May 14th, 2023

BNB & Encode Hackathon Report

by Klemen Skornisek

Introduction

Born in Slovenia's freshly forged referendum based “direct-ish” democracy, witnessing the United States’s republican "representative" democracy first hand and working with the Democratic People's Republic of Korea (North Korea) gave me unique experience, point of view and a genuine passion for governance.

I set out to design Tomorrow Tree as a "Decentralized WHO for forests" - the long term success of which depends on a fair, inclusive, decentralized, international, democratic governance structure which encourages critically necessary political neutrality.

During this design process, I noticed some shortcomings of existing "DAO governance concepts," which lead me to come up with the idea for a SCAO (Smart Contract Assisted Organization) which I am now researching, developing and experimenting with.

Not having a computer science background, under-funded, under-supported and under-equipped I am using hackathons to build rudimentary prototypes of individual components of a larger system piece by piece (even though hackathons are not most suitable for this development).

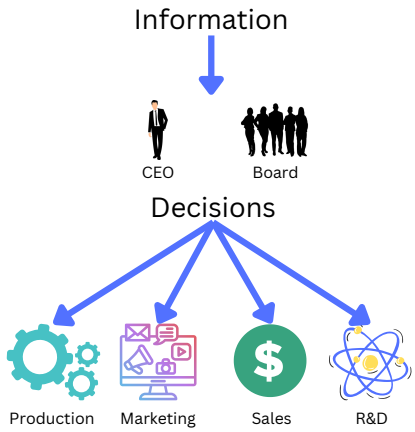
In this hackathon I experiment with a prototype for the NFT based governance component.

SCAO - Smart Contract Assisted Organization

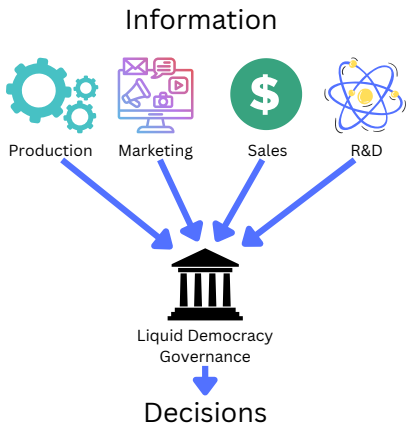
Comprehensive explanation found on: https://www.klemen-cy.com/blockchain/scao

A SCAO is a set of independently run legal entities connected into a common, worldwide, network which together own and democratically govern common, shared wealth / infrastructure and are incentivized to work together towards a common, shared, higher level mission with the help of economics and decentralized technologies (blockchain based smart contracts).

On a higher level imagine the SCAO as a digital nation with its own monetary policy, democratic decision making system, taxation system and public good infrastructure, however, it's performing the end actions of a large multinational organization (think the WHO, Apple or Tesla). Instead of the international organization being structured as a top - down dictatorship where decisions are made by a small number of executives, think of it as a market reliant, bottom - up, collaborative, collective, democratic process.



Traditional Corporate governance structure (dictatorship)

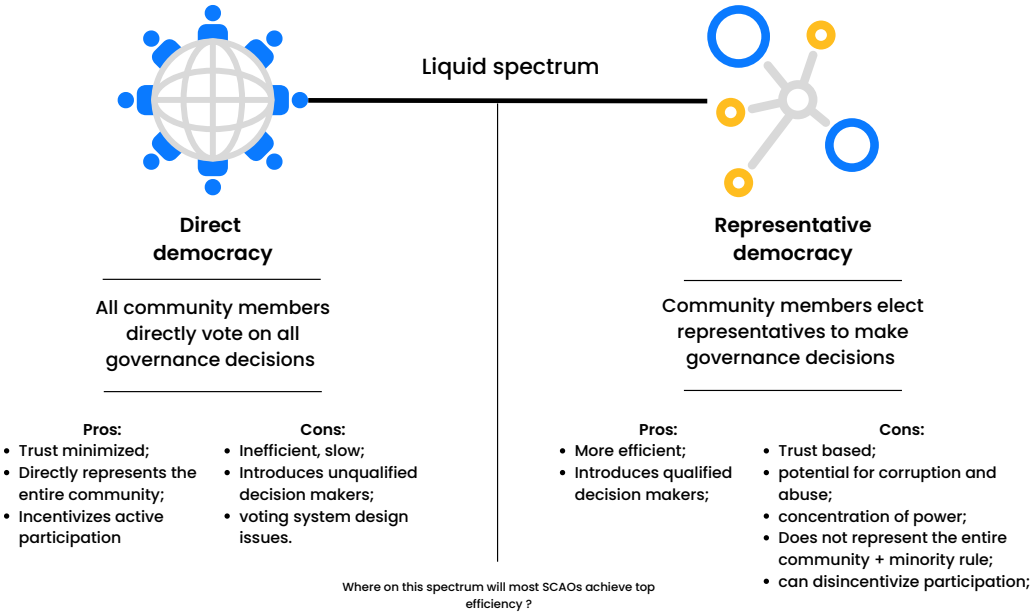


Novel SCAO governance structure (democracy)

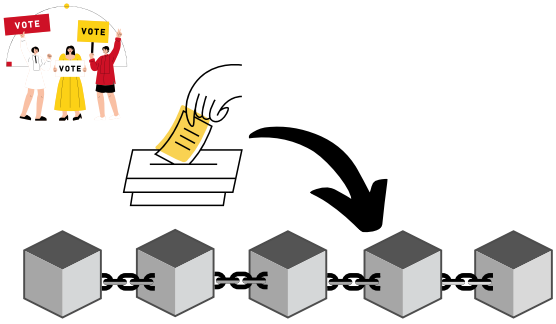
Comprehensive explanation: https://www.klemen-cy.com/blockchain/scao/what-is-a-scao

The NFT Voting Component Built at this Hackathon

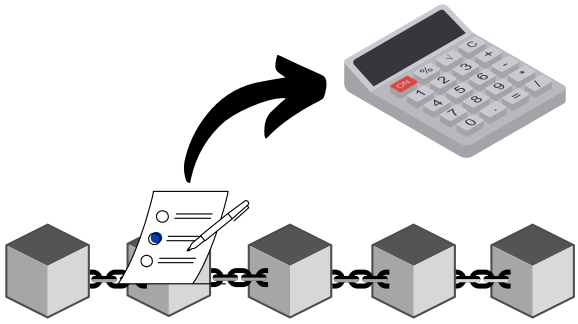
More information: https://www.klemen-cy.com/blockchain/scao/governance
https://www.klemen-cy.com/blockchain/scao/governance/voting



1) Storing on - chain, Calculating off - Chain

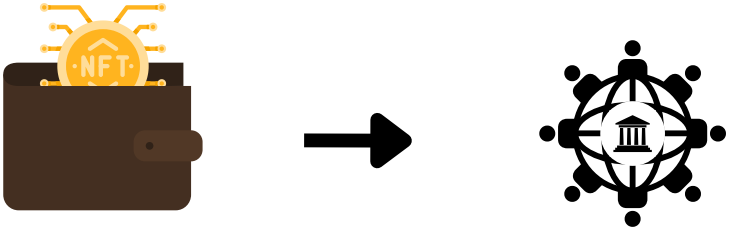


Votes are cast & stored on - chain

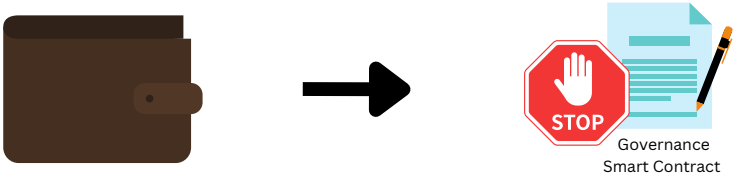


end results are calculated off - chain via events

2) NFTs (Non Fungible Tokens) are keys to participation



Wallets that store an NFT can participate in governance



Wallets without an NFT can not (are barred from voting etc.)

3) Voting traceability

Voting on SCAO decisions is public or pseudonymous at best. A historical track record of decision making is preferable, because a potential shortcoming to the concept of the SCAO is that competition or malicious actors could manipulate a SCAO's democracy into making bad decisions. More real world experimentation is necessary.

In the future voting may become anonymous through merkle trees, zk proofs or other developments.

Voting Components not Built at This Hackathon

Some originally planned components and optimizations were not built at this hackathon due to multiple reasons, most prominent of which are: a lack of time, a lack of resources, refusal to exploit team members (as often happens at these hackathons) etc.

A) Sufficient Decentralization

The Axelar multi - blockchain component providing an extra layer of decentralization between multiple blockchains was not built at this hackathon, but will be attempted in Flipside's hackathon.

B) Multiple Voting Systems

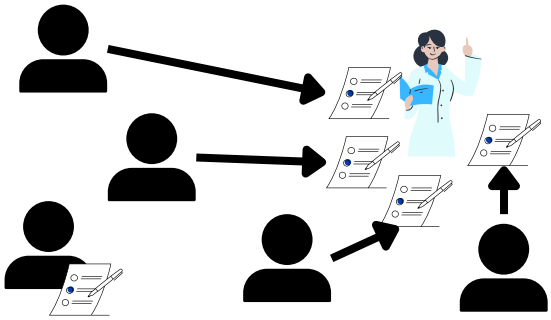
In this hackathon only the Alternative Vote (Instant Runoff) system was attempted. Future versions of the system will include other voting systems such as: Single Transferable Vote, Mixed Member Proportional and possibly others....

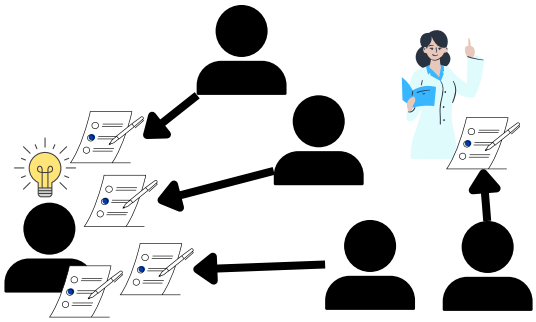
C) Off - Chain Vote Calculation

In this hackathon only the on - chain component was built due to a lack of time & sufficient Javascript knowledge... The off - chain component is actually quite simple, and only requires some math and a nice interface, but there are other priorities at this moment...

D) Liquid Democracy (Delegation) Components

The final design is envisioned to allow very simple and gas effective delegations of votes to qualified individuals, which would introduce aspects of representative democracy, while still enabling direct democracy at any time, on any issue. This component will be built later, as it's very simple and not a priority at this time.





E) Other SCAO components

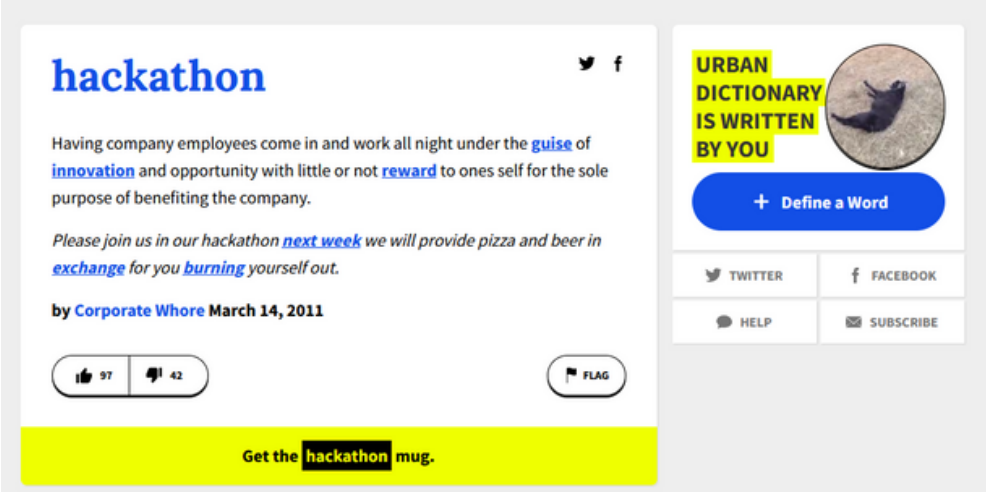
Due to miscommunication, misinterpretation, a lack of support, refusal to communicate, engage & possibly out of discrimination: centralized components of the blockchain industry have been complicating the further development of Tomorrow Tree's SCAO - namely: Chainlink refused Tomorrow Tree access to their Proof of Reserves technology, which is a key SCAO component (Hard Asset Token).

More information:
https://tomorrowtree.org/news/sccs-development-suspension
https://tomorrowtree.org/info-portal/tomorrow-tree-journal/9

F) Gas efficiency, other optimizations

This smart contract was treated as a proof of concept prototype, and was not written with gas efficiency or other optimizations in mind. For example: in the future, bytes32 would be used instead of strings, other storage options would be considered, hashes used and a more thought out contract ownership structure along with various further possible optimizations.

Brief Mention of how Hackathons are Inappropriate



While somewhat helpful overall, the structure of hackathons most favours a certain type of team persona who are able to fully adapt to them, and a certain type of product focused project.

To those of us who run more complicated projects whose development is not straightforward and a product not immediately available; those of us who are not computer science natives, who run companies on the sidelines and have to travel a lot... having to deal with hackathons can be incredibly demoralizing, unproductive and even infuriating especially when the blockchain industry assigns such a great significance to winning them, even when subsequent future work does not necessarily resemble a hackathon experience.

In fact, hackathons have caused low morale in my team and I've also observed how they can be a significant source of tension, drama, exhaustion, burnout, exploitation and other kinds of friction between not only individual team members, but even between competing teams.

Some projects and some teams need a different structure, support, and longer time frames than hackathons provide.

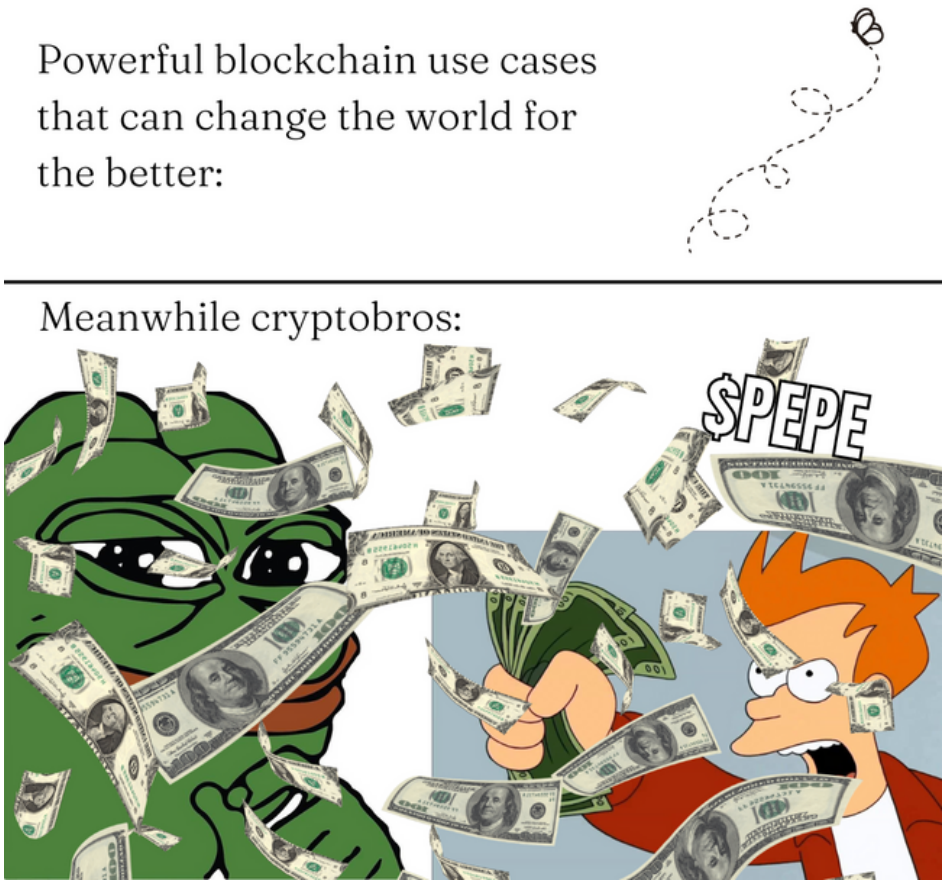
Lastly, some of us aren't huge fans of the borderline worker exploitation that sometimes happens in these "Squid Games."

Why Participate Anyway

Since realistically there isn't much of a choice... Focusing on the positives... hackathons do occasionally provide some limited benefits including visibility, networking, perks, and the ultra rare, but most valuable occasional feedback.

Firmly believing this work is actually super important for the world, and for the blockchain industry who is struggling from a case of solutionism (see the following Molly White article: https://blog.mollywhite.net/blockchain-solutionism-lecture/).

I'm hoping my idea won't be stolen without credit and that over time my R&D will find some ground, receive more acceptance, appreciation, support, resources, and that the industry will mature from its current obsession with short term profit, achieve a better, more sustainable long term vision, become more accessible, fairer, more equitable, more efficient over time etc. etc.



Wishing you good fortune,
With love,
Klemen Skornisek