



Boundaryless Autonomous Organization

V1.0

team@nnsdao.org

August 2021

Abstract

Sometimes it is people who cannot be understood and imagined that can do things beyond imagination.

——The Imitation Game

NnsDAO proposes a blockchain model based on user identity and credit system. We use the Canister of Internet Computer Protocol (ICP) contract attributes to implement different IDLs, and combine IC's Principal attributes to build a set of user systems. Let all users participating in the ecology have different credit systems to build different DAOs fields.

In addition, we create different DAOs to interact with them, and further realize the multi-dimensional organization of DAOs, DAOs, and DAOs to check and balance and develop different DAOs, and use this to encourage DAOs at different stages to jointly create a world belonging to DAOs on the NnsDAO protocol.

Keywords:

Blockchain, Internet Computer, Borderless Autonomous Organization

Contents

Abstract.....	ii
1 Overview	2
1.1 Background	2
2 Governance Issues	5
2.1 Blockchain Needs Governance	5
2.2 Current Governance Disadvantages	7
2.3 Future Governance	9
2.3.1 Quadratic Voting	9
2.3.2 Mobile Democracy	9
2.3.3 Futarchy	10
2.3.4 Voting With People or Money	10
2.3.5 Credit Voting based on Virtual Passport	11
3 Solution.....	13
3.1 The Evolution of Governance	13
3.2 The Conjectures of Governance.....	15
3.3 The NnsDAO Solution Concept Diagram	16
4 NnsDAO Concept.....	17
4.1 NnsDAO Basic Concept	17
4.2 The Origin of NnsDAO.....	18
4.3 The NnsDAO's Vision.....	19
5 NnsDAO Protocol.....	21
5.1 Protocol Overview	21
5.2 Nomos Core	22
5.3 DAOn Domain Rules	23
5.4 DAOs Service and Rules.....	23
5.5 Personal Influence System	24
5.5.1 Radiation Scope of the PIS	26
5.5.2 Iterative Roadmap of the PIS.....	26
5.6 Governance Module	28
5.6.1 Nomos Core Governance.....	28
5.6.2 DAOn Governance	28
5.6.3 DAOs Governance.....	29
6 Token Model.....	30
7 Roadmap	31
8 Summary.....	33
Further Reading	34

1 Overview

1.1 Background

In 1997, the historian David Banks pointed out in *The Problem of Excess Genius*, "The most important question we can ask historians is: why the productivity of these periods and places is so surprisingly higher than other periods?"

Recently, George Mason University Economics Professor Tyler Cowen, author of the popular blog - *Marginal Revolution*, and Stripe CEO Patrick Collison pointed out when they called for the establishment of a new progressive science: Looking back at the past, it's surprising that the past progress is not distributed averaged... Discoveries that improve everyone's living standards come from relatively small geographic areas with innovative efforts.

The historical periods described by Banks, Cowan, and Collison are not driven by great men, but by "scenius". Brian Eno, the inventor of universal music, is described as "one of the most important and influential figures in pop music". He coined the term scenius to describe "the wisdom and intuition of the entire cultural scene. It is the public form of the concept of genius."

Contrary to the historical theory of great men, this theory believes that history can be explained by the influence of certain heroes and geniuses. Ino believes: "What really happens is that sometimes there are very rich scenes involving many people-some are artists, some are collectors, some are curators, thinkers, theorists, and fashionistas, knowing what is fashionable-all kinds of people have created a kind of talent ecology."

Scenia is not fully formed. On the contrary, they have gone through three stages: community, micro-scenarios, and scenes. Cultivating scenius means helping a group through the funnel, from the community, to the micro-scenarios, and then to scenius. Scenia can be large or small, spanning centuries or only lasting ten years. Inklings are composed of no more than 15 people. They have known each other for less than 20 years. Driven by the contributions of millions of people, Silicon Valley has continued to progress and innovate in the past 70 years. Bitcoin was first initiated by an anonymous user or organization Satoshi Nakamoto. It has created trillions of dollars in

wealth in the past ten years. As a scenius, Bitcoin has also experienced different development scenarios. From a global perspective, there are no two scenarios. They look the same; their similarity lies in their lasting transformative impact on the field in which they contribute.

From the community to the scenius, the Internet is constantly influencing and promoting the development of this era. Historically, the Internet has broken geographical boundaries and brought together different people, making different ideas collide, just like the human brain has. There are hundreds of billions of neurons, and the function of a single neuron is relatively simple, just like an electronic component, but adding all these neurons together can make people generate wisdom and consciousness. This is the emergence. The use of the Internet will. The ability to connect smart and passionate people around the world amplifies the magic of historical location-based scenes.

Looking back at the development of the entire Internet, since 1994, the Internet has brought about various changes: personal communications, self-publishing, e-commerce, and social networking sites. The convenience, instant, and interactivity of the Internet have also spawned many virtual communities such as Twitter, Facebook, Youtube, and the corresponding network culture, instant messaging software such as WhatsApp, Telegram, Wechat, Line, Clubhouse, as well as Wikipedia and Wikimedia And other free collaborative encyclopedias.

With the rise of URL aggregation, search engines, social networks, and e-commerce, the Internet has gradually been monopolized by a few giants, and the giants have divided the attention and wealth of a large number of Internet users, and the Internet world has become a centralized multi-oligopoly world. The application is becoming more and more convenient, and it also exposes many drawbacks, such as user privacy, autonomy, and data rights. The convenience of the Internet has made more people transparent and made more people aware of the need to become a giant (FLANNG). To prevent privacy leakage, data leakage, and other issues. From 2019 to 2021, platforms such as Zoom, LinkedIn, Facebook, Clubhouse, Twitter, etc. have successively exposed user data leaks. The seemingly secure and unwinding Internet platforms seem to be another transparent world.

Scenius allowed the gathered people to create a virtual world, and it also destroyed the virtual Internet. In the post-Internet era, data sovereignty, user privacy, and autonomous governance may be topics that everyone on the Internet is more concerned about. A constraint and rule are described in "The Unstoppable Power of Leaders' Organizations":

- Diseconomies of scale
- Network effect
- The power of disorder
- Edge knowledge
- Everyone wants to contribute
- Be alert to the Hydra reaction
- Catalyst control
- Values are the core of the organization
- Measurement, supervision and management
- Active flattening or passive flattening

In such decentralization and organization under the rules and constraints, it seems chaotic and disorderly, but when we begin to understand and appreciate the rich potential it contains, it originally seemed as uncertain as entropy. The decentralized organization is actually one of the most powerful forces ever.

It can be seen from the constraints and rules that in essence they are also a kind of governance, but they use a relatively loose model to give each citizen equal rights, that is, citizens have autonomy, and for governance, this is the most important thing. On the contrary, it seems that the current blockchain has moved towards a stage of centralization, and it has deviated from the original Bitcoin vision. The so-called governance has become a tool for a few people to collect money. Therefore, the governance problem will be the public chain or the most important issue that the agreement needs to solve.

2 Governance Issues

2.1 Blockchain Needs Governance

Like organic life forms, the most successful blockchains will be those that are most adaptable to the environment and self-growth. Assuming that these systems need to evolve to survive, the initial design is very important. At the same time, the mechanism of dynamic change is also important.

Satoshi Nakamoto showed us the tremendous energy that the blockchain incentive system can bring to the world. A nine-page white paper gave birth to trillions of dollars worth of cryptocurrencies, a computer network 10,000 times larger than the top 500 supercomputers, and a diverse ecosystem of developers, users, and companies.

There is no doubt that this is the most guiding behavior in human history. It demonstrates the power of blockchain as a network that can connect everyone.

For a long period of time in history, currency was gold, and gold as currency. However, as the world enters the era of fiat currency from the era of commodity currency, we have ushered in a "full credit" monetary system. Alfred Michel Inness believes in the book "Monetary Credit Theory" that money is credit, and credit is money --- they are two sides of a coin.

In the future, the currency will be decentralized. The money market account managed by the community has a non-profit mechanism. Blockchain brings transparency to transactions and at the same time solves the "trust gap" in the process of decentralization through smart contracts. , Blockchain technology dynamically solves some unachievable visions. Similarly, after solving the trust gap, there are criticisms about how to govern. The beauty of "governance" lies in its subjectivity while retaining objectivity. Any codebase can be evaluated, and an upgrade can be reviewed, but the way in which participants in a "decentralized" system coordinate to achieve any goal becomes very difficult to measure and implement. It encapsulates all the dialogues and negotiations on the subjective side, while the actual software implementation and voting mechanism developed are directly related to the objective side. The conflict between the two parties during the bifurcation involves both the objective cost of development and the cost of subjective social coordination.

There are many platforms and protocols built on the basic chain that hopes to delegate their governance to stakeholders, rather than centralized management, in order to maintain the spirit of "decentralization". Then, this creates a governance layer on top of the platform or agreement that has complied with the basic agreement and its own governance. That is to let users autonomously manage the development of protocols and chains, such as this scenario: a user enters the world of the Internet for the first time, he (she) has his own virtual identity, and has his own specialties, and wants to collaborate through the Internet Formally liberate one's own regional issues, and at the same time want to get some contract guarantees. For the traditional Internet, perhaps the contract is the limit, allowing him or her to complete his or her OKR every day and then get the corresponding remuneration.

If this virtual scene is in the world of blockchain or user autonomy, he only needs to find his own knowledge and skills like matching or dare to be interested in DAO organizations and work hard. For example, he has joined a DAO and is composed of different professionals in the DAOs, and then they have common goals and consensus. Everyone's work is restricted and coordinated through rules and contracts, and each person's salary rewards and credit points are issued through smart contracts. When this person accumulates and completes again and again after the collaboration, his credit points will continue to increase, and he has autonomy in this community, that is, the right to vote. He can vote for himself, and when he (she) leaves the company, he (she) also has the right to vote. Some governance rights and income rights, because holding the token of this organization will determine its long-term income, rather than leaving it.

As mentioned above, credit is money. If governance rights and credit accumulation will give everyone a specific reward and continuous incentives, then such a blockchain protocol must belong to everyone, just like in Bitcoin Different people are doing different things, they will also have corresponding rewards, so people in the ecology will continue to contribute to this agreement or consensus, and earn their own credit points, while breaking language, religion, race, Region, group identifier, culture, education, etc. affect the distribution of concentrated power.

In this singularity of blockchain and DAO, they are both fair and competitive, and everyone is working hard for themselves.

2.2 Current Governance Disadvantages

The current public chain governance mechanism is mainly divided into off-chain governance and on-chain governance. Off-chain governance refers to how the participants in the ecosystem coordinate how to update and upgrade projects off-chain. The foundation of off-chain governance is that participants in the ecology participate in extensive discussions. The main process is as follows: First, participants can study, discuss and formulate new proposals off-chain. Then, the core developer decides whether to accept the proposal based on the feedback from the community. If the proposal is passed, the developer will update and upgrade the project code.

All processes of on-chain governance take place on the blockchain, and projects are updated and upgraded through smart contracts. The main process of on-chain governance is: First, participants can research and formulate proposals. Then, vote on the proposal through the blockchain. Finally, the voting results are counted. If the proposal is passed, all smart contracts are automatically upgraded.

Whether it is on-chain or off-chain governance, three problems need to be solved:

- Increase user participation rate
- Prevent oligopoly
- Clarify governance rules

ICP uses an on-chain governance mechanism and uses a fluid democratic governance model to solve the above problems, but this model has some flaws:

First, as the ICP ecosystem gradually expands, there will be more and more neurons that can follow to vote or manually vote for investors to choose. For investors whose purpose is to earn rewards, participate in the ecosystem, and select neurons correctly. Therefore, it is still very difficult to ensure the correctness of income and voting. It will invisibly increase the voting choice of each investor and discourage investors' enthusiasm.

Second, based on the ICP issuance system, a large number of oligopolies have formed in the early stage. The ICP governance system will be prone to populism and

affect the fairness of governance voting.

All in all, the governance rules of ICP have the spirit of DAO, which largely solves the problem of low election participation rate, and uses voting rewards and follow-up voting mechanisms to allow users to vote for proposals they are not familiar with. The mobile democratic governance adopted by ICP also increases the cost of the monopoly of giant whales, potentially reducing the degree of centralization of the system and weakening the control of the agreement by a single holder. Since the neuron is managed by the user on the off-chain client, fundamentally speaking, the following relationship and decision-making process of the neuron are private, and it is difficult for an attacker to grasp the running status of the number of proposals. However, ICP relies on the wisdom of the group to set and modify all rules. Once the power concentration or the incentive mechanism is out of balance, the ecology is easy to fall into chaos. For the current Network Nervous System governance, due to the registration threshold of the wallet, many investors cannot use voting. It also further weakened the fairness of early governance.

Traditional public chains such as Bitcoin or Ethereum will create perfect code rules as much as possible, but there are two long-term shortcomings: First, developers need to spend a long time testing system code, and vulnerabilities are often inevitable. . When hackers break into the system and steal a large number of tokens, the only possible solution is to perform a hard fork, which cannot be solved by modifying the rules or human intervention. Second, although general users can participate in the governance of the public chain, they are limited by their professional capabilities and cannot participate in the establishment of code rules. However, the loopholes in the code will cause huge losses to users and violate the fairness of users' interests. The ICP's Network Nervous System can access special opcodes in the virtual machine, allowing the Network Nervous System to freeze, unfreeze and modify other independent smart contracts, and can update the client software status. Therefore, ICP maintains the consistency of the entire public chain through variable group wisdom, and can quickly adapt to emergencies to avoid the occurrence of hard forks.

Based on the above analysis, the biggest problem of governance is to schedule investors' enthusiasm and avoid oligopoly. The voting rules and protocol rules should

also be clarified in an open manner, so as to ensure that each user is fair when voting. Leaving Token's governance may be the only way for future governance.

2.3 Future Governance

At present, there are many governance methods for public chains and tokens, including Quadratic Voting, Liquid Democracy, Futarchy and many meritorious forms of Meritocracy, Virtual Passport Credit Voting, etc.

2.3.1 Quadratic Voting

Quadratic voting is a system for purchasing votes, and the cost of each additional vote is twice that of the previous system. In other words, you can buy tickets with money, but with diminishing returns. Vitalik proposed a variant, which he called "quadratic coin-locked voting", in which N tokens are used to allow you to vote for $N \cdot K$, but these tokens need to be locked, and the lock-up time is K^2 .

This is a good adjustment because it is incentivized over time: more voting power is tied to your decision for a longer period of time (the resulting good or bad results are also borne at the same time), second Although Fang Voting has solved the problem of the tragedy of the commons, there are still many disadvantages of whether voting is fair, such as: "Identity Bribery, Collusion, Rational Ignorance" and so on.

2.3.2 Mobile Democracy

Mobile democracy is a system in which everyone has the ability to vote on their own, or delegate their votes to others, or cancel their voting rights at any time. In the United States, we do not have mobile democracy because we cannot directly vote on the bill (our representatives do this for us), and once we elect representatives, they usually have a four-year term.

Because of its simplicity, it looks as if it will be used in a proof-of-stake (POS) blockchain. In a delegated democracy, the reputation is reflected in the number of votes entrusted to specific individuals or groups. As long as the influence is good enough, people without money can obtain more than 10 million ether commissions and obtain huge management rights.

2.3.3 Futarchy

In NGOs, society defines its value and then uses prediction markets to determine which behaviors can maximize these values. In other words: "vote on value, bet on faith". It was first proposed in 2000 by Robin Hanson, an economics professor at George Mason University.

In his paper "DAOs, Democracy, and Governance", Ralph Merkle put forward a particularly eye-opening proposal for blockchain to realize futarchy.

In his proposal, every citizen should conduct an opinion poll once a year and ask, "This year you will rate your satisfaction level from 0 to 1", and then average it. This gives an overall Social welfare score. In the next 100 years, there will be a prediction market about this welfare score every year, and traders can speculate on the welfare score in any future year.

The future average welfare score is obtained by averaging the performance of the next 100 years, weighted earlier than the next few years. When a new bill is introduced, there is a week for the market to speculate whether the overall welfare score will rise or fall if the bill is passed.

If the bill is passed, traders who bet on overall welfare increases now have all the welfare contracts they bet on. If they are right, they will make money, and if they are wrong, they will lose money.

Futarchy may be effective for large-scale decision-making, but it is not effective for fine-grained tasks. Therefore, in the development process of the agreement, not all proposal governance applies Futarchy to vote. It is often used to grasp the general direction, but there are also some unsolvable problems, such as: "market manipulation, value subjectivity, low participation, implemented Policy measurement (artificial arbitration) and volatility, etc."

2.3.4 Voting With People or Money

One person, one vote voting mechanism in the blockchain system, there will be a major problem is the sensitivity to witch attacks. It is possible to create unlimited accounts at almost zero cost, which means that it is easy to generate countless votes. This is why the default model of proof of equity and Ethereum-based token governance is one token, one vote. Based on this one currency, one vote model, it often

causes inevitable problems such as oligopoly effect and ticket buying and selling.

2.3.5 Credit Voting based on Virtual Passport

Like organic life forms, over time, the ability of a blockchain to succeed depends on its ability to evolve. This evolution will bring about many directional decisions, and the governance surrounding these decisions can best determine the future of the system. It is undeniable that some form of decentralized governance is becoming more and more popular, and people are interested in it for important reasons.

We are growing into a systemic existence beyond us. Democracy and the capitalist system determine a lot of spontaneous behavior around us, and the blockchain will do the same thing, even on a larger scale.

These systems are a kind of living beings, they have their own life forms, and they care more about how to continue themselves than the individuals that make up them. As technology expands these systems to their limits, their significance will become more apparent. Therefore, we should consider the structure of these systems as carefully as possible.

Like any new powerful technology, blockchain is a tool that can be developed in multiple directions. Used well, we can create a more prosperous and free world. If it is not used well, it can also lead us to a place we don't want to go.

Up to now, the research and practice of organizational governance based on social interaction has lagged far behind the development of social information technology. Communication technology has greatly enhanced the natural limited ability of individuals to interact, collect and process information, but the governance process still relies on a centralized structure and arbitrarily divided functional categories, such as "members", "employees", "customers" and "Investor". Such structure and functional categories may be necessary for the huge organizational system during the industrial revolution, but for now, they are not. In the future decentralized world, governance and coordinated distribution will become especially important, and top-down rules will be gradually eliminated, and the bottom-up or even flattening will replace it.

In the WEB3.0 era, independent dApps or protocols will record each user's on-chain behavior, and use this to measure the reputation of user behavior. Based on this on-chain behavior, NnsDAO proposes a governance hypothesis based on the user

system. At the beginning of the agreement, each user who enters will receive a certain token reward. With the growth of time, under the effect of DAOs, each user will form its own unique virtual reputation. With the help of each user's contribution to the ecology, participation and other necessary factors, the user is given a voting power, which is a vote for protocol development or for the current DAOs governance.

Vitalik also proposed a mixed solution governance solution: "Futarchy + anti-collusion = reputation". If a user's decision leads to the expected result, the user gains more reputation, and if their decision leads to an undesirable result, the reputation is lost. For this, NnsDAO combined with this model to propose a unique virtual credit model and de-token voting will also become a new trend, which will weaken oligopoly while increasing the enthusiasm of investors to participate.

3 Solution

3.1 The Evolution of Governance

Governance is all the processes of interaction be they through the laws, norms, power or language of an organized society over a social system (family, tribe, formal or informal organization, a territory or across territories). It is done by the government of a state, by a market, or by a network. It is the decision-making among the actors involved in a collective problem that lead to the creation, reinforcement, or reproduction of social norms and institutions". In lay terms, it could be described as the political processes that exist in and between formal institutions. -Wikipedia

In general, governance falls into two broad categories:

One is top-down governance, which mainly involves corporations, governments, and regional bureaucracies, as Nobel laureate Ronald Coase pointed out in his paper "The Nature of the Firm": Corporations emerge because they are better able than markets and individuals to deal with the production and transaction costs inherent in transaction costs.

The other is a bottom-up approach that aims to implement a decentralization problem, where success in the industrial age depended on size. The concentration of power, authority, and wealth is a natural byproduct of scale. In contrast, the bottom-up or flat form is to distribute ownership to new producers who want to participate in the game. In many decentralized finance governance models, venture capitalists are no longer the majority shareholders. Instead, they are owned by the people or communities that make the contributions.

There is a huge shift in governance from large governments to small companies and network governance. In the traditional Internet and in brick-and-mortar businesses, there are many companies that are slowly moving to a kind of open governance, such as RedHat Software, Starbucks, Google, etc. As for governance, most of it is still being done with top-down guidelines, but for blockchain, this model seems to be out of place. Therefore, under the influence of thinking, a DAO model of governance is proposed.

When it comes to governance, we have to think of the Magna Carta, a Latin political mandate originally drawn up by King John of England on June 15, 1215, at

Runnymede near Windsor, first became law in 1225, and the English version of 1297 remains the valid law of England and Wales today. The key significance of the Magna Carta is that it used the English contractual tradition to solve the problem of supremacy that plagued England at the time. The English feudal system was an order based on contract, and English society at the time was a series of contractual relationships. Under the constraints of this contractual spirit, Magna Carta limited the supreme power and bound the obligations of taxpayers, and governance is also a contractual spirit in essence. In the world of blockchain, it is written into smart contracts and has certain rules to bind the multiple parties involved, and for DAOs its Nomos is also a contract. Each person who joins the DAOs, abide by the corresponding rules and develops towards the same goal.

Each DAOs operates like its own decentralized economy. It has its own currency, voting rights, economic behavior, market, code of conduct, meme, and most importantly, culture and values. Governance is simply the power to propose and approve economic and political decisions for that economy.

The general rules of DAOs include:

- Participable: users participate voluntarily and independently in some non-fixed tasks
- Coordinability : users collaborate to achieve a common goal
- Consensual: sharing the same culture and values
- Incentive: different people are rewarded differently for their contributions
- Decentralized: replicate the use of these technologies and disseminate them across a wider network
- Autonomy: intelligence, upgraded AI, and AI algorithms enable self-sustaining applications that create value in any component of the organization

By comparing the rules of Starfish and Spider we find that for a free organization group, they have a lot of autonomy and no top-down constraints, while everyone on the edge is equally important, and they become more decentralized after an attack, which is why Starfish do not die and Apaches can keep resisting.

3.2 The Conjectures of Governance

The best governance is the absence of governance.

The Spaniards invaded South America and conquered the Aztec and Inca empires very easily because these two empires were spider-like organizational structures, power was concentrated in the hands of the ruler, the central government collapsed immediately; but the Spaniards fought in North America, when faced with the more backward Apache, but could not fight, the Apache is a starfish-type organization, there is no unified leadership, The Apache heroes did not directly command and mobilize any large army, they only served as a fighting example to inspire others from the spirit, so that even if a few tribes were crushed, the remaining tribesmen could continue to fight individually, and it was useless to capture the King first. In the end, the Apache struggled with the white man for hundreds of years.

This is the first major principle of decentralization: when attacked, a decentralized organization tends to become even more open and decentralized.

Blockchain technology is either the key to solving the management crisis, and the solution to the problem reveals the wisdom of the group. Market forecasting for management systems can be summed up in the words of economist Alex Tabarrok, "A bet is a tax on bullshit". The Futarchy theory, developed by economist Robin Hanson in the 1990s, uses market forecasting to help companies make decisions.

The working principle of Futarchy is that companies set some goals, try to maximize profits, and allow people to choose the goals they want to choose from an economic point of view; if a decision needs to be made between X and Y, then both X and Y tokens will be issued and to create a corresponding market for each token, which market shows higher profits, choose the corresponding market, and the token holders who win the market will get a return based on the company's final income.

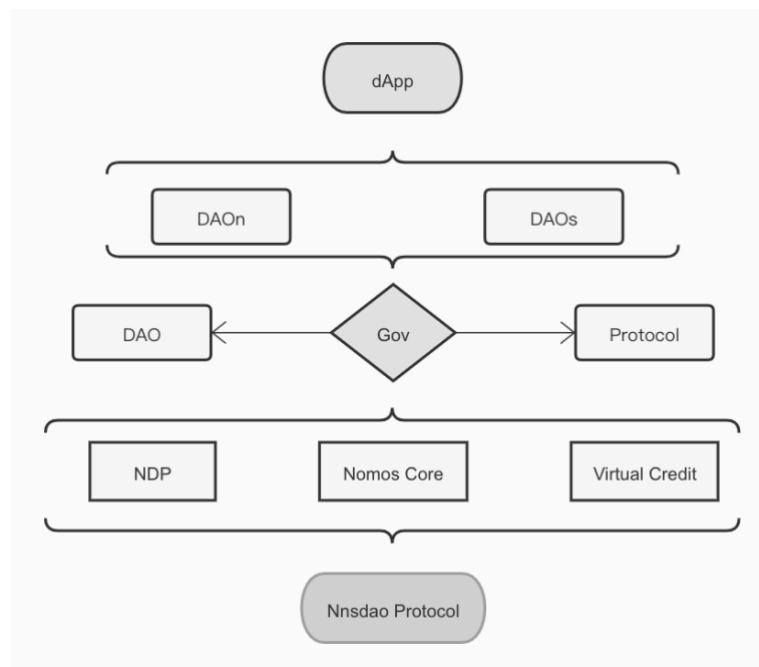
According to the more decentralized and Futarchy theory that splits after the attack, we propose a conjecture that assumes everyone is a DAO, and in collaboration and consensus agreement, we join a DAO and set up a DAOs organization, which is a kind of programmable distributed autonomous organization, and for each member who joins a DAO or DAOs can leave at any time and is bounded by The basic rules are bound, and then each DAOs established, are voted by the DAOs to make decisions, at

this time that is, all the DAOs represent the Futarchy principle of X, Y, Z ... Each user or DAO itself will have the right to vote, and accordingly, each user who uses IC authorization to NnsDAO ecology has an independent virtual passport system to win Token and credit value, each independent DAOs are voting for themselves and make their own and the agreement to develop together, that is, each person has to pay for their own choice and bear certain consequences.

Vitalik Buterin believes: "With the emergence and development of blockchain technology, we have a platform like DAOs, which is no longer restricted by the past management system and people can develop freely."

Therefore, we propose a basic consensus governance protocol based on NnsDAO + a credit model based on machine learning to constrain each post-form DAOs, and the DAO itself chooses how to join the DAOs, and then DAOs jointly maintains the balance of the entire DAO.

3.3 The NnsDAO Solution Concept Diagram



4 NnsDAO Concept

4.1 NnsDAO Basic Concept

DAO stands for "Decentralized Autonomous Organization", which means an organization or enterprise where decisions are made automatically through computer code in smart contracts or voted on by the organization's token holders. It is a system that organizes its work systematically and decides the steps to accomplish its goals in the most decentralized way without any control points or hierarchy.

Through the power of blockchain and smart contracts, DAO automates most, if not all, critical and non-critical processes and decisions in an organization. It is designed to reduce human input and increase the organization's ability to automate and collaborate.

DAO has associated tokens. Tokens can represent voting rights for different matters similar to company shares or used for different dApps (used by organizations, reward users, etc.). Each DAO has voting rights and a corresponding reward system, and this flat structure ensures that the organization reaches consensus decisions. Some DAOs can also open voting to non-token holders for certain proposals. When an organization's rules are encoded into a smart contract, the possibilities are endless, thus also allowing stakeholders to make suggestions on the future development of their protocols to prevent the organization from being overwhelmed by useless proposals.

DAOs will bring more freedom to individuals, there are no restrictions or regulations on how many DAOs people can participate in or from what part of the world they can come from. Individuals worldwide can decide which global organizations to invest in, which is fair and non-exclusive. The ability to trade on the chain also simplifies the process of selling equity in a DAO without the technical and financial complexities that exist today.

DAOs are all about maximizing stakeholder value. Users and contributors are also investors and owners. While community ownership may seem strange, novel, and almost hippie, it's actually a more natural model than a handful of outside investors and board members pouring a lot of money into a company and deciding what it should do. We do this because, until now, it has been difficult to coordinate having

many small owners/stakeholders who all have a say in the decisions. Technology allows more people to have equity and decision-making power, rather than one person having the say.

TechCrunch wrote, "The DAO is a paradigm shift in the very idea of economic organization. It offers complete transparency, total shareholder control, unprecedented flexibility, and autonomous governance." Relying on smart contracts, DAOs are open and transparent about the rules of operation, the responsibilities and rights of participants, and the mechanisms for rewards and sanctions. In addition, through a series of efficient autonomy principles, the rights and interests of the relevant participants are precisely divided and downscaled, i.e., those individuals who work, contribute and take responsibility are matched with corresponding rights and benefits to promote industrial division of labor and equal rights, responsibilities and benefits, making the organization run more coordinated and orderly.

In the meTokens Incubation Report I, it is stated that:

"We are embracing the best era of individual value. More and more people are leaving mechanical labor and joining more vibrant communities to realize their personal value. In the near future, collaboration among individuals with communities as the main scenario will become more and more popular. At the same time, more great innovations will be created in individuals and communities. This is the evolution of social structure."

In the future, DAO will be a 'singularity that changes existing organizations and structures in unknown ways.

4.2 The Origin of NnsDAO

NnsDAO originates from the combination of IC's Network Nervous System idea and DAO organization. In analogy to the complexity of human neural networks and combined with the prospect of individuals in the pursuit of independence, freedom, and autonomy, NnsDAO was established with the main vision of achieving a decentralized, user-led, free and autonomous protocol.

NnsDAO is a boundaryless autonomous organization, which provides some basic modular programmable services for building the world of DAOs.

The NnsDAO protocol is an open-source, decentralized, boundaryless autonomous organization built on the ICP ecology. NnsDAO starts from the principle of human-centeredness to realize a virtual passport system based on IC, so that every user participating in the DAO ecology can participate in projects within the IC ecology without a threshold and realize a new form of organization, using DAO to connect new ways of collaboration and put the decision-making power in the hands of collaborators and stakeholders. DAO can connect organizations, companies, communities, finance, art, games, and other ecologies through the virtual identity of NnsDAO, and build a world belonging to DAO with the transparency of blockchain and virtual user credit system.

4.3 The NnsDAO's Vision

There is no doubt that the main goal of DAO is value creation or production. In order to achieve this, there are needs to be a specific connection between user behavior and the impact of these behaviors on the overall value of the organization, such as the value of the underlying cryptocurrency as a symbol.

This is where entrepreneurial creativity needs to happen and where business models will be concocted. Use without a value connection is a waste and will lead to a backlash of failure. At the end of the day, a new DAO is like a startup. It needs product/market fit, business model implementation, and a large number of users/customers. In the early days of blockchain governance, much of it was in the form of hypotheticals and DAOs may resemble science fiction until the product/service touches market power reality.

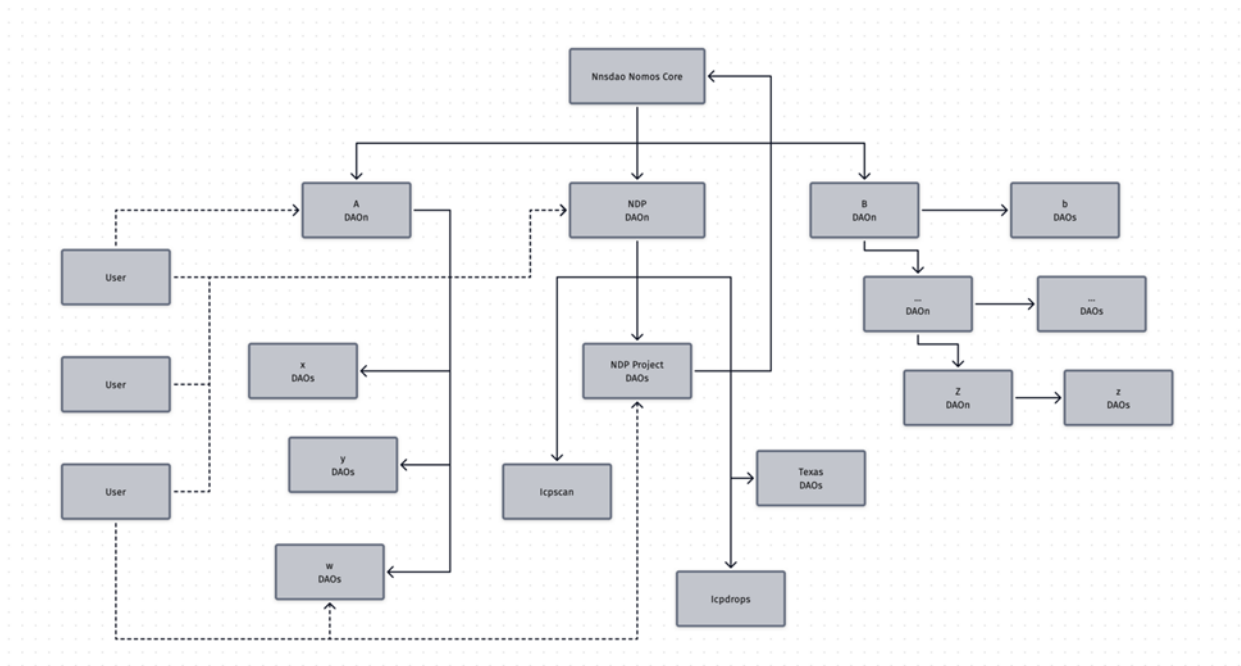
The DAO community and basic development tools are built on ICP to enable developers to quickly develop more complete decentralized applications on ICP. NnsDAO supports other projects by implementing Actor or SDK access to make each project more transparent and intelligent governance. We are inspired by the Network Nervous System and implemented through Canister and Motoko. We believe that the post-blockchain era will be dominated by DAOs, and each dApp will achieve independent autonomy, and ownership and data rights will belong to each participating ecosystem within the user itself.

The goal of NnsDAO is to realize the interconnection of everything, container interconnection, and application interconnection on the basis of ICP, in the era of WEB3.0, everyone can have their own data sovereignty, everyone can realize autonomy for their favorite DAOs, everything is like neurons with rules and orderly governance, and NnsDAO is not just a DAO, it is more like glue, how do you feel? Just DAOs it.

5 NnsDAO Protocol

5.1 Protocol Overview

Before designing the NnsDAO protocol, many different ideas emerged, such as what form a team should be created in a more suitable way. If you have a main business job, but you want to do something interesting outside of your job, at this time, you need to find groups in different fields and get to know people from different professions in order to quickly accomplish a common goal. For a programmer or a worker in another profession, the social skills and operational skills are not high. Under the circumstances, it is difficult to find people with common values or ideas. Based on this scenario and demand, we propose the NnsDAO protocol, an IC-based virtual identity system that allows everyone to have unique exclusive skills and credit values, and through the continuous accumulation of time, they can form their own unique virtual reality in the WEB3.0 era. Identity, while showing one's own skills. Perhaps under this trend, it's easier to find a like-minded person. Different people are in different circles, different people are interested in different things, and have the same values. Therefore, it will become possible to create DAOs based on such a scene, guided by a catalyst character and form a decentralized organization.



Based on various ideas, we designed the NnsDAO protocol as a programmable and intelligent modular protocol, which includes but is not limited to the following basic protocol functions: Nomos Core, DAOn domain rules, DAOs service functions and rules, virtual passport system, governance module and other functions.

It can be seen from the architecture diagram that NnsDAO provides a series of services. Whether it is Nomos Core or DAOn domain rules, it gives users unlimited creativity. After users enter NnsDAO and authorize webauthn login through identity, users can easily add the domain they want to join in the ecology, that is, DAOn, and give users the right to create DAOn on their own. As long as they comply with the early rules, after DAOn is formed, every catalytic character in DAOn can choose to create DAOs by themselves. This is the DAO we have seen so far. It allows users to choose whether to join or leave, and there is no restriction. Before users join DAOs, the creator organizes and manages the members of the DAOs. After they reach a consensus, they can provide their own development route. Each step can be formed by a proposal and written in Canister. The contract is bound by the funding of each stage or the fund management of the Grant personnel. All proposals will be participated in by the past. People who donate or grant jointly vote to decide whether to give the current rewards, so as to ensure the rights and interests of each user in the ecology, and also restrict the responsibilities and rights of each DAOs.

5.2 Nomos Core

After the test network has been running for a period of time, NnsDAO will gradually run the main network and release the genesis DAOn and DAOs. The underlying agreement principle after the main network is the Nomos Core after the NnsDAO protocol service runs. It includes: "Bounty, Target, whether it meets the support, influence, contribution, voting rights, exit mechanism, credit value, field", etc. According to different DAOn domain rules, you can create different DAOs and form your own unique governance circle. In essence, the underlying protocol rule is also a DAOn. Its governance rules and constraints are generated by users in the ecosystem using credit value voting. And according to the proposal to restrain and adjust the self-evolution, we call it the universal intelligence DAOn, which is Nomos Core.

5.3 DAOn Domain Rules

Constraint rules are generally called the basic rules of the current field. Anyone can create them. After the core of NnsDAO is launched, some initial DAOs will be formed in the early stage, such as basic field rules such as finance, art, games, programming, etc., based on different domain rules will form different conditions. Under the constraints of DAOn, different DAOs can be established and people with the same consensus can gather together. Therefore, DAOn is a constrained rule, and NnsDAO encourages every user in the ecosystem to create and develop a new DAOn, it can be a DAOn as long as it meets the specific rule attributes.

DAOn needs to emphasize a sense of community when it is created. Here are some common rules:

- Organization Name: used to identify the functions of the current organization;
- Application for Entering the Organization: through the reasons for entering the organization, ensure that the members are people with the same consensus to enter the organization;
- Specification Description: by explaining what can be done & what cannot be done in the organization, control the content and accuracy of the organization to match;
- Theme/Logo : through a customized theme, implying "this is a special place";
- Member List: through membership and social structure, implying "we are a group";
- Member Nickname: through a specific member name, such as "white hat", implying that "we are different from others".

5.4 DAOs Service and Rules

Service functions are generally called programmable DAOs, which have the following basic properties:

- The Number of People to be formed - the members that make up the current DAOs, the maximum is no more than 33 people, and the minimum is 2 people.
- Domain credit - current contribution ability and contribution made in this

DAOs.

- Personal credit - including current behavior, cooperation, career, etc. of the person in the IC ecosystem.
- NFTs - each generated DAOs will correspond to a NFT to record the behavior of the current DAOs, and use smart contracts to detect whether they are in line with the moon landing plan.
- NnsDAO wallet - generally a unique NDP wallet is generated after the user's authorization, and each person's assets are aggregated through the mapping mode.
- Interactive contract slot - used to connect different DAOs for interaction.

5.5 Personal Influence System

We propose a member credit system named Personal Influence System (PIS).

On the internet, people exist in the form of digital identities, and the contributions that people make on the internet are also stored in the internet in digital form. This is the origin of the virtual passport system.

DAO is essentially an organization composed of people, so NnsDAO's goal is also to realize a virtual identity in the IC ecology based on human standards, and the virtual credit system is essentially an intelligent, changeable, and self-evolving intelligent DAO. It uses different learning and analysis capabilities to constrain each user in the ecology, and uses data to quantify the credit value of each person, so as to maintain the entire ecology.

Everything in the ecosystem is interconnected, and at the same time, new ecosystems are constantly being derived. In the era of IC ecology, the most important thing is consensus. The foundation of consensus comes from people. Therefore, it is necessary for NnsDAO to create a decentralized autonomous organization that everyone agrees on. How to properly maintain the normal operation of this platform through smart contracts is the primary consideration.

At present, internet giants have developed a set of internal user credit system, which calculates the user's credit value by collecting user information and historical operation records, and uses the credit value to classify users. The specific algorithm of

this system is often black box and not public. Users can get a credit value, but they cannot know how it is calculated.

Internet giants often involve the-art-of-the-state big data technology and artificial intelligence technology in the construction of credit systems. While providing a good experience for the masses, their privacy does not conform to the spirit of the blockchain, let alone the vision of the DAO. Therefore, it is necessary to make an open, fair, traceable, self-learning and evolving influence algorithm based on the concept of blockchain and DAO, combined with the latest big data and artificial intelligence technology.

➤ How to learn self and evolve?

The influence formula is not static. The IC ecology and NnsDAO itself are constantly developing at a high speed, and users (developers are also users) are making rapid progress. Therefore, in order to adapt to the landing scenarios at various stages, the influence algorithm also needs to be constantly changed according to local conditions. The process of algorithm evolution is also a process of model iteration. There are also separate roadmaps and governance to ensure the robustness and timeliness of the construction of the influence system.

➤ How to find the source?

The formula and code of NnsDAO's influence algorithm will also be open source on Github, and articles and videos will be shared regularly to explain the design concept of the protocol and refine the specific operation mode. Thanks to the concept of the blockchain and the support of the underlying IC, each iteration of the algorithm model of the protocol, even the fine-tuning of the parameters, is transparent and queryable, and the update and modification log will be maintained on the homepage. This formula is the cornerstone of the entire virtual passport system, and the agreement can be queried and clear on the chain.

➤ How to be open and fair?

To maintain the normal and stable development of an organization, the most important thing is to "balance" everyone's rewards. Here, balance is not average, because people who contribute a lot to the team deserve more and better rewards.

Thanks to NnsDAO's autonomy concept, every iteration of a large-scale algorithm

model, and even fine-tuning of algorithm parameters, must be carried out through the voting mechanism of Nomos Core. Anyone with NDP will have the right to vote according to their existing voting rights. You can exercise your power to express your own opinions on the modification and improvement of the influence algorithm. However, it should be noted that the modification of the influence algorithm affects the interests of every NnsDAO user, and you must be cautious when voting or making proposals.

5.5.1 Radiation Scope of the PIS

This is the issue that users are most concerned about. Facts have proved that the community provides appropriate rewards to individuals, the crowd is motivated, the community is built better, and positive feedback is formed. For communities and individuals, it is win-win, which is analogous to the equity incentive policies that can be seen everywhere.

- The reward coefficient and voting weight of NnsDAO governance pledge.
- ICP Drops whitelist and corresponding airdrop reward coefficient.
- Accelerated unlocking rights during the NDP lock-up period.
- Have a higher ranking on ICP Scan.
- A higher chance of obtaining the rare tradable achievement NFT.
- With the development of NnsDAO, users who maintain their own influence will get a steady stream of benefits...

5.5.2 Iterative Roadmap of the PIS

According to the development and progress of the protocol, at the beginning of the creation of the NnsDAO protocol, we envisioned the following stages to represent the iteration of the algorithm:

- Wasteland

Everything is simplified at this stage. It is the stage where IC users and NnsDAO form on-chain data in the WEB3.0 era. At the same time, NnsDAO, as an important part of IC's ecology, will use ICP holding data as the largest impact factor to calculate influence. Give back to ICP holders. Therefore, at this stage, due to the single impact factor of NnsDAO's algorithm, the influence algorithm will degenerate into a comprehensive implementation of various sorting algorithms.

- Village

The influencing factors to be considered at this stage have increased from a single factor to multiple factors, which is suitable for referencing the numerical design model of the game player's combat effectiveness. Because of the complex and diverse combat situations, in game design, the indicators of combat power often cannot be accurately positioned as the player's true combat power. However, in most games nowadays, the player's combat power is actually the comprehensive value (attack, defense...) obtained by the responding player.

- Settlement

With the increase in the number of users, and the development of IC ecology. At this stage, NnsDAO not only considers the direct effects of multiple factors on influence, but also considers the connections between users and ecology. At this time, consider the influence algorithm model of the Internet social network, describe the connection and radiation ability between people as much as possible, and weight it to the influence algorithm of NnsDAO.

- Town

At this stage, NnsDAO will use machine learning technology to assist the agreement to model the personal influence algorithm. As a simple example, machine learning can predict accident survivors based on the list of passengers on the Titanic and some information about their passengers. Utilizing the characteristics of machine learning, NnsDAO can extract more features from a large amount of historical data on the previous chain, use them as samples for training, and finally make predictions on the lasting influence of each person.

- City

As it develops further, a single machine learning model often cannot perfectly describe the model of influence. At this time, a multilayer artificial neural network can solve the problem of network complexity. AlphaGo, developed by a team under Google, uses deep learning to take a large number of matrix numbers as input, take weights through a nonlinear activation method, and then generate another data set as output. This is like the working mechanism of the biological neural brain. Through the appropriate number of matrices, the multi-layered organization is linked together to

form a neural network "brain" for precise and complex influence calculation processing.

- Country

The previous artificial intelligence algorithm has a drawback, that is, you must have a certain amount of data, get a certain amount of training, and then get a model. The data of IC ecology is constantly growing, and new data is constantly being generated, and it affects everyone's behavior. At this stage, NnsDAO no longer fixes the initial data for training. It needs to use reinforcement learning to continuously generate data while continuously training, and finally continuously improve the model, which greatly improves the utilization rate of data.

- Planet

Beyond the planet, there is the universe. Just like the IC's slogan-infinity, the universe is infinite, and no one knows how far the influence algorithm will evolve.

5.6 Governance Module

NnsDAO proposes a multiple governance model based on this credit model.

5.6.1 Nomos Core Governance

Nomos is the core of the entire NnsDAO protocol. It was formed by the community and developers jointly maintaining the early rules before the NnsDAO mainnet went live, which is what Vitalik pointed out before: "gradual decentralization", used to develop the early protocol rules. After the launch of the mainnet, NnsDAO will conduct asset allocation, development progress, and protocol management based on the entire development roadmap and proposal model. Simply put, NnsDAO established an NDP DAO at the beginning of the launch, which is based on DAO's rules. NDP Project DAOs, which are the earliest developers, teams, and early investors. Based on this model, we treat the NnsDAO protocol as the first experimental project to run, and restrict the participants in the ecosystem through proposals and roadmaps. And then decide the development of the entire project based on credit voting.

5.6.2 DAO Governance

DAO was established at the beginning of its establishment by a catalytic approach and adding restraint rules. Each DAO will form its own field when it is

established, and it will be proposed in the form of a proposal, that is, when each DAO is established, it will be the same as NDP DAO. They will provide their own rules and some constraints, and then the person who was originally established will manage the entire DAO, and it is also based on the credit of each person who belongs to the DAO to determine the development and trend of DAO.

5.6.3 DAOs Governance

After many DAOs are formed, after reaching a consensus, different catalytic characters will guide different projects, and then each DAOs will proceed according to the proposal, and submit the roadmap, rules and other conditions through the basic proposal model, and the people in the group will establish DAOs. After that, each person's contribution will determine his reward, which is to vote with credit and get rewards with contribution.

In general, the voting model proposed by NnsDAO is that each user has his own credit, and gradually forms his own rights and interests after the creation of different DAOs and DAOs, and then gradually reduces and resets the cycle according to the progress of the project and the generation of blocks. The right to vote within the new project or stage is then re-started according to the contribution of each person's DAO when a new project or stage is formed, so as to achieve a fair voting right and autonomy for everyone.

6 Token Model

Token name: NnsDAO Protocol

Total supply: 100 million

Symbol: NDP

Distribution Rules:

Investors: 18%

Donation & Airdrop: 2%

Team: 15.33%

Consultant: 0.67%

Support the Moon Landing Plan: 7%

Community Contributor Reward: 57%

NDP Output Rules:

After the mainnet of the agreement is released, Genesis DAO and DAOs will also be launched, and DAO, DAOs contributor reward program will be launched. All users in the ecosystem will be bound by Nomos Core, including NDP DAOs, and NDP in the creation phase DAOs provide development roadmaps and generate proposals. Users in the current ecosystem participate in early governance. According to the progress of each stage, the distribution of tokens will be led by the community, and will be supervised and restricted by the community. IC-based user system and Nomos Core After the launch, the developers and users in the ecosystem will follow the smart contract to obtain personal credit and DAOs domain credit.

Holding NDP Benefits :

- Participate in proposal governance
- Participate in Grants
- Found DAO and DAOs
- Participate in the investment of DAOs
- Receive IC ecological airdrop
- Unlock personal influence and obtain rare NFTs

7 Roadmap

- Initial City state (2021 Q3)
 - Release 1.0 white paper
 - Development of ICP Scan and ICP Drops
 - Virtual passport credit system papers
 - Nomos Core protocol rulemaking
- Age of Enlightenment (2021 Q4)
 - Realize the existing IC ecological database and provide ICP Drops airdrop
 - The creation of NnsDAO Nomos agreement started
 - Preach DAO, DAOs, DAOs, spread DAO's thinking and philosophy
- Industrialization Period (2022 Q1)
 - NnsDAO Nomos bottom protocol rules are perfect
 - Users can create DAOs rules to start
 - Nomos Core protocol test network started
- Information Time (2022 Q2)
 - Building DAOs in building blocks
 - The rise of DAOs scenarios such as Grant DAO, Capital DAO, and Community DAO
 - Screening and hatching before the moon landing
 - Nomos Core protocol main net launch
- Moon Landing (2022 Q3)
 - Encourage the development of DAOs and DAOs on a large scale
 - Incubate DAOs that meet the constraints of smart contracts and support moon landings
 - More DAOs are fighting for their goals and realizing the moon landing plan
- International (2022 Q4)
 - With IC ecology as the core, use NnsDAO protocol to connect to more ecology, such as Bitcoin, Ethereum and other public chains to realize governance interaction
 - DAOs are interconnected with DAOs and DAOs to gradually realize the

world of DAOs

- Explore more DAOs scenes
- Deorganization (Future & Forever)
 - With DAOs as the core, everyone is a DAO, and continues to be bound by smart contracts and NnsDAO Nomos protocol rules to achieve a fully autonomous model
 - Each DAO, DAOs, DAOs is independent and autonomous, and each individual, community, company, and organization is a DAO, and each circle is independent and autonomous, and strives for the same values and consensus

8 Summary

Catalyst, in the field of chemistry, is a substance that changes the rate of a chemical reaction without itself being involved in the chemical reaction.

In decentralized organizations, a catalyst is a person who, after creating NnsDAO, DAOs, and DAOs with his own hands, retires into the background.

Obviously, a catalyst-like character will gradually form an idea, share this idea with everyone, and then guide everyone through specific demonstrations. This is the most important consensus of the blockchain.

For NnsDAO, developers, users, and teams who are already participating or want to participate in the future will all be a catalyst. Under this agreement, no one can control it. It is it, an evolving autonomous agreement.

As a borderless autonomous organization, NnsDAO will be dominated by the community in the future. We are only a catalyst character and a fighter, guiding and regulating the whole protocol.

We will fulfill our mission, trust the community, and let go when it's time to let go.

Further Reading

- [1]<https://bitcoin.org/en/bitcoin-paper>, Satoshi Nakamoto
- [2]<https://ethereum.org/en/whitepaper/> , Vitalik Buterin、Gavin Wood
- [3]<https://wulfkaal.medium.com/a-decentralized-autonomous-organization-dao-of-daos-47eba68617d3>
- [4]<https://vitalik.ca/general/2017/12/17/voting.html>
- [5][https://www.wikiwand.com/en/The_DAO_\(organization\)](https://www.wikiwand.com/en/The_DAO_(organization))
- [6]<https://www.packym.com/blog/conjuring-scenius>
- [7]<https://dfinity.org/technicals>
- [8]https://www.wikiwand.com/en/Magna_Carta
- [9]<https://www.fehrsam.xyz/blog/blockchain-governance-programming-our-future>
- [10]<https://www.investopedia.com/news/daos-and-potential-ownerless-business/>
- [11]See Laila Metjahic, “Deconstructing the DAO: the Need for Legal Recognition and the Application of Securities Laws to Decentralized Organizations,” Cardozo Law Review 39 (2018): 1554.
- [12]The Starfish and the Spider: The Unstoppable Power of Leaderless Organizations, by Ori Brafman & Rod A. Beckstrom
- [13]Whiplash: How to Survive Our Faster Future, Ito, Joi/ Howe, Jeff
- [14]The Open Organization: Igniting Passion and Performance , Jim Whitehurst
- [15]The Boundaryless Organization: Breaking the Chains of Organization Structure, by Ron Ashkenas , Dave Ulrich , Todd Jick , Steve Kerr
- [16]<https://news.daosquare.io/thoughts-of-governance-token-and-dao-new-more-info-about-dkp-df4fb54007df>
- [17]<https://blog.ethereum.org/2014/05/06/daos-dacs-das-and-more-an-incomplete-terminology-guide/>
- [18]<https://techcrunch.com/2016/05/16/the-ao-of-the-dao-or-how-the-autonomous-corporation-is-already-here/>
- [19]<https://vitalik.ca/general/2021/08/16/voting3.html>