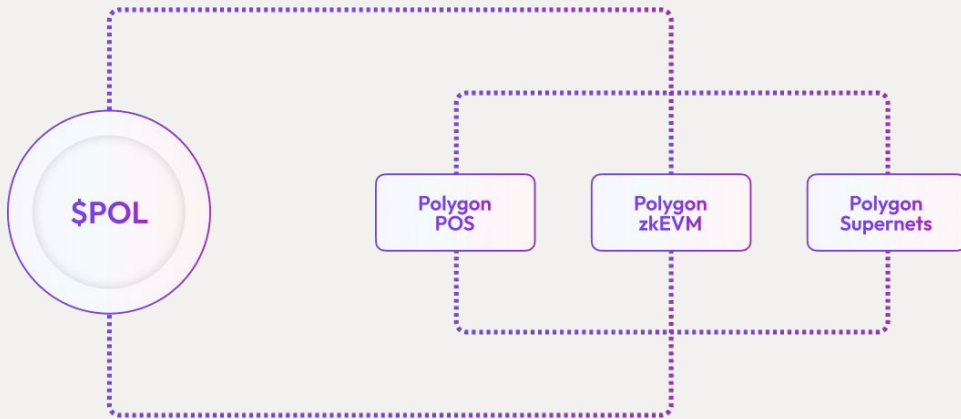
POL Utility

Tool for coordination and growth of the entire enhanced Polygon ecosystem.

Validator Staking

Polygon protocol validators stake POL in order to participate in the protocol

Validator Rewards

To incentivize validators onboarding and retention, a predefined amount of POL should continuously be distributed to validators

Governance

POL will have the technical ability to be used in Polygon governance (treasury, protocol, etc.)

Benefits of POL

Decentralization

Infinite Scalability

Ecosystem Support

Community Ownership

No Friction

Tokenomics

POL has the initial supply of **10 billion** to be 1:1 to the total supply of **MATIC**.

In addition to the initial supply, the protocol emits 1% POL for:

- ❏ Validator rewards;

- ❏ Community treasury funding.
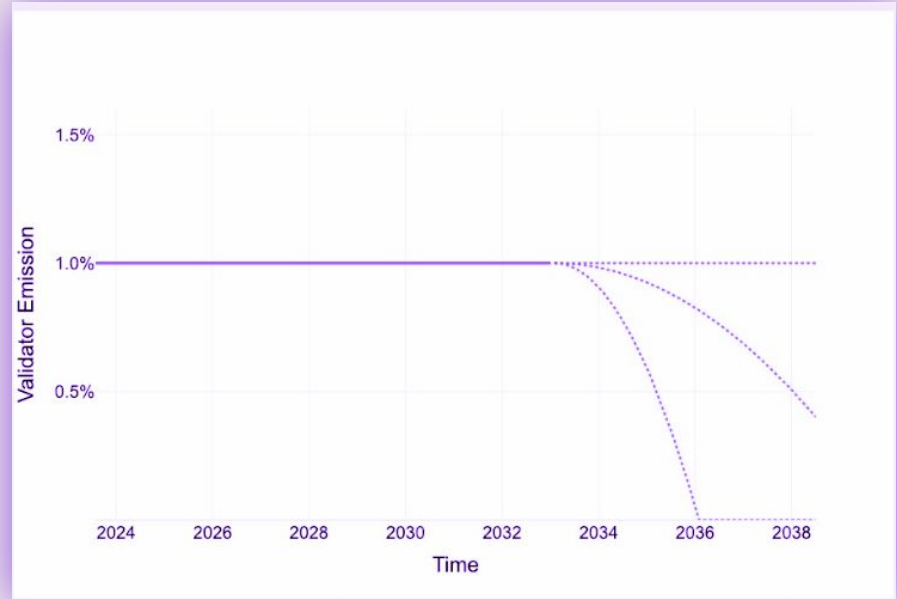
POL emission rate scenarios

Validator Incentives

- Protocol, base rewards: 1% emission per year (can not be increased), distributed proportional to stake

- Transaction fees

- Additional incentives
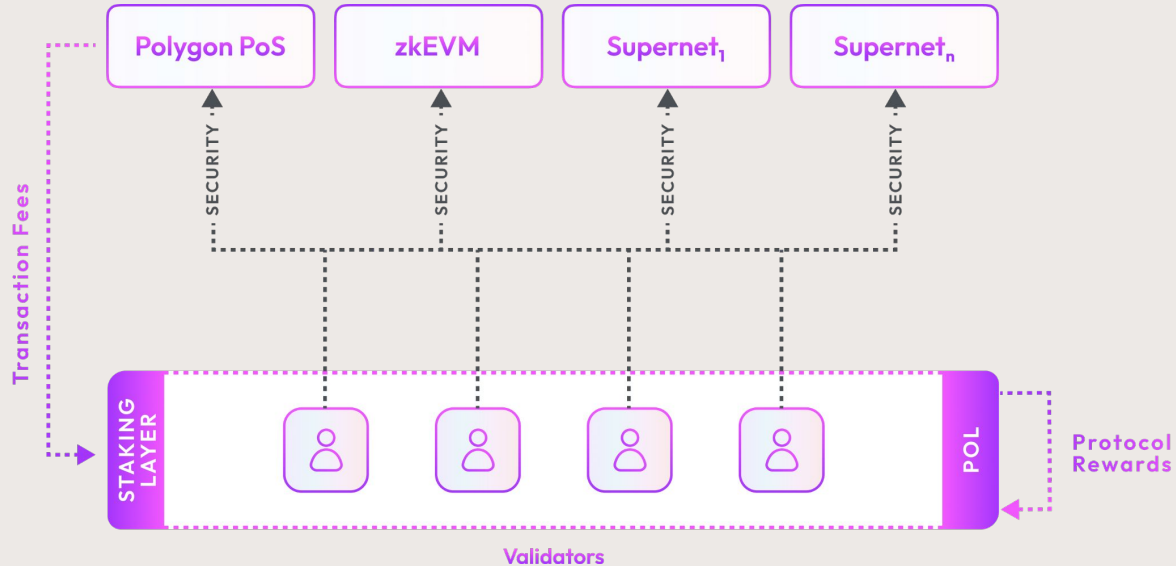
Community Treasury

❏ Similarly to validator rewards, we propose the emission schedule of 1% for the initial 10 years.

❏ Governance can retain, reduce or completely remove the emission after 10 years, but can not increase it beyond 1%.

Polygon Ecosystem Activities

Protocol Development

Protocol Research

Ecosystem Grants

Adoption Incentives etc

Token Migration

- ❏ **1:1 Swapping**: Migration should require only one step – a simple 1:1 swap from MATIC to POL, using the swapping smart contract

- ❏ **Migration period:** Every MATIC holder should be given enough time to upgrade; e.g. 4 years or indefinitely

Value Accrual

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IMX

REDDIT

NIKE

DEFI
ROLL-UP

LIQUIDITY

POLYGON STAKERS
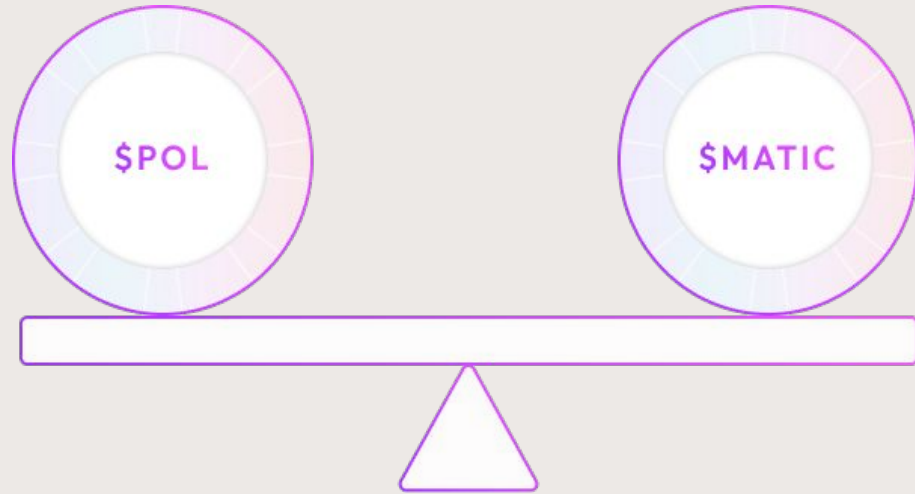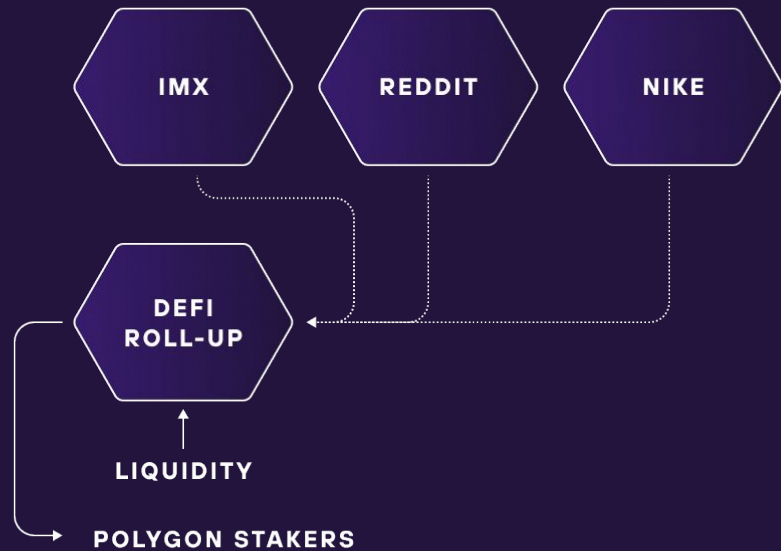
Governance

Community Empowerment & Decentralization

Community Outreach

- A Collaborative & Fun Approach
- Governance Hackathon

Building Out Governance

- Protocol Governance
- System Smart Contracts Governance
- Public Goods Funding

Building the next iteration of Polygon by...

Articulating protocol **vision and strategy**

Solidify being the **preferred network** through innovative technology

Advocating for clear and fair **regulation**

Communicating a **governance** path to decentralization

Nurturing the Polygon **ecosystem and community**

Evolution of DAOs

2019 - 2020
Moloch & Compound
launch w/many following

Protocol &
Investment DAOS

👇 **We are here** 👇
Real businesses built
on-chain

Decentralized
Businesses

The DAO

The first DAO hacked
for 6B resulting in
Ethereum hard fork.
2016

Media &
Community DAOs

"DAO" goes viral with
the Bull market and
Constitution DAO.
Everyone starts a club.
2021
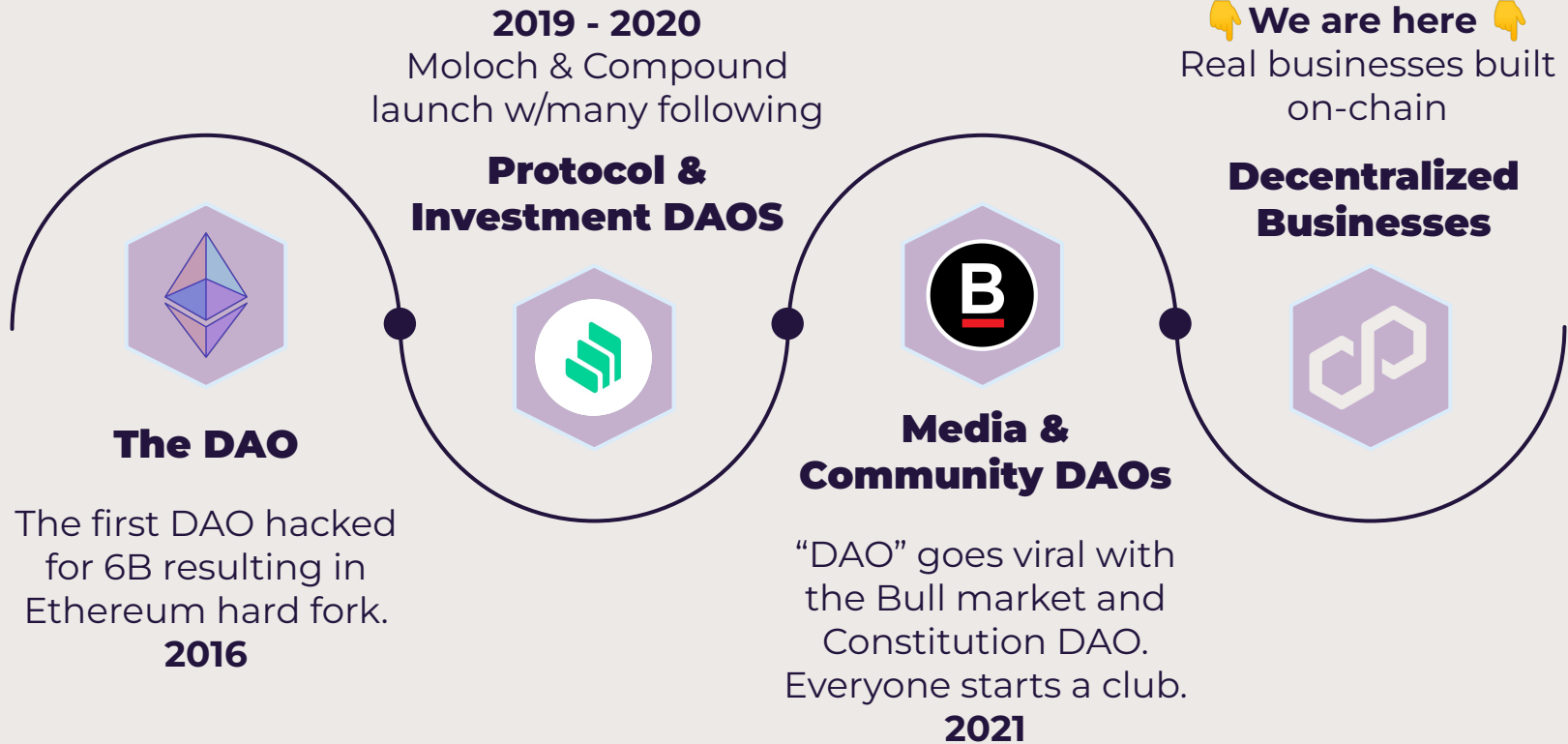
DAOs Pain Points

Misaligned Incentives
Token-based governance systems tend to misalign incentives between contributors and token holders, favouring plutocracy over meritocracy.

Onboarding new Members
Onboarding new members is complex and requires great efforts at the organizational and educational level, as well as in defining new engagement strategies.

Immature Governance Tooling
Every DAO has a different use-case and different governance tooling needs.

Sustainability of the Treasury
Many DAOs do not implement efficient treasury management policies.

Safety of centralization
It's easier to execute in a centralized setting than in a decentralized one, watering down the concept of DAO.

Immature Legal Framework
Different use cases require a dedicated regulatory framework. Many countries do not offer adequate regulatory frameworks.

DAOs Today

- ★ Over 20B managed by decentralized orgs

- ★ All major protocols are progressively decentralizing their governance

- ★ Decentralized orgs are adopting treasury and investment profiles that combine diversification, sustainability and growth

- ★ Continuous flowering of ideas and tools to manage new forms of decentralized governance, organization and coordination of stakeholders, management and allocation of resources

- ★ Increased efficiency of decentralized governance through delegation processes and governance minimization

- ★ Establishment of new legal frameworks for the creation of decentralized orgs

Why to DAO today ?

Follow the Trend

➔ **Defi** decentralized <u>**finance**</u>..
➔ **NFTs** decentralized art & digital <u>**assets**</u>..
➔ **DAOs** decentralize <u>**organizations**</u>..

Each of these triggered an explosion of innovation and defined *entirely new business models*

DAOs Unlock..

- New business models
- Novel decentralized governance systems
- Collective ownership & Co-creation
- Transparency and accountability
- Community owned businesses
- Fundraising & User trust

DAOs Digitize Business

- Business bank account → Multisignature wallet
- Identity → Sovereign Identity with ZK claims
- Office badges → Onchain reputation claims
- Contracts → Smart Contracts
- HR → Liquid onboarding/offboarding

Digital + Borderless + Trustless + Frictionless

Addressing DAO challenges

The governance of a decentralized organization must be efficient and effective to address all challenges that arise, such as:

★ **Crisis**: To address a crisis quickly, decentralized organizations with many members must elect specific delegation bodies

★ **Apathy and low effectiveness**: Apathy towards participation and low effectiveness of the governance process can be overcome by dividing the areas of governance among the most interested stakeholders, using incentive tools and educating members

★ **Lack of a valid business model**: as Vitalik Buterin said, "You can't just have a DAO to be a DAO. You need a DAO to do something". A DAO must be established to achieve clear objectives efficiently.

Designing Decentralized Governance

Designing the governance of a decentralized organization involves the following steps:

★ Thoroughly understand the organization and its key use cases, determining the criteria to measure its success

★ Map the organization's stakeholders to understand their distribution of power and influence, design effective governance and engagement strategie

★ Select the governance frameworks and tools best suited to the DAO use case

★ Select the tools for participation in governance (fungible tokens, NFTs, identity, reputation) and distribute them among the different stakeholders

★ Assign a governance role to all key stakeholders, depending their areas of interest and methods of participation

Next decentralized orgs

DAOs as onchain companies

Ex. Estonia's Internet Native Orgs
- **Broadened Scope**: Focused on global, digital-first entities that are trustworthy and ready for mainstream adoption, anchored by a legal foundation
- **Flexibility & Innovation**: Fusion of code-driven processes, community-centric involvement, and equitable governance
- **Building on DAOs**: Evolving DAOs, focusing on digital-first, globally accessible, and legally compliant orgs

DAOs as programmable companies

- **Org-as-Code**
  A natural extension of the everything-as-code (EaC) movement. Ex. Infra as Code, Config as Code, Policy as Code, Doc as Code, etc
- **API-first**
  A dev approach that prioritizes Application Programming Interfaces (APIs) before building user interfaces.
- **Platform business design**
  The business itself can be a platform

Q&A