**Idavoll Network Whitepaper**

**V1.1**

**Idavoll Network Team**

**1/19/2021**

## Background

Web3.0 Internet of Value supports the cross-chain underlying project -- Polkadot (Polkadot) has established a set of multi-chain architecture, which will enable all blockchains connected to this architecture to better complete the information interaction between each other. Polkadot defines a set of Parachain and Relaychain to solve the scalability issues respectively. Polkadot will use blockchain technology to realize the following major visions of Web3.0:

1. The user owns his own data, not the company.
2. Global digital asset transactions are safe.
3. The online exchange of information and value is free.

With the development of blockchain technology, in this growing field, project competitive advantages require more and more innovative solutions to support. In the current blockchain field, almost every blockchain project is an independent ecosystem composed of users, tokens, and dApps (decentralized applications). Each blockchain project is in a separate soil. Growing. With the continuous development of the industry, this kind of blockchain project
Insufficient interoperability will become a barrier to future development.

Why is the interoperability between blockchains so important?
In fact, the lack of interoperability has become an obstacle to the application of blockchain in enterprise business. Due to the lack of interoperability, digital assets on one chain cannot be transferred to another chain. At the same time, smart contracts on different chains cannot interact. In order to solve this problem, many companies provide some solutions in the application layer of the blockchain. They claim to provide a solution that can easily complete the "interoperability of various blockchains" using their cross-chain protocol. However, this solution is not decentralized.

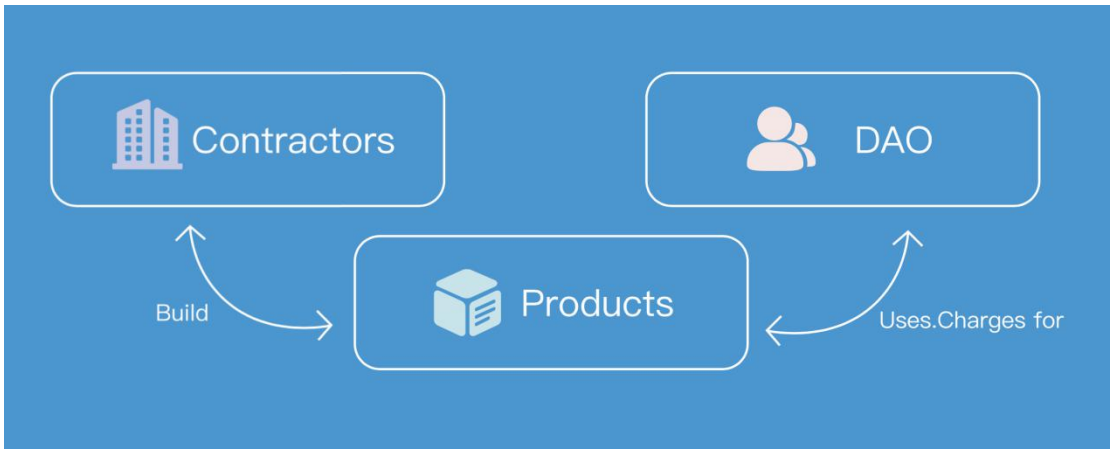
## Idavoll Network Introduction

DAO is to move real-life organizations to the blockchain, and write the organization's operating rules in smart contracts, thereby restricting participants and ensuring openness, fairness and justice. At the technical level, the main implementation method behind the P2P transmission mode is the development framework of the blockchain to establish a cooperative economic infrastructure that does not rely on central institutions. The framework should provide small modular and functional components that can be used as the basis for the formation of these

economies by creating and configuring DAOs.

DAO or decentralized autonomous organization is a form of organization, and its governance form involves activities such as resource allocation and allocation, interaction between participants, consensus and voting mechanisms, etc., organized by smart contracts residing in the organization. One of the main challenges facing the current DAO governance model of blockchain is scalability. With the increase in the number of DAO members and the increase in operational complexity, there is an increasing need for delegation and division of responsibilities to better manage the organization. Notifying all members and participating in every process of the organization is not feasible, because it will take a lot of time and effort, which may lead to wrong decisions, and thus put the function of the DAO itself at risk. One possible solution is to form a small group of organizational members and obtain a certain number of permits to allow them to perform reduced DAO tasks and activities. These groups are called "committees" by us and are managed through apps.

Idavoll Network is a decentralized autonomous organization management platform that provides infrastructure and services for users of the Idavoll Network and Polkadot ecosystems. Each Idavoll Network organization exists in the form of a set of modules linked to each other. These modules define the stakeholders of the organization and their related rights and privileges. Idavoll Network will implement the idavoll court developed and maintained by idv holders in the future. Organizations can use courts to resolve subjective disputes with dual outcomes.




Idavoll Network is a parachain project in the Polkadot ecology that allows anyone to create and manage any organization (companies, open source projects, NGOs, foundations, hedge funds...). The platform realizes shareholder roster, token transfer, The basic functions of organizations such as voting, job appointment, financing, and accounting. The behavior of the organization on the chain can be easily customized by modifying the charter. In addition, the Idavoll organization can also be extended by connecting third-party modules of smart contracts.

**Idavoll Network Architecture**

Idavoll Network is a decentralized autonomous organization platform. It is a parallel chain of Polkadot based on the substrate2.0 development framework, which is convenient for users to create and manage organizations freely. Idavoll provides users with a set of basic building templates for users to flexibly and freely create custom organizations. The minimal definition of a DAO should be: an organization can renew itself and maintain its identity forever. Then our basic core components should include: "organization" and "voting".

**Idavoll DAO Principles**

Before defining the different components of the DAO core, we first define a few basic principles of the DAO we want to complete:

- A DAO exists in the world as an eternal entity.
- A DAO will always exist unless it decides to terminate.
- A DAO can update most of the basic components by itself, while still being regarded as the same entity.
- A DAO has internal capital, which is in principle in the form of digital assets.
- A DAO can operate the external world or itself, and its execution is realized using smart contracts on the chain.
- In addition to pre-defined behavioral rules for a DAO, external events can also trigger specific DAO operations.

**Basic Components**

Idavoll Network can provide Polkadot ecological users with infrastructure and services for building DAO. Each Idavoll Network organization exists in the form of a set of modules, which define the stakeholders of the organization and their related powers and privileges. The core function of the basic component is to complete the basic functions of a DAO, including organizational features such as membership, ownership, voting, capital and membership. Idavoll provides some basic plug-in templates for combining the characteristic functions of the organization, including organization templates, voting templates, Token templates, and asset templates. By combining these templates, everyone can define a DAO, which is predefined The rules of conduct restrict the execution of the DAO.

Component templates are linked together using a permissioned structure to form a complete, secure and controllable DAO, that is, the organization only allows the permitted addresses and modules (module addresses) to perform specific operations of the organization. For example, a module with voting rights will perform a forwarding operation after successfully approved voting. By linking the basic modules together, some complex standards can be defined, which will limit the behavioral operations within the organization. For exaple, an organization wants to allow the

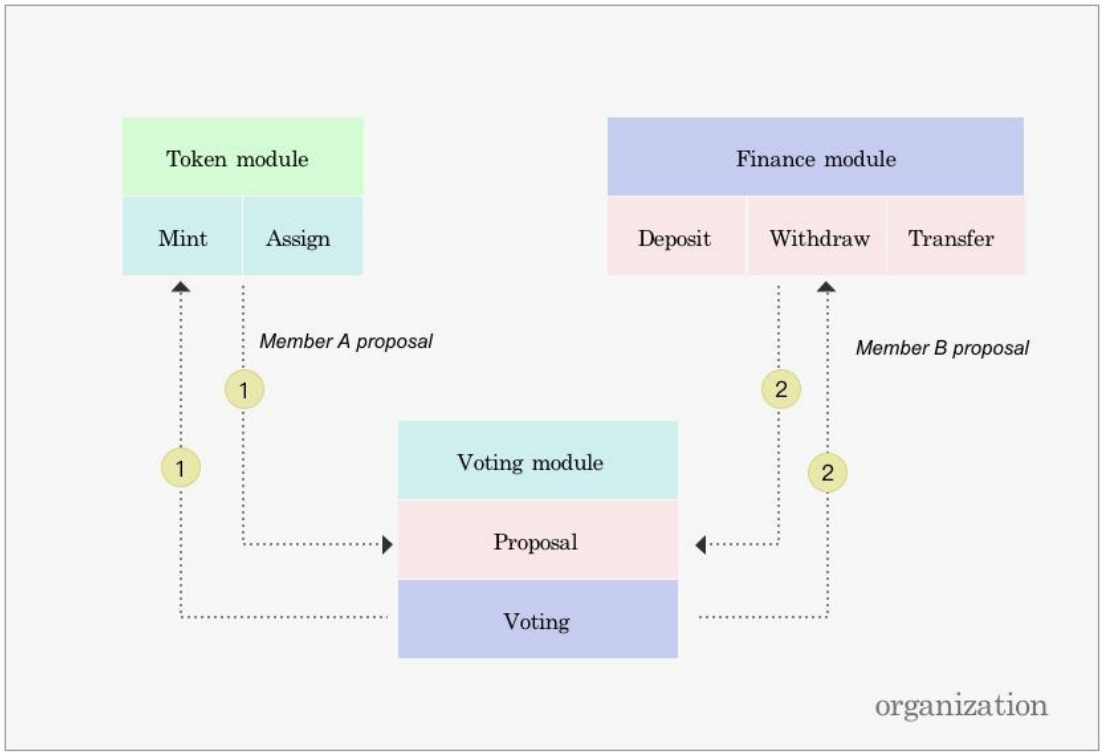
transfer of funds within the organization, but the premise is the following conditions:

1) Proposed by members of the organization.

2) Approval by the majority of members.

3) Meet the predetermined budget.

This can be achieved by configuring permission chains, each link imposes logical constraints on the final operation.




Organization module: used to manage the organization's membership and permissions and other functions, divide the organizational structure, such as different permissions for nodes, users, developers, etc. You can also set up super administrators as needed.

Voting module: Manage the proposal and voting decision-making process of the members of the organization, define different proposal voting requirements, set different passing ratios and negative requirements for the level of the proposal.

Token module: manages the representation and transfer of ownership of organization members, and the additional issuance and redistribution of tokens will also be implemented by voting in accordance with a complete governance process.

Finance module: manage the organization's assets and asset transfer actions.

Agent module: used to create external cooperation and combine the original organizational structure with DAO tools.

The DAO composed of the above module links can effectively restrict the asset transfer process in the organization. The transfer process is approved by a majority vote, but for a small number of stakeholders, the majority of stakeholders may decide to liquidate the organization and make a small number of stakeholders related In order to avoid this hostile liquidation situation, the organization needs a mechanism to impose constraints, which can be implemented by any individual in the organization instead of the actions of most participants.
Any member of the organization can initiate a proposal, and the terms of the proposal agreement must be clear. Once the proposal has the relevant pledge, the proposal will be forwarded to the "Voting" function module, and rules such as creating a vote, suspending voting, and canceling voting are assigned Use with the "Voting" function module.

If minority shareholders believe that the submitted proposal violates the terms of the proposal agreement, they can choose to dispute. When they file a dispute, they will need to deposit an equal amount of collateral, as well as the initial dispute fee determined by the Idavoll court. They can also provide evidence to support their position. Voting will be suspended immediately until the dispute is resolved.
If the original proposer believes that the dispute is valid, then they can choose not to take any measures, and the dispute will automatically be ruled in favor. The collateral of the proposer will be transferred to the disputer and the vote will be cancelled. If the original proposer believes they will win the dispute, then they must also pay the dispute fee and provide evidence to support their position.

**Idavoll Court**

Proposal agreement disputes rely on the decentralized oracle agreement, which is called the court, and the jury members own the IDV of Idavoll Network's own chain assets to win the right to perform dispute resolution services and receive a portion of the dispute resolution fee.

In the event of a dispute, jurors are selected through the weighted classification of equity to form a jury. The jurors must rule on the dispute during the commitment period, and then disclose their verdict after all the jurors have made their commitments. The verdict was based on a drafted majority decision of the jury.
Before the sentence is enforced, there is an opportunity to appeal, which will repeat the trial process with a larger number of jurors. A fixed number of appeals can be made before the final judgment round in which all the jurors involved are required to make a verdict.

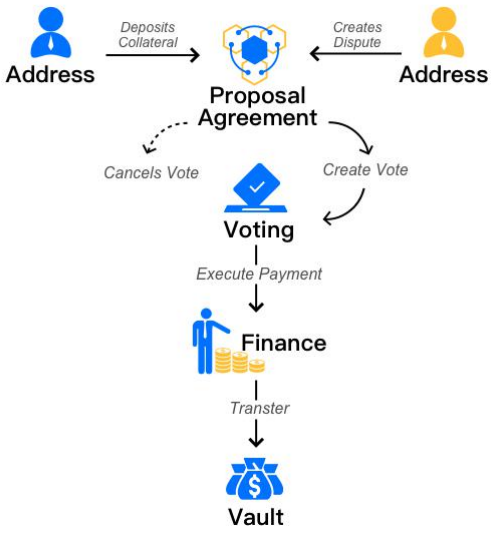
The juror needs to obtain the IDV and deposit it in the mortgage contract of the court to obtain the qualification of juror. Once the prospective juror participates in the pledge of obtaining the qualification of the juror, the prospective juror is considered to be active and must commit to the specified period Arbitrate the dispute within. Once the jury is formed, the dispute enters the deliberation stage. The jurors need to make a verdict in favor of one party. The complete verdict

is divided into two stages, the "commitment period": the hash value of the verdict submitted by the juror; "Disclosure period": The jurors will announce their voting results. Jurors who announce their votes before the "disclosure period" or fail to announce their votes after the "disclosure period" will be punished.

The first ruling of the dispute is called the preliminary ruling, and the subsequent ruling is called the appeal period. If there is no appeal during the appeal period, the preliminary ruling is the final ruling. Each dispute can be appealed at most once. In order to appeal, both parties to the dispute must apply additional mortgages. If neither party has deposited the mortgage required to trigger the next round of appeals, the preliminary ruling will be finalized. If only one party deposits the required collateral, the ruling will be completed immediately in its advantageous manner. If both parties have deposited the required collateral, an appeal round can be arranged.

If there is a preliminary ruling, and no party appeals, only one appeals, or the maximum number of appeals is reached, a final ruling is reached. After making the final ruling, the court needs to deal with the reallocation of collateral and equity.

**DAO Governance Process**

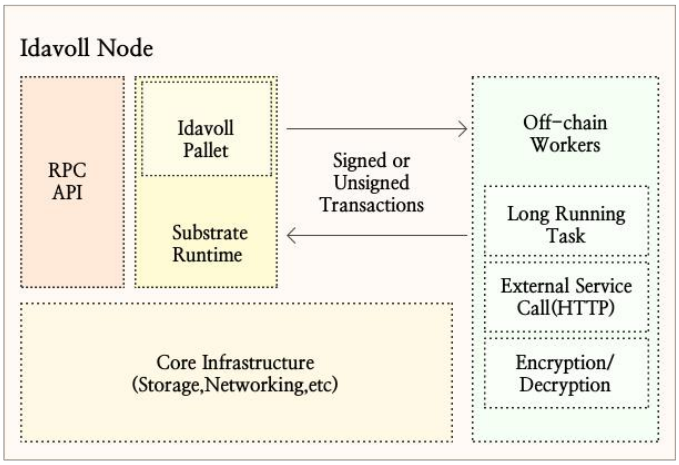



1. In the governance process, users can create proposals and pledge a certain amount of IDV to allow all members to participate in the voting process of the proposal. If the majority of users vote for the proposal and there is no dispute, the proposal will pass, and a certain amount of funds will be obtained according to the proposal rules.

2. If a small number of users believe that the proposal violates the terms of the proposal agreement, a small number of stakeholders can choose to raise a dispute in order to protect their own interests. When they file a dispute, they need to deposit an equal amount of collateral and

the initial dispute fee determined by the Idavoll court. They can also provide evidence to support their position. The voting process of the proposal will be suspended immediately until the dispute is resolved. If the initiator of the proposal believes that the dispute is valid, it can choose not to take any measures, and it will automatically rule that the dispute is successful. The collateral of the initiator of the proposal will be transferred to the disputer and the vote will be cancelled. If the initiator of the proposal believes that it will win the dispute, he must also pay the dispute fee and provide evidence to support his position. After both parties submitted evidence and disputed fees, the Idavoll court reviewed the case.

**Idavoll Network Parachain**




Idavoll Network is a Polkadot ecological parachain based on the substrate2.0 development framework. In terms of function, the Idavoll Network is compatible with the account, balance, babe, grandpa, staking and other pallets of the substrate, and shares and ensures the high performance, stability and security of the Idavoll Network. At the same time, the Idavoll Network provides the basic pallet of DAO and provides various foundations. The flexible composition template of pallet to build professional DAO organizations with different attributes. The Idavoll Network also combines the functions of substrate's offchain worker to provide off-chain data integration, combining off-chain data with on-chain rules to complete the governance process.

**Idavoll Network Eco-system**

Sustainable Token Model

After the initial sale and network deployment, the remaining IDV will be used to maintain the network and the community, and to reward miners and community contributors. Later, the community will vote on whether to issue additional IDV and its model. The cost of issuing new tokens is determined by IDV token holders. This will be a continuous decision, taking into account the principles of supply and demand in economics. If the cost of issuing new coins is too low, more and more tokens will enter circulation until the supply seriously exceeds the demand. This

inflation plan will make the price of a single IDV token drop. Ultimately, we believe that token holders will determine a healthy equilibrium inflation rate. By treating the opinions of every holder equally, the market will correctly reflect the best additional issuance costs.

**Idavoll Network Governance Mechanism**

When it was launched, Idavoll Network adopted a democratic way to determine token issuance, fund distribution, and network rules. At the same time, Idavoll Network will also adopt on-chain DAO governance, and Idavoll Network will be the first DAO on the chain. This means that through the proposal and voting system, Idavoll Network is deployed on the basis of the on-chain governance mechanism, and the mechanism itself is upgraded by establishing proposals.

IDV issuance:

- Set tax ratio for IDV income
- Allocate funds to all token holders
- Shut down or freeze organizations that do not comply with regulations from the network
- Organizations using IDV tools

Fund allocation:

- Allocate funds as a one-time reward
- Repetitively allocate funds to service providers
- Allocate funds to all token holders

**Idavoll Network Tokenomics**

**Issuance**

When mainnet is live, Idavoll Network will issue 2 billion IDV tokens. Token issuance is to pay network operators, that is, verification nodes and ecological operation and maintainers. Idavoll Network token distribution is as follows:

Token name: IDV

Total supply: 2,000,000,000 IDV

Investment and partners: 500,000,000 IDV (25%)

Ecological incentives: 400,000,000 IDV (20%), used for community development, airdrops and subsequent card slot auctions and other activities that are conducive to ecological development.

The foundation reserves: 300,000,000 IDV (15%) for the daily operations of the foundation.

Team: 300,000,000 IDV (15%), the team part will be linearly unlocked quarterly within three years after the mainnet launch;

Mining: 500,000,000 IDV (25%), mining is divided into two parts, of which 300,000,000 IDV (15%) is used for governance rewards, and rewards for participating in proposals and governance; the other 200,000,000 IDV (10%) is used for block rewards , Reward for participating in PoS consensus block production.

**Idavoll Network Utility Scenes**

**Transaction Fee**

Each transaction requires a certain amount of bandwidth to be included in the block and a certain amount of computing power to execute. We package these resources into a unified measurement "gas", which must be spent by validating nodes to execute transactions. Idavoll Network uses the WebAssemly virtual machine to execute transactions and provides a map containing virtual machine operations and gas usage. The goal of gas is to become a unified measurement that measures the resources required to receive, execute, and generate transactions on preset hardware. Users who want to send a transaction must pay a transaction fee, which is calculated by multiplying the amount of gas required for the transaction by the current gas fee. The gas fee applies to the entire system and changes from block to block in a predictable manner. Specifically, if the gas used in the previous block exceeds half of the block's gas upper limit, the gas fee will increase slightly. Otherwise, the gas fee will drop. There is a minimum gas fee as the lower limit of the fee.

**Idavoll court**

Idavoll Network’ s support for handling disputed proposals is the Idavoll court. A certain amount of IDV must be mortgaged to the Idavoll court before a disputed proposal is adjudicated. As a proof of the case, the verdict of the case requires jurors to vote and the jury requires a certain number of IDV pledged to prevent it from doing evil, the final verdict of the case will enable the winning party, jurors, and Idavoll treasury to obtain a certain amount of IDV proceeds, and the losing party will be fined with the mortgaged IDV.

**Idavoll Eco-system**

The funds in the Idavoll Network agreement treasury will be returned to the ecology, and we believe that development should be sustainable. We allocate 10% of the verification node rewards and the pledged assets of organizations that do not follow the rules from the network to shut down or freeze to the treasury. The treasury account is designed to provide continuous support for the development of the protocol and ecosystem. In the long run, the treasury should be managed through a decentralized governance process. Contributors to the Idavoll ecosystem can apply for rewards to the treasury. Idavoll Network will allocate a certain number of IDV

rewards to the applicants after voting decisions. At the same time, the treasury will also regularly reward a certain percentage of IDV to all users.

**Verification node**

Reward

As a category of verification nodes, each epoch will receive a certain amount of system rewards (10% of which is used in the Idavoll protocol treasury). Each verification node will receive a reward proportional to its participation. After the verification node is pledged, it can be allocated to the corresponding epoch through certain rules for consensus node generation. After the end of each cycle, the verification node will be evaluated based on the actual and expected block output of the verification node. If the online rate is lower than the expected 90%, the verification node will be considered offline/unstable. This kind of node will not receive any rewards and will be eliminated in the next cycle (ie, the pledge is forced to cancel). Verification nodes with an online rate greater than or equal to 90% will receive a reward that increases linearly with the online rate, and a verification node with an online rate greater than or equal to 99% will receive a 100% reward.

Commission

The verification node can obtain a third party for pledge through entrustment. Idavoll Network is a blockchain network developed based on the substrate framework. It supports the NPOS protocol natively supported by substrate. This protocol allows users to participate in the operation of the entire network by entrusting validators and obtain rewards returned by the system. Verifier nodes that wish to accept delegation can create a fee standard to support the user's delegation, and users who do not want to run the node themselves can deposit their IDV in the verifier node. Thus, the funds deposited in the verifier node can be used by the verifier as part of its pledge.

Governance

In order to promote the development of governance, when nodes participate in governance, they can pledge IDV to vote on proposals. For approved proposals, a certain amount of tokens can be rewarded.

Mining: 500,000,000 IDV (25%), mining is divided into two parts, of which 300,000,000 IDV (15%) is used for governance rewards, and participation in proposals and governance is rewarded; the other 200,000,000 IDV (10%) is used for block rewards, Reward for participating in the PoS consensus to produce blocks.

Idavoll Network project plan

Phase 1: Realize the basic functions of the parachain developed based on the substrate2.0 framework and realize the basic module functions, including the functions of organization, voting, token and asset management modules, and complete the basic functions of building DAO.

Phase 2: Implement more templates and functional modules, the basic functions of dispute

agreement and Idavoll court in DAO governance, and open SDK to more DApps.
Phase 3: Realize the function of customizing DAO modules to provide services for any type of DAO and a complete and open SDK function platform, and support DAO governance on multiple chains through cross-chain.

Idavoll Network Outlook

As a DAO governance platform, Idavoll Network will introduce more governance modules in the future to meet the individual needs of more organizations, making Idavoll Network a governance platform that carries various DAOs.

At the same time, as Polkadot's parachain project, with the development of Polkadot's ecology, Idavoll Network uses the XCMP protocol to provide DAO governance services for projects and products on other parachains, including governance services for projects on other public chains. For example, the DeFi project on Ethereum, its DAO runs its heavy governance process on the Idavoll Network (this governance will be expensive and slow on Ethereum), but through the agent module of the Idavoll Network, through the Polkadot bridge chain, the DAO The results of governance are executed on Ethereum, enabling various projects to complete decentralized governance at very low cost.