

## Information on IPC Offshore Platform



### Project Description

IPchain is a block chain product for the application in the field of intellectual property. Launched in October, 2016, after months of market analysis, technical solutions research, and communication with experts in the field of intellectual property, the technical basis of IP Chain was determined to be the block chain technology based on the model of UTXO, which is similar to Bitcoin network. Through adopting Consensus Mechanism of DPOC (one of the improved solutions of DPOS) and with reference to the transaction model for the characteristic of products in the field of intellectual property, IPC Chain aims at providing a flexible and rigorous solution of intellectual property block chain.

Traditionally speaking, the biggest problem of the definition, use, and protection of intellectual property rights is the difficulty of the proof of ownership, resulting in the value losses and property consumption of original owners of intellectual property. The traditional ways of protecting rights have been monopolized by large organizations and social organizations. Hence, it needs to undergo a series of complex and lengthy processes to obtain the valid certificate of intellectual property, which is, however, not the greatest influence. The powerful monopolies and the weak individuals appear to be so imbalanced. Through technology of block chain to preserve the proof of intellectual property, authors can protect their privacy effectively with a small amount of money, ensuring users that they are willing to timely input their proof of works into the public chain of IPC Chain. Meanwhile, the transaction of intellectual property will be recorded as a regular transaction way of rights, and an authentic certificate can be provided to the public.

IPC Chain plans to be a provider of infrastructures in the field of intellectual property, providing foundation of the more effective and safer commercial application for the intellectual property. IPCChain is cooperating with many ambitious partners of the commercial application of

intellectual property in the field of cultural transmission, electronic publishing, audio and video products, technological innovation, and substantial knowledge assets.

## **Project Goal**

IPchain aims at realizing the definition, use, and protection of intellectual property rights by a publicly recognized and authentic technological method. In the current available technologies, the application of block chain technology has these technological characteristics. The block chain technology inherently has the characteristics of safety, fairness (which adopted the decentralized technological means), and traceability (a distributed logger). With the reference to characteristics of the current available block chain technologies, IPchain adopts the strict UTXO model and user signature verification in the public chain, and at the same time, restrains the registration, transfer, authorization in the transaction checking for the application characteristics of intellectual property, conforming to the application environment of intellectual products. Methods of contracts with directional functions have the obvious meaning and benefits for public understanding and the preservation of proof chains of intellectual property using block chain products. Practicability and convenience are the prerequisites of commercial applications. Many commercial applications can be realized by the simplest way in IPchain. Meanwhile, creating huge market opportunities and wide commercial applications are the aims of IPchain.

## **Project Schedule**

October, 2016: establishment of the team and launch of the project

November, 2016: completion of market and industry research

December, 2016: completion of required designs of the system

January, 2017: completion of preliminary designs of the system

From February to March, 2017: completion of detailed design of core modules of the system (including the consensus mechanism, transaction model, wallet, browser etc.)

From April to September, 2017: system development, coding, checking, joint debug

End of September, 2017: release of the testing version

End of October, 2017: release of the official chain, the wallet, the block browser

End of December, 2017: release of the commercial application

From 2018: development of the virtual machine and release of more commercial application

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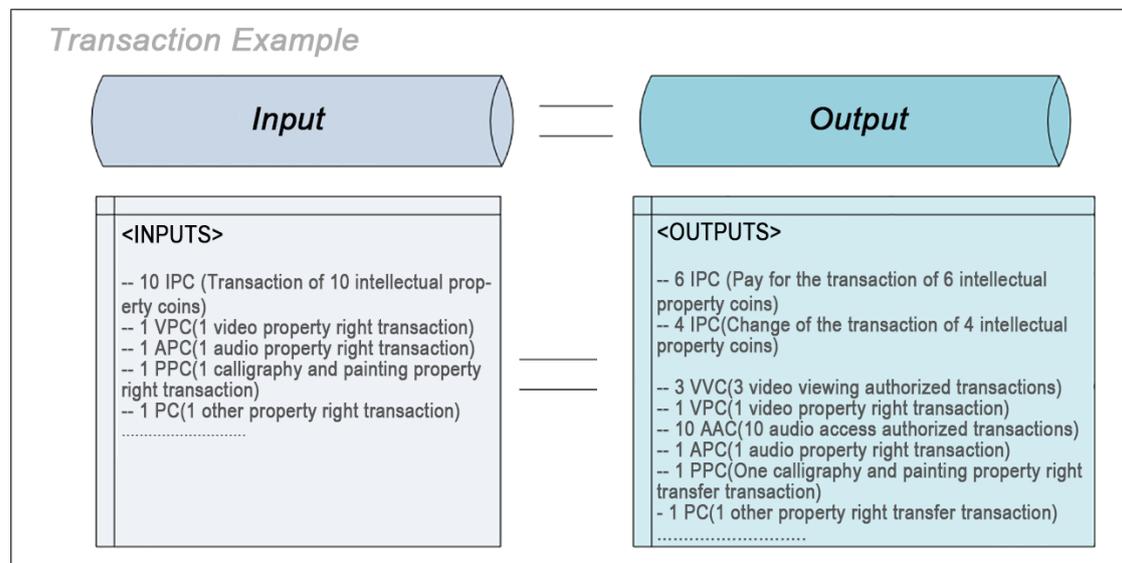
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## Technical Features

### Extended UTXO Model

The transaction data input of original block chain network uses UTXO model, which realizes the POW proof, non-repudiation, and traceability. All the input and output transactions of UTXO are based on the payment and transfer of Bitcoin. UTXO model of intellectual property chain is based on various services including but not limited to: the payment and transfer of intellectual property coins, the confirmation of different intellectual rights, the authorization and transfer of rights, etc. This model supports mixed transaction of various intellectual property rights if the input intellectual property rights is of the same value as the output intellectual property rights (and its sub-assets), as shown below:



## **Extended Digest Algorithm Supporting Multiple Signatures**

In the original block chain network, in order to protect the non-repudiation of the data, codes of addresses of Bitcoin, transaction data, and the input and output of transaction are under the signature management system of public-private key encryption. According to the definition of NIST, the standard algorithm is ECDSA signature algorithm and SHA256 digest algorithm, based on the standard spcp256K1 special elliptic curve and mathematical constant. In the practical commercial application, on the basis of ensuring safety, the signature algorithm and the digest algorithm must support the transaction data effectively. Intellectual property chain supports various signature algorithm including: ECDSA algorithm, SM2 national encryption algorithm, significantly shortening the signature time of transaction data of private keys. Digest algorithm includes SHA256, SM3, RIPEMD160, TIGER, PANAMA. In addition, according to setting demands of data block buffer cache in digest algorithm for different structural characteristics of transaction data, the digest algorithm has been improved in different platforms.

## **Innovative DPOC (delegated proof of contribution)**

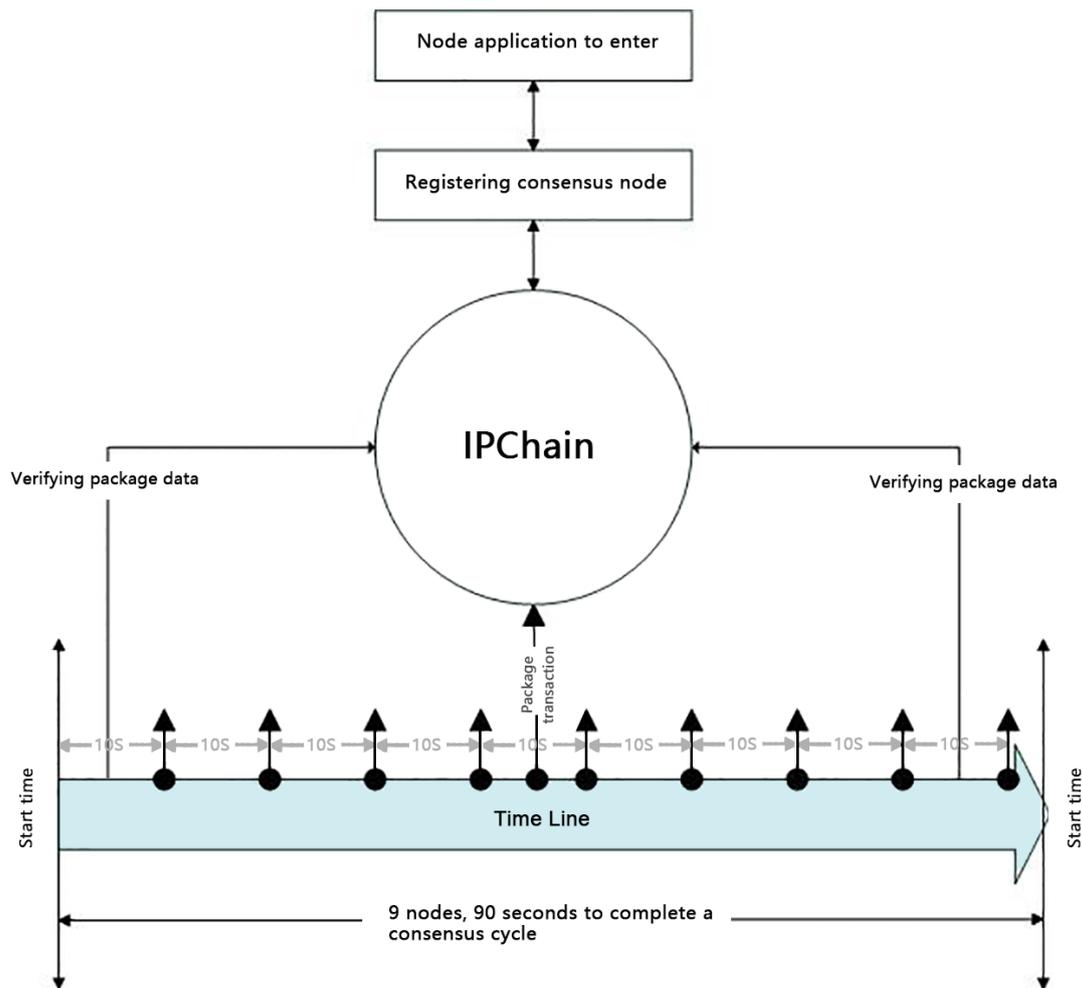
### **Consensus Mechanism**

The full name of DPOCD is Delegated Proof Of Contribution and its Chinese name is "贡献授权证明机制". DPOC has overcome a series of defects including the inefficiency of the currently used POW, the POS's rights balance failure risks, the inefficient violation cost of DPOS. DPOC is based on users' cumulative contribution in intellectual property chain. With the access of contribution of nodes, DPOC takes advantage of uniqueness and veracity of distributed account of the block chain to coordinate with system nodes and confirm the broadcast limits, and this system can be verified.

The access standard of DPOC is to reach the contribution value required by the system. System contribution value consists of two parts: the cash contribution and the work contribution of users' nodes. To be specific, the cash contribution is related to the amount and time of cash holding, and the work contribution is related to effective work of the participating system.

In the consensus mechanism of DPOC, the system will choose working nodes to complete the block generating accounting by contribution consensus voting and give incentives, while punishing those working nodes which violate regulations.

The following is the operation diagram of DPOC:



## Complex and Flexible Transaction Models

General block chain projects only have simple transaction models such as transfer of accounts and double signatures. For the transfer, transaction, and consumption characteristics of intellectual properties, intellectual property chain creatively inserts multiple transaction models into the system bottom layer and realizes and completes various complex commercial activities, which is different from other block chain projects. These models include but not limited to, transaction model of accumulative contribution, transaction model of video and audio intellectual property, transaction model of patent property, model of security deposit, auction bidding model of intellectual property.

Another characteristic of intellectual property chain is simple compression validation which enables light clients to verify transactions in the certain block with the confidant's signature without downloading all the block data to verify all the transactions. In this process, the system adopts Merkle proof mechanism. The clients will entrust the monitoring tasks of the whole block chain to credible consensus nodes.

## **Extended P2P Network Protocol**

Nodes in the intellectual property chain network use a series of extended protocol to broadcast in the whole network including the node message mechanism and the node alive mechanism. These two kinds of mechanisms are used for ensuring that nodes in the whole network are active. New clients entering IPC network should discover current activating consensus nodes in the whole network in order to use their services. Once the new clients enter the network, their nodes will receive the instruction of asking for the list of consensus nodes. Caches are set to record the clients' consensus nodes and the current state. Therefore, when the clients restart, they only need to upload the file and need not to ask for the complete list of all consensus nodes. Consensus nodes will broadcast the results of consensus negotiations in the whole network upon completion of every consensus negotiation. As time goes by, the network will remove the disable nodes so that these nodes will not be used or paid by clients. Nodes can require the access of network ceaselessly. However, if the port of the node does not open, the node will be marked as disabled and removed from internet services.

On one hand, network protocol of intellectual property chain ensures the safe operation of the network, and on the other hand, it guarantees the equality and rapidity of network nodes. Consensus nodes can provide any services to the network. Using the mechanism which we call the "proof of contribution", the system can demand that all these nodes are in the on-line state and response to the businesses in the network.

## **Supporting Commercial Application Flexibly**

In order to support various client sides and enable developers in different platform to achieve commercial application, intellectual property chain has customized a commonly used developing core model of bottom layer so that different developers can use the consistent drives of the bottom layer to develop applications. This core model provides drive and structure of the bottom layer and greatest flexibility to the developers.

Meanwhile, in order to lower the users' access limits, the model also provides a mature model of transaction application. For clients with weaker technological strength, Users with commonly used mature business models can directly adopt mature transaction models to rapidly construct their own commercial applications. This core model of bottom layer development has been established on the client sides of intellectual property chain and open to all third-party developers by the method of PRC.

# **Commercial Application**

## **Platform of Intellectual Property**

In the network of intellectual property chain, the system can provide full support to developing demands of property right transaction industry through the introduction of different consensus mechanism and requirements of monitoring. Through the network of intellectual property chain, a

decentralized intellectual property protection platform has been established. Anyone can build up its own content inventory of intellectual property and define its own content of intellectual property with the decentralized platform. After the confirmation of the right, the selling, consumption, renting through the platform or other ways to authorize or transfer the intellectual property do not need the approval of centralized nodes. Another characteristic of the platform is to strictly monitor coins of intellectual property through intelligent contracts, eliminating fraud and dishonesty.

For various characteristics of intellectual property transaction, the system of intellectual property chain provides the consensus mechanism based on the combination of Delegated Proof of Contribution protocol and Raft protocol, and satisfies the requirements of speed and capacity of the block chain in the security network. Through the introduction of the technology of multiple signature contracts based on the technology of block chain, complex commercial logics of property right can be realized in the platform.

## **Decentralized Application**

The system of intellectual property chain endeavors to provide all-round technological support to decentralized applications, especially through the use of mobile terminal strategies, the system has produced different DAPP routes and enabled general internet users to truly understand the values brought by block chain technology.

Towards different industries, DAPP applications of different routes can bring the block chain technology to more clients. For examples, for decentralized social activities of intellectual property, decentralized storage of intellectual property, and the decentralized transactions of property right, DAPP will take advantage of the idea of sharing economy and change the current business modes in the APP market through introducing the incentive mechanism.

Block chain technology provides the fundamental structures to decentralization. Through the improved API designs of intellectual property chain and the application of Docker technology, the intellectual property chain simplifies the preliminary work of developers so that they can start their designs rapidly.

## **Mobile Client Service**

Formulating the strategy for the mobile clients is a key step to improve the realization of block chain technology. In the eco-network of intellectual property chain, we will not only support and facilitate the developing and popularizing strategies of mobile APP, but also cooperate with the third-party developers to provide services for mobile clients, including but not limited to, DAPP application for mobile clients, wallet for mobile clients, and contracted application for mobile clients, etc. Meanwhile, we will encourage more third-party developers to join us so that we can improve the use of intellectual property block chain in actual business environment and develop more popularized block chain mobile services for mobile clients.

# Issuance, Distribution, and Monitor of Tokens

## Issuance of Tokens

Total issue volume of intellectual property coins: 96 million. The issuance of the coins will be increased 1% every year. The additional issuance is used for the award of accounting nodes.

90% of the coins will be produced in the official issuance of intellectual property chain and managed by Asset Management Committee of Intellectual Property Coins. The rest 10% will be used as incentives generated by the systems to users when they submit an intellectual property product.

## Distribution of Tokens

- Public offering (50%)

In order to ensure the adequate mobility of earlier launch of the application and the equality and credibility of participants, 50% of total asset of IPC will be put into market through crowd funding.

- Founding team, development team, private investors, market promotion (30%)

Market promotion and private investors account for 10%. The founding team and the development team account for 10%, and the other 10% will be used as the development fund for subsequent technical progress.

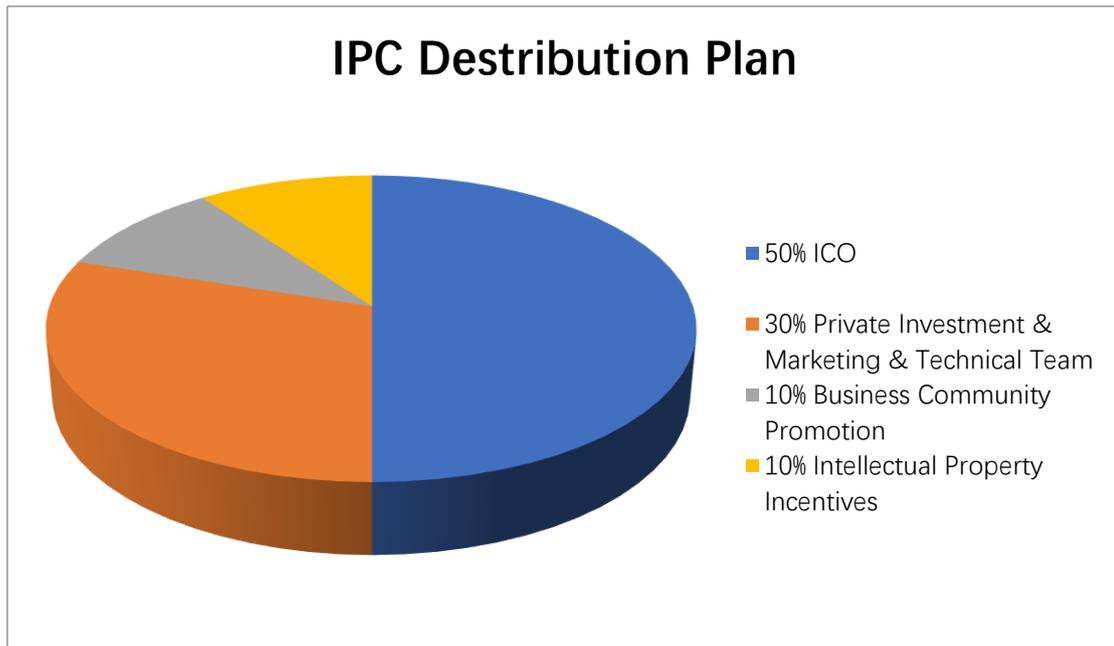
- Business community cooperation (10%)

In order to encourage the landing of the intellectual property chain, it is mainly used for the cooperation between the intellectual property chain and the commercial organizations and the community. 10% will be reserved for incentives.

- Intellectual property award (10%):

To encourage users to input intellectual property into the chain, 10% will be reserved for the intellectual property incentives.

## IPC Distribution Plan



## Monitoring of Tokens

Adopting the "transparent sandbox" supervision mode: according to the popular international "regulatory sandbox" mode that supports the innovation of finance, the underlying logic of "regulatory sandbox" is to support the actual financial innovation for the benefits of the customers. Establishing a new regulatory tool and regulatory system: allowing existing regulatory system to be more flexible, testing innovation in situations where risk is manageable. The sandbox provides a real or virtual test environment, and consumers will not lose different kinds of protected rights due to the sandbox testing. To this end, we created our own "transparent regulatory sandbox".

Establishing "Asset Management Committee of Intellectual Property Chain": established jointly by private investors, private board of crowd funding, project executive committee, lawyers and financiers, the committee coordinates the management of crowd funded assets and token assets. Through the multiple key signatures of the block chain, the committee mutually uses this asset transparently, regularly declares the relevant regulatory agencies and discloses to the public. Before the landing of the project, the virtual test and local small-scale test will be conducted. After finishing the tests, the real project will be launched. Tokens will be locked in a certain percentage and launched into the community and the market.