



# Nebulas NAX White Paper

Nebulas Foundation

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## 1 The Nebulas Vision

Blockchain technology itself is not a brand-new technological innovation, but as a combination of a series of technologies (including cryptography, distributed systems, game theory, etc.) resulting in model innovation. Bitcoin [?] created the perfect design for "a decentralized electronic cash system", opening the door to the blockchain world. Ethereum further proposed a smart contract blockchain framework with Turing completeness of the code, thus created the ERC20 token paradigm which made it easier to finance new ideas via blockchain.

Blockchain technology has thus achieved unprecedented prosperity and development. The Nebulas White Paper [?] also presented its own blockchain concept and is committed to the vision of "allow all to benefit fairly from decentralized collaboration." It also presented novel technologies such as Nebulas Rank (NR), Developer Incentive Protocol (DIP), Nebulas Force (NF) and Nebulas' unique approach to on-chain consensus entitled Proof of Devotion (PoD).

Over the past two years, Nebulas have learned from their strengths within the blockchain world. We understand that there will be further exploration and experimentation within blockchain collaboration, such as the NextDAO platform.

## 2 NextDAO

### 2.1 blockchain collaboration

The emergence of Ethereum ERC20 has become a new financing method based on smart contracts via blockchain which led to a very low asset issuance expense. With the support of various blockchain trading platforms, tokens were able to obtain liquidity and early investors were able to exit their investment at any time leading to a significantly reduced investment length. This new paradigm did not however solve post-financing issues for projects and as a result, this led to the creation of many deceitful projects.

Blockchain technology is essentially a decentralized, trustless, game-based autonomous system. Its real charm is the open collaboration model based on consensus mechanism under the idea of decentralization. The most famous attempt at blockchain

collaboration is the DAO project on Ethereum, also known as the "decentralized autonomous organization." The DAO ideology is derived from equity financing technology on Ethereum, which creates a decentralized management structure by utilizing code for organizational rules and the decision-making process which eliminates the need for written documentation and reduces the requirement for human intervention. In 2016, Ethereum's DAO project was hacked and tens of millions of dollars worth of Ethereum was stolen which eventually led to a hard fork on the Ethereum blockchain. Although The DAO was ultimately not successful, it was a great attempt and a lot of lessons were learned to the follow-up projects.

We believe that collaboration via blockchain still has the following issues:

- **Collaboration role diversification** In the early Bitcoin community, there were only miners and coin holders. With the emergence of Ethereum, more and more people were exposed to the blockchain and created new user groups such as developers and application users. Due to this, the distribution of rights and responsibilities of different user roles was challenged.
- **Single incentive mode** At present, most of the public chain consensus incentives are focused on mining incentives based on PoW or PoS. With more user roles within a blockchain ecosystem, a single incentive model cannot adequately incentive all participants.
- **Ecosystem models lack fairness** Currently, blockchain ecosystem model are not fair to most participants leading to some gaming the system for their personal benefit.

In order to solve the problems of blockchain collaboration listed above but not limited to, Nebulas proposes a financial blockchain collaboration framework entitled "NextDAO." This platform will include public chain collaboration, governance and decentralized finance (DeFi).

## 2.2 Public-chain token economy

The Token Economy is embodied in an economic model that includes the generation, circulation, repurchase, and incentives of issued tokens. In the conventional economy, the manifestation of the asset include: currency, notes, points, stocks, claims, usage rights, ownership, and so on. The generation, circulation, repurchase and incentives of these rights are all guaranteed by centralized institutions. In the world of

blockchain, the corresponding decentralized economic model has emerged. A typical use-case of the public chain token economy is the Ethereum ERC20 token. It greatly facilitated the speed of financing, distribution, stimulated the ecological prosperity of Ethereum and also drove the development of the entire blockchain industry.

Therefore, the value and innovation of the public chain is not only due to the innovation of this technology itself but also the model and commercial innovation brought by technology.

Building a Token Economy for a public chain is just as important as developing the public chain technology itself. The biggest problem facing public chain incentive is human nature, which eventually becomes a human-to-human game, that is, the participants are aimed at obtaining the best interests, rather than for the purpose of completing the best ecological construction.

Most public chain projects fail in comparison when trying to compare the power of the Ethereum community. With this in mind, it's critical to design a Token Economy that suits its ecosystem. Designed token economy must align with the expansion of consensus, the development of the community and a model that presents a positive ecosystem to all which will bring long-term benefits to the system. The positive development of user incentive is needed in order to promote the development of blockchain technology and its commercial expansion.

The public chain can be thought of as a public resource platform, where any user can trade on the public chain. Therefore, the public chain does not belong to any individual and is a public resource. In order to avoid the tragedy of the commons [?], an effective pass-through economy is needed to form a long-term effective positive ecosystem, a good governance environment, expansion of community consensus, so as to achieve better technological innovation and development.

Nebulas will actively develop a unique token Economy of its own and will continue to be a better collaboration platform where every participant will benefit fairly.

## 2.3 Nebulas Token Economy:NAX

As a public chain, Nebulas will establish an ecosystem framework based on its own strengths and characteristics with the aim of fairness and validation, collaborative innovation, incentive contribution, stimulating positive ecosystem development, strengthening community consensus and developing unique public chain technology. The core logic of NAX and application scenarios are described in detail in the following

sections.

## 3 Economic Design of the NAX Token

### 3.1 Design goal

While one of the intentions of the NAX token will be to increase ecosystem activity, the primary design goal is to create a positive reinforcement token economy where all can participate in ecosystem utilization. The core design of a public chain's token economy should conform to certain principles and objectives. These include fair benefits to participants, positive incentives, logical simplicity, and diverse utilization scenarios.

By creating a token economy with these characteristics, the token naturally has a higher value which thereby promotes the development and expansion of the public chain. A good token economy on a public chain will make the entire ecosystem more dynamic. To sum up, NAX's design goals include:

- (a) fair benefits
- (b) positive incentives
- (c) simple and easy to understand
- (d) high utility
- (e) smart and effective

### 3.2 Core logic

#### 3.2.1 Equity fairness and legitimacy

The effectiveness of a public chain's token economy comes from the fairness and legitimacy of asset acquisition. The requirements for acquiring assets should be simple, transparent and an identical process for the vast majority of people. In a public token economy, the assets owned are relatively fair and substantiated - due to this, the primary way to obtain equity of a token via a pledging (Staking) method is in line with the above requirements. Equity obtainment must not be due to requirements not clear or loopholes existing which lead to the phenomenon of poor asset allocation - the overall

result of obtainment must be conducive to improved ecosystem development on the public chain.

Within the Nebulas ecosystem, the pledging (Staking) process of NAS to obtain the benefits of NAX is fair and equitable within the Nebulas Eco-Certified economy.

### 3.2.2 Nebulas smart pledge

Traditionally, the pledge method used requires users to transfer their assets into smart contracts for temporary custody and asset security is controlled within in the smart contract. Unfortunately, history of smart contract asset security issues is not uncommon. For example, in 2016, the DAO project on Ethereum was compromised and attackers used contract loopholes and caused a huge economic losses for investors and made them doubt the safety of smart contracts. Due to this, pledging also puts great pressure onto the public chain project parties since a large number of assets are kept in a smart contract which makes them targets; making the management and security of the smart contract a very big development bottleneck. All assets on the blockchain are genuine and pledging simply locks in the liquidity of that asset - it does not validate the ownership of the asset (although it can be retrieved by calling the contract method) once transferred to the contract.

For NAX asset obtainment via staking, we propose a new mechanism entitled "Nebulas Smart Staking" which records the locking of liquidity via smart contract between the Nebulas address owner and the pledge contract while ensuring the user's assets are still owned by the user. The role of the pledge contract is to simply verify the validity of the user's pledge by randomly checking the on-chain contract status and the pledging address. A pledge is considered valid when the balance of the pledging address is equal or greater to the amount pledged to the smart contract.

The advantages of the Nebula Smart Pledge include:

- (a) guarantees the user's asset identification
- (b) motivates more users to participate in pledge
- (c) asset security decentralization
- (d) Asset Securitization and Separation of Asset Liquidity

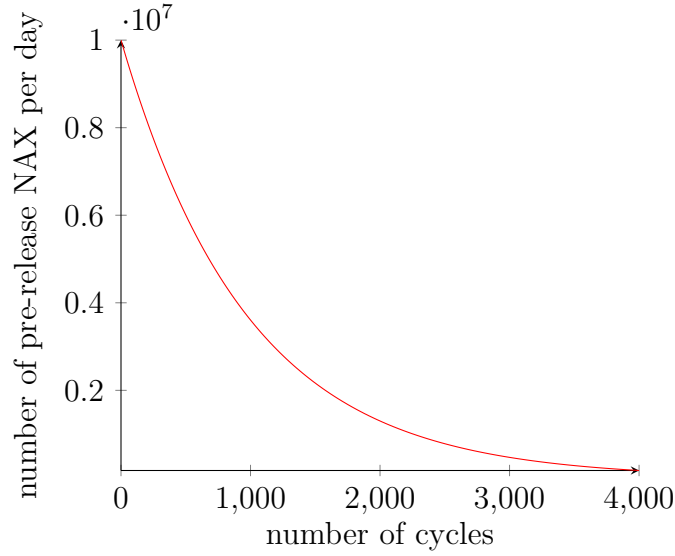


Figure 1: Daily pre-release NAX number and period relationship

### 3.2.3 NAX Extended Model - NDM

As mentioned above, on the basis of safeguarding the equity and legitimacy of assets, and ensuring the inviolable ownership of pledged assets, the user contributes the liquidity of their assets to obtain the corresponding ecological rights and interests. We call this new mode of token issuance NDM (Nebulas Devotional Mining).

The maximum amount of NAX tokens projected to be released is 10 billion( $10^{10}$ ) with an issuance cycle of every 6,000 blocks (approximately once per day tokens will be distributed). The number of tokens issued per cycle decreases with an attenuation coefficient of  $\mu = 0.999$  which leads to distribution completion in about 12 years. The number of pre-issued NAX changes with the number of cycles??, and the cumulative pre-issued NAX number is shown in ??.

### 3.2.4 Dynamic Distribution Model

The so-called dynamic distribution model means that on the basis of pre-issuance, some variables will be introduced to promote the positive ecosystem growth. During the initial stage of NAX, we will introduce multiple variables which will control distribution such as pledge rate influence factor and a dynamically adjusted distribution ratio based on the to the rise and fall (quantity) of pledged assets. Any undistributed NAX for a cycle will be rolled over to the following cycle for greater distribution based on the variables. As needed in the future, we will also introduce a more dynamic distribution