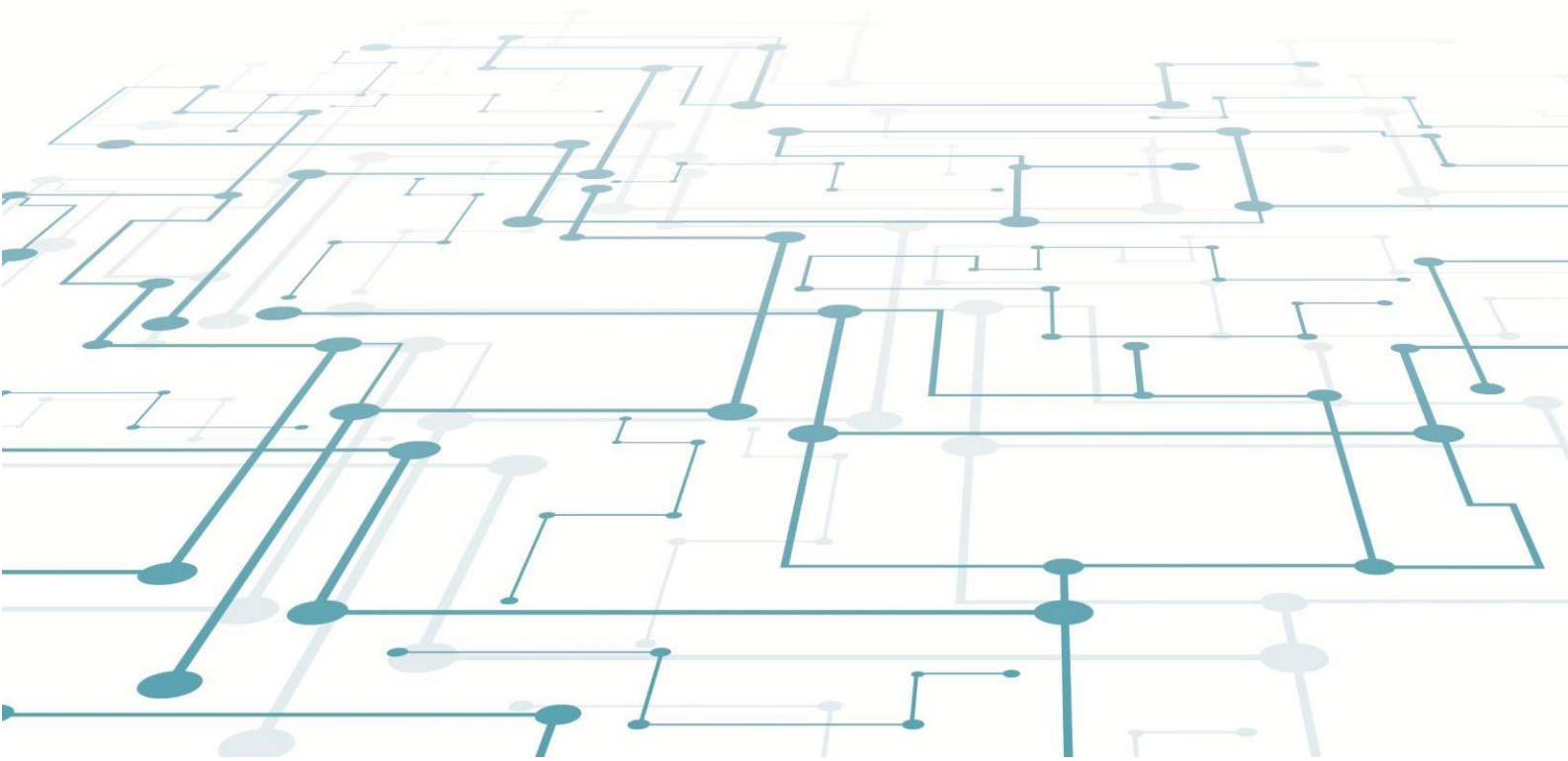# HOURS

# HOURS CHAIN Whitepaper

Build up the Personal Health Data Service Platform

Based on Blockchain Technology in the Digital Economy Era

Achieve 2018 Hurun Blockchain Awards

Top 50 Startups

# Contents

HOURS CHAIN

Whitepaper

# Abstract

Health is the eternal theme of mankind and an important signal of social progress. Through the communiqué of the Fifth Plenary Session of the 18th CPC Central Committee published in 2016, we can see the whole picture of the future comprehensive health industry. A new concept of "Health China" began to catch our eyes and concern our daily life. The Plan of "Health China 2030" issued by the State Council on October 25, 2016 has outlined the work arrangement on health for the next 15 years by specifying five major tasks such as promotion of healthy living and improvement of health services. This is the first highest-level health industry plan in China, symbolizing the official launch and implementation of the "Health China" Strategy.

With "Health China" translated from a concept into a national strategy, Premier Li has called on all citizens to jointly realize the "Chinese Dream of Health". To this end, Chinese people's longing for a healthy life has ignited the demand for health consumption while many giants are also fully engaged into exploration of successful paths towards health. Against such backdrop, we are going to build a personal comprehensive health data service platform based on blockchain technology, which also echoes the market demand.

Blockchain is another future landmark technology with the advent of the Internet boom. Blockchain is aimed to set up a more reliable Internet where fraud issues will be ironed out in the value generation of data. Meanwhile, blockchain technology is very capable of "reducing costs", which means it is able to simplify processes and reduce some unnecessary exchange costs as well as institutional costs under a centralized framework. Its application into various social fields bears more practical significance for improving the current downturn in economic landscape.

Blockchain technology has also attracted worldwide attention and quickly ignited an universal "armament" competition. Many countries have begin to design the national plan for its development after realizing its promising application prospect.

2018 being marching on, we believe this year will witness the fastest progress in blockchain and related industries. As the world is embracing a "blockchain economy era",

more mature applications will spring up. Therefore, we have seized every moment to form a digital book recording one's whole-life health based on the health big data by blockchain technology. This is the way we can contribute to the realization of the national strategy of "Health China".

Amidst such a great opportunity and challenge facing China, we will live up to the mission of this era.

# 1. Major Drawbacks of Comprehensive Health Data

We have concluded the following drawbacks of personal health data in the current Chinese market of comprehensive health:
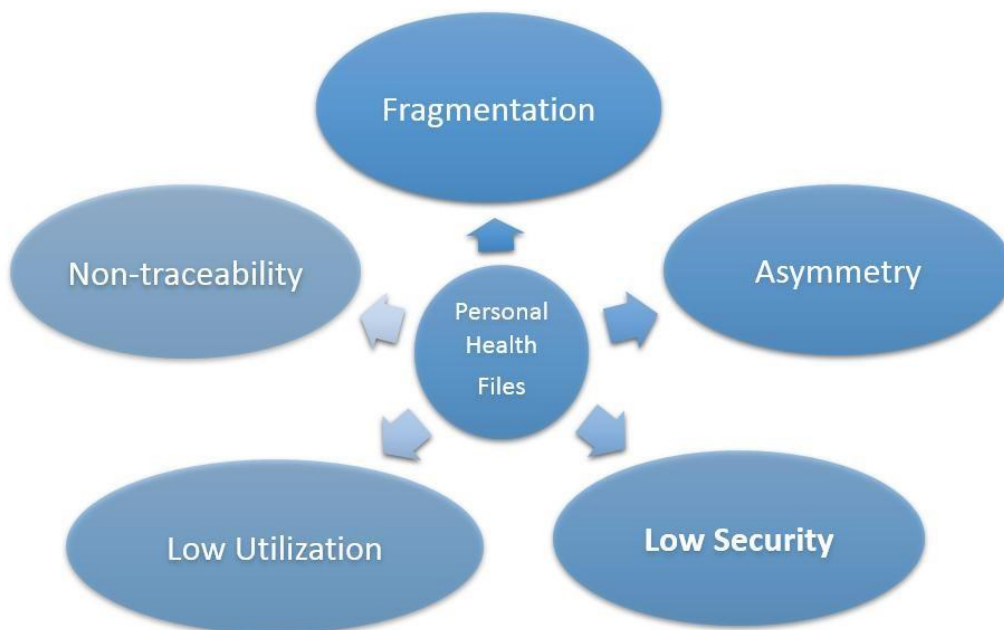


## 1.1 Fragmentation

Discontinuity has been the most critical problem of the personal health data. The major reason for each institution with its own set of health index system lies in the difference in channels, methods, duration and indicators of the collection process, let alone the

constant changing function of human body. Say your health composite index is 67 right now. But it will go up after you go through a series of physical exercises. Therefore, fragmented personal health index is one important defect.

## 1.2 Asymmetry

Fragmented personal health data has also resulted in asymmetry of health information. For instance, when retrieving individual health data, various medical institutions and insurance agencies will obtain different health indicators of the same person, which

can easily lead to misdiagnosis and wrong insurance investment. According to the coverage by competent State departments, the rate of misdiagnosis in China has been up to 50 % by the end of 2016.

Don't you believe that "the rate of misdiagnosis" of Chinese hospitals has been up to 50%?

中国医院"误诊率"高达50%？别不信！

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中国医院"误诊率"高达50%？别不信！

2016-07-05 乔志峰 华声论坛

## 1.3 Non-traceability

The function of human body evolves in a long period of which each stage comes with different functional features, commonly known as "health indexes". People often learn about their body health indexes from the annual physical examination report. However, they fail to record, store or even retrace their daily health indexes. The health indexes are therefore not able to be tracked or recorded constantly. As a result, the personal health data is not traceable.

## 1.4 Low Utilization

Currently fragmented and non-traceable personal health data also leads to its low utilization rate. For example, we are required to go through a pre-placement checkup at the clinic designated by our company whether or not we have had one recently. We learn about own health indexes based on the disposable examination report, which needs to be received after repeated clinic examinations. Moreover, the data is often utilized by relatively single subject and reused at a low rate.

## 1.5 Low Security

Personal health data reports are often overlooked due to their low utilization rate. Therefore, some ill-intentioned organizations swoop in to steal these reports, reprocess and sell them to institutions or pitch targeting health products directly to individuals.

These individual consumers tend to be more trusting, resulting in a high level of personal health consumption.

# 2. Blockchain Technology Reshaping the Value of Comprehensive Health Data

## 2.1 Current Situation of Comprehensive Health

As the foundation of human survival and development, health concerns the quality of people's livelihood, national security and social stability. Different countries all see their national health improved amidst economic growth, social progress and advances in medical technology. However, the majority of benefits go to the upper class of society, leading to inequality of health within and between countries. Health inequality has become a key issue holding back human development. The World Health Organization (WHO) has strongly called for narrowing health disparities among different populations and regions within countries. Various governments should take sound universal health as one of their main social goals.

We believe that health equality for all should come first so as to realize a "Health China".

## 2.2 How to Build Personal Comprehensive Health Data by Blockchain Technology

In order to achieve health equality for all, we must first establish personal health data files. The traditional recording method is based on the Internet model: using the centralized cloud data platform to build and record personal health data. There is a risk of disclosure and tampering with such Internet-based personal health data.

The personal comprehensive health data cloud platform built by blockchain technology is a decentralized framework with a distributed accounting method applied. Given its features of traceability, no single node manipulation and multi-centralization, the efficiency of trust transfer is improved. Faced with asymmetric and uncertain information, the "trust" ecological mechanism which satisfies the requirements for various activities to occur and develop can be established so as to completely avoid the risk of insecurity.
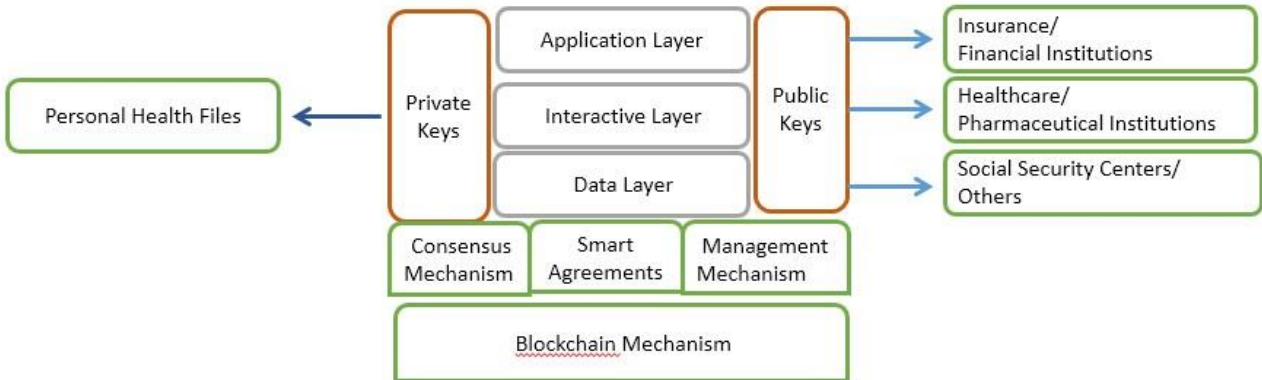
## 2.3 How to Reshape the Value of Personal Comprehensive Health Data( Business Value of Blockchain)

In the era of big data, disorderly and irregular data is of no value despite its overflowing. How can we organize and refine it to make it valuable in the vast ocean of data? This is also our original intention to build a comprehensive health data cloud service platform based on blockchain technology.

We advocate that personal health data files are also valuable and should be expressed in the form of digital currency, that is, the business value of blockchain.
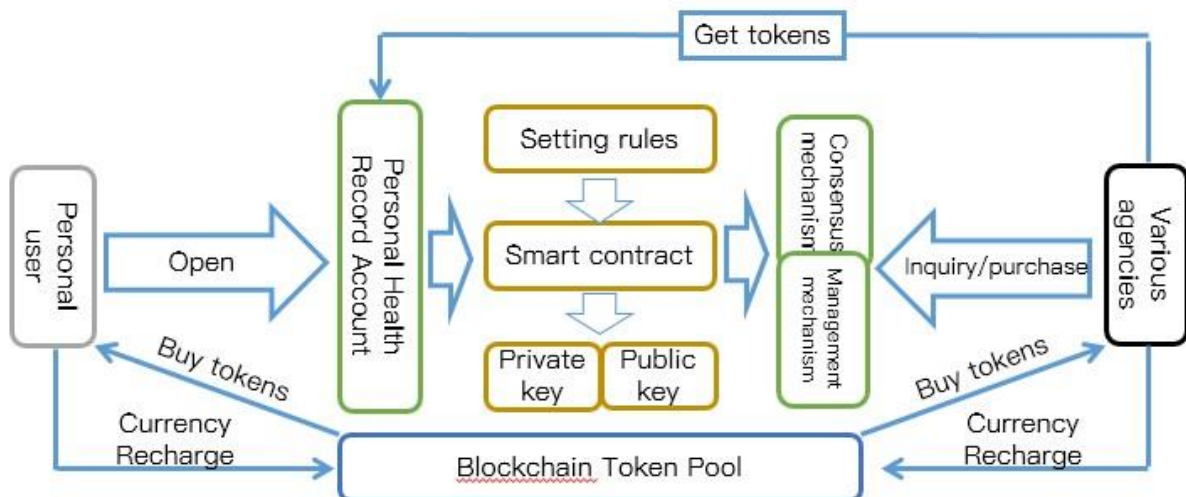


Flow Chart of Digital Currency Circulation on the Blockchain Personal Comprehensive Health Data Cloud Platform

# 3. Advantages of Blockchain Technology in the Comprehensive Health Data Field

## 3.1 Core Technologies of Blockchain

Blockchain is a comprehensive technology system with major core technologies of consensus mechanism, cryptography principle and distributed data storage. The technical features of blockchain can guarantee the confidentiality and security of personal health data.

### 3.1.1 Consensus Mechanism

Under the centralized framework, data stream is often processed by one single node in accordance with the centralized "dictatorship" strategy. As a result, it tends to become a target for lawbreakers to invade the central server.

The consensus mechanism of blockchain features "The minority is subordinate to the majority" and "Everyone is equal". Under the decentralized framework, data stream is processed not by one single node, but by multiple nodes reaching agreement on data stream, behaviors or capital flow. Therefore, consensus mechanism is also defined as algorithms, protocols and rules for the consensus process. The feature of "The minority is subordinate to the majority" specifies not only the numbers of nodes, but also their computing power and the algorithm structure. "Everyone is equal" means all nodes have the right to put forward the result of consensus in the first place when conditions are met. That is to say, according to consensus rules, the result of consensus put forward by any node can become the final one as it is accepted and recognized by others.

### 3.1.2 Cryptography Principle

In blockchain, the asymmetric digital encryption technology is applied to spread information with a set of public key and private key so as to reach the mutual trust between two parties. In practice, information can only be decrypted with the other after encrypted with one key. Besides, even though one of the keys is

made public (the public key), the other secret key (the private key) can not be calculated.

## 3.1.3 Distributed Storage

The distributed storage method of blockchain is different from traditional ones. Relatively popular traditional methods feature files storage, which is to divide data by certain rules into several parts for storage, such as GFS, DFS, KFS, Hadoop, etc.

The distribution of blockchain is mainly reflected in the following two aspects: One aspect is that each node in blockchain stores the complete data according to a block chain structure, that is, each node has a complete account ledger. Therefore, the distributed storage of blockchain is also called the distributed ledger record where multiple parties engage in the record and maintain it collectively. The record can only be read or written instead of being tampered with.

The other is that each node storage in blockchain is independent and equal, and relies on consensus mechanism to ensure its consistency. While traditional distributed storage usually features data synchronism from central nodes to other backup nodes. Data nodes are different physical machines and can also serve as different vivid examples in the cloud.
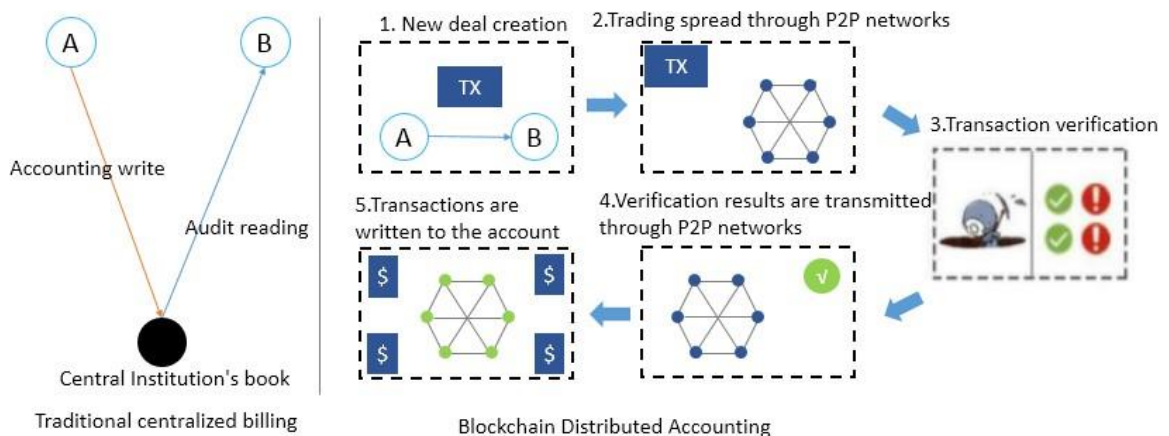


Traditional Centralized Storage VS Blockchain Distributed Storage

## 3.2 Comparison between Traditional Internet Technology and Blockchain Technology

| Key Points of System Classification | | | Traditional Technology System | Blockchain Technology System |
|---|---|---|---|---|
| | | | Centralized Implementation | Decentralized Implementation |
| Multi-participation in Recording Behaviors | | | Master-slave B/S Network | P2P Distributed Network |
| | | | Central Nodes Recording and Maintaining All Interactive Data | Consensus Algorithm Determining Recording Rights and Maintaining Interactive Data Together |
| | | | Monitoring and Maintenance by Central Nodes | Collectively Monitoring and Witnessing by All Nodes |
| | | | Trust Endorsement for All Nodes by Central Nodes | Asymmetric Encryption Technology Verifying Identity; Zero Knowledge Proof and Other Ways Verifying Information |
| | | | An Account of Central Nodes to Ensure Consistency of Transaction Data | All nodes use consensus algorithms to ensure consistency of transaction and solve the doublespending problem. |
| Multi-maintenance of Account Data Storage | | | Central nodes are likely to initiate fraud. | Distributed Storage and Consensus Algorithms |
| | | | Central nodes and data risk being attacked and tampered with respectively. | Distributed Storage , Chain Data Structure , Hash Algorithms, Time Stamp, and Digital Signature |
| | | | Storage and Disaster Recovery Backup of Transaction Information System Based on Central Nodes | The system can operate normally and malfunctioned node data can be recovered once any single or few nodes get in trouble. |

| | | | All participants need to provide ID information saved by central nodes. Central nodes are likely to be attacked and stolen, thus leading to the disclosure of traders' privacy. | | All participants are identified by encrypted IDs in blockchain.<br>1. All traders are not required to provide identity information so as to ensure that the privacy of traders is not disclosed.<br>2.The same trader can conduct multiple transactions with several IDs to protect the privacy. |
|---|---|---|---|---|---|

## 3.3. Development Trend of Blockchain Technology

Blockchain will exert a massive impact on current economy and society and is expected to reshape Internet activities of mankind. The recent development trend of blockchain possesses the following features:

### 3.3.1 Upgrading of Application Modes

Consortium blockchain, private blockchain and mixed blockchain will take hold in the future fields of its application.

### 3.3.2 Multiple Centers

The future blockchain system will feature a reliable multi-centered framework where decentralized and independent single node centers will be upgraded into unified multiple centers with multi-party participation. This is the way that ensures better efficiency of trust transfer and lower trade costs. That is to say, given asymmetric and uncertain information, the "trust" ecosystem which satisfies the requirements for various activities to occur and develop will be established.

### 3.3.3 Socialization of Smart Contracts

In the future, all contractual agreements will become smart as smart contracts can guarantee the reliable execution of all agreements and avoid tampering, denial and breach of contracts. In addition to transforming social tangible assets into digital smart assets for right affirmation, authorization and real-time monitoring, blockchain can also be applied

in the management of social intangible assets and personal health data, such as the protection of intellectual property rights and management of personal health files.

## 3.3.4 Financial Innovation Driving Application Breakthrough in Other Fields

Blockchain will be first applied in those fields where it is hard to establish trust relationship among various parties with needs for mutual trust, such as finance, securities, insurance and so on. With its wide use and enhanced social recognition, blockchain will gradually penetrate into various fields. For example, it can be used for disease diagnosis and drug efficacy tracking in medical institutions.
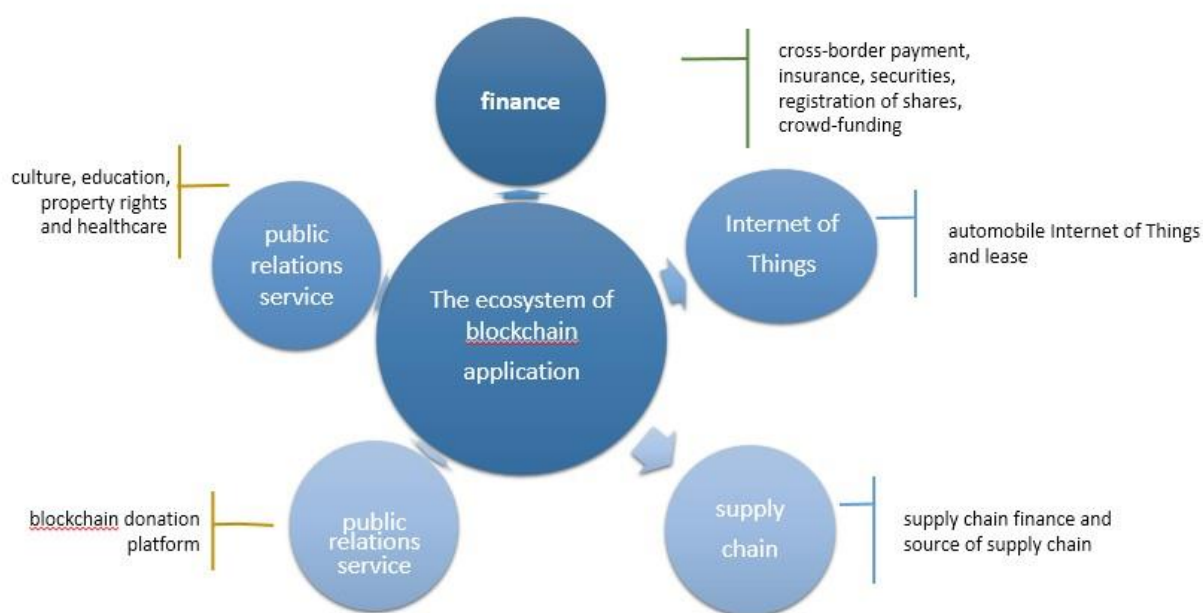
The ecosystem of blockchain application consists of five major sections: finance (cross-border payment, insurance, securities, registration of shares, crowd-funding);Internet of Things (automobile Internet of Things and lease); supply chain (supply chain finance and source of supply chain); public charity (blockchain donation platform) and public relations service (culture, education, property rights and healthcare).

# 4. Main Application Scopes of Blockchain Technology in the Field of Comprehensive Health Data

## 4.1 Application in the Medical Insurance Industry

Medicare cards widely used for medical treatment can be associated with personal health data files built on blockchain technology. On the one hand, the medical status of individual users can be therefore recorded at any time to form lifelong medical files; on the other hand, medicare cards can not be stolen.

## 4.2. Application in the Health Preservation Industry

Health preservation is a very common body function regulation mode. After opening up the personal health data files, users are capable of recording own physical examination report data at any time. After the statistical comparison by the system, users will be recommended with superb products, methods for health cultivation and recuperation places.

## 4.3 Application in the Medical Industry

Every hospital receives a large number of patients every day whose treatment records are not maintained by single hospital. Instead, these records are only kept on the case card of each hospital. Therefore, doctors often misjudge patients' medical records. Besides, patients may choose more than one hospital to see a doctor. The diagnosis information written on the case card of each hospital is fragmented. If our users open up our personal

health data files right now, doctors in any hospital where they are received can quickly diagnose their condition and retrieve previous cases according to their ID. In this way, the tension between doctors and patients due to doctors' misdiagnosis can be eased.

## 4.4 Application in the Pharmaceutical Industry

New drugs researched and developed in the pharmaceutical industry need to go through

massive clinical trials before eventually being used for OTC or in hospitals.

Now the industry can track the result of drug use and grasp the information on drug efficacy in a timely and accurate manner by paying a certain amount of fiat for our tokens.

## 4.5 Application in the Insurance Industry

Insurance fraud remains the common issue in the insurance industry due to asymmetrical information. Before promoting or selling medical insurance products to individuals, insurance companies are able to inquire or purchase health data and medical records concerning individual users by paying a certain amount of fiat for our blockchain tokens. In that case, the personal health condition of users can be revealed in advance to avoid the likelihood of compensating unnecessary medicare claims at a huge amount.

## 4.6 Application in the Fitness Industry

Fitness is a kind of famous sport. There are currently many apps that can record the personal daily movement data in real time, including number of walking steps, heartbeat indexes and consumed calories. But they fail to calculate the user's original body function to tell whether it fits in such movement rate or not. When opening up our personal health data files based on blockchain, users can get a clear picture of the kind of sport that their body fits in and the speed at which it should work through our app.

## 4.7 Application in the Tourism Industry

With abundant tourism resources on the constant rise at present, people are increasingly desired for travel to relieve from work and recover their physical condition. Just as cars running for 5,000 kilometers in a row need maintenance, so does our body. Then how do we know our body function has already burned out and needs mental relaxation? Travel is without doubt one of the best ways to relief our mind. Our app will remind users to soothe their nervous system.

## 4.8 Application in Other Fields

Health is an eternal theme of human being. The personal health data files based on blockchain can be used in many fields, such as the pre-placement checkup in the workplace, recruitment of military service in the army as well as blood type matching.

# 5. Comprehensive Health Data Service Platform Based on BAAS

## 5.1 About BAAS

The so-called BaaS refers to "Blockchain as a Service", which means blockchain apps solution. What insiders are familiar with before that include: SaaS (Software as a Service), Iaas (Infrastructure as a Service), PaaS (Platform as a Service) and MBaaS (Mobile Backend as a Service).

As blockchain technology evolves, BaaS ecosystem is rapidly becoming a very critical industry link from a niche vertical sector. Being a new model for apps development, BaaS will further realize the division of labor based on specialization, which will help to reduce the application cost and boost further market development.

The personal health data service cloud platform to be built by Hours Chain is aimed to provide a basic platform of mobile information application based on blockchain technology for comprehensive health enterprises. Therefore they are capable of developing plentiful mobile apps on such platform to effectively reduce their input cost of enterprises in mobile information through more realistic recovery of personal health data.
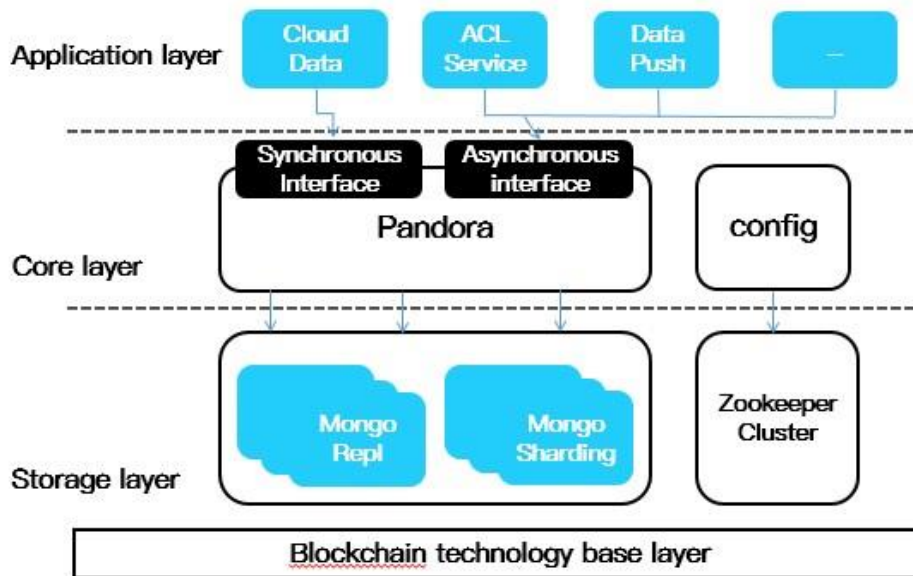
Building BAAS Cloud Service-Cloud Data Framework

## 5.2 Application Trends

Based on P2P(Peer-to-Peer) technology, cryptography and consensus algorithms and so on, blockchain possesses such features as immutable data, collectively maintained system and transparent information. Blockchain will set up a mechanism for information and value transfer and exchange in an unauthentic environment, thus the cornerstone of the future Internet of Value.

## Trend One: Blockchain application is making speedy headway from digital currency to non-financial fields.

Distribution of blockchain patents in various industries from 2008 to 2016

2014 2015 2016 2017

Financial Digital
Assets Trading
Authentication
algorithm
Anti-counterfeiting
system
E-commerce
Cloud/big data
Medical treatment
Social
artificial
intelligence
Intellectual
property
robot
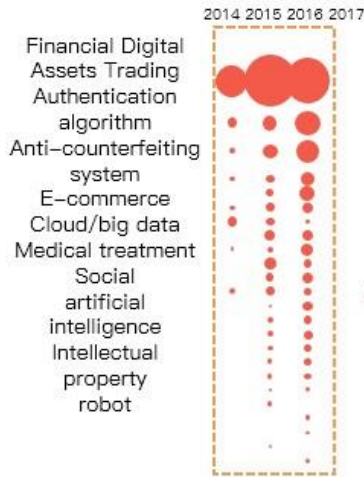
- Blockchain technology, as a universal technology, accelerates penetration from the digital currency field to other fields and integrates innovations in various industries.

IT Camp

currency  assets  credit  information

Cryptocurrency camp
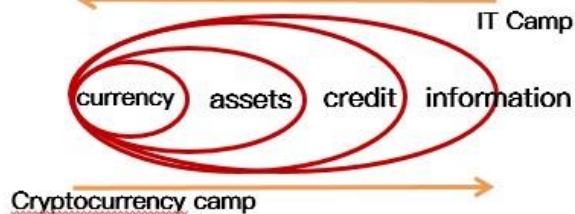
- IT camp: Start with information sharing, build credit at a low cost, and gradually cover digital assets and other fields.
- Cryptocurrency camp: Starting from currency, it is derived from capital and assets, and spreads to credit and information applications.

## Trend Two: Blockchain has been increasingly connected with cloud computing, making BaaS to be a potential public trust infrastructure.

The combination of blockchain and cloud has two modes

Blockchain
PaaS
IaaS

BaaS
IaaS

Blockchain on the cloud

Blockchain in the cloud
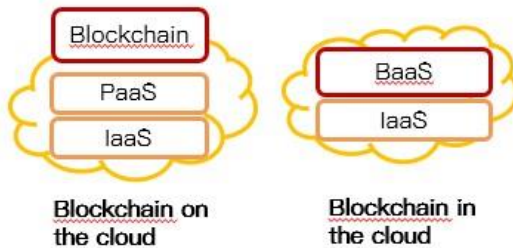
- The combination of blockchain and cloud computing will effectively reduce the deployment cost of enterprise application blockchains and reduce the initial threshold for innovation and entrepreneurship. It is a key component for building public trust infrastructure and stimulating the digital economy.

BaaS (Blockchain-as-a-Service)

Microsoft  ETH BaaS
IBM  Google
亚马逊 amazon.cn  SAP
腾讯云  WanCloud

HOURS will build personal health profile BaaS cloud service platform

## Scenario Three:

Enterprises will become the major battlefield of blockchain application where consortium blockchain and private blockchain will become the mainstream.

| The current application of blockchain |
| --- |
| concentrated in the digital currency field, which belongs to virtual economy. |

Tranform the economy from fictitious to substantial

| Application status |
| --- |
| concentrated in the digital currency field, which belongs to virtual economy. |

| The focus of the enterprise-level application |
| --- |
| The enterprise-level application should pay more attention to controllable, traceable and secure key elements |
| ① privacy protection |
| ②permission management |
| ③ transaction speed |
| ④ regulation control. |

| Enterprise Application Technology Route Selection | |
| --- | --- |
| Alliance chain/private chain is a strong management blockchain, suitable for enterprises to use in the application landing. | |
| Consortium Blockchain/ Private Blockchain | Public Blockchain |
| effective control of the scope of information diffusion | control failure of the scope of information diffusion |
| multi-user participation in management | single-role management without permission |
| high-frequency trading by mutual trust mechanism | low-frequency trading in non-trust environment |
| effective interference of regulators | lack of regulation by decentralization |

**Trend Four:** A variety of blockchain applications are giving birth to diverse technical proposals so as to upgrade blockchain performances.

Blockchain applications from single to multiplex

Encrypted digital currency

Digital bill    Securities trading

Cross-border payments    Domain management    Digital currency    copyright

supply chain    Mutual insurance

Blockchain 1.0 → Blockchain 2.0    Technical improvement space

Consensus algorithm: efficient transition from low frequency inefficiency to high frequency

Service segmentation: Known by all employees.

Treatment method: from chain processing to chain cooperation.

Organization form: from single chain to multi-chain combination.

Technical requirements diverse
- Is the transaction offline or real-time?
- Is the transaction low concurrent or high concurrent?
- Is the transaction sensitive to low latency or is it tolerant of high latency?
- Is trading low throughput or high throughput?

- Blockchain applications range from single to multiple, with differences in real-time, high concurrency, latency, and throughput, and will lead to diversified technology solutions.

The HOURS Personal Health Data File will effectively enhance blockchain performance in terms of algorithms, service fragmentation, processing methods, organizational forms, application capabilities, and storage efficiency.

# 6. Eco-value System of Hours Chain Comprehensive Health Data Blockchain

We believe that any exchange is the embodiment of value. As figures can symbolize all kinds of information in the digital era, organized, orderly, and refined data can be converted into valuable digital information.

Established mutual trust foundations mutual exchange of value. Blockchain technology is revolutionary for a new invented trust mode. In the process of mutual exchange of value, the design innovation from the technical perspective converts the trust relationship among people into that between people and technology. Some processes can be carried out automatically by the program so that business activities can be conducted at a lower cost.

## 6.1 Technical Perspective

Purely from the technical perspective, technology is created to solve some problems.

## 6.1.1 Centralization and Decentralization

Centralization is an objective phenomenon with both advantages and disadvantages. High efficiency and unity are its merits while shortcomings lie in the chasing of private interest and poor management of central holders as well as deprived space of underlying users' interests.

## 6.1.2 No Tampering

The data stored in blockchain can not be tampered with. Tampering with one's own data which can't be recognized by others will lead to storage failure of the distributed database. Blockchain technology is hierarchical of the network layer, the data layer, the consensus layer, the incentive layer, the contract layer and the application layer.

## 6.1.3 No Denial

Do denial equals to no tampering. That is to say, denial costs more than benefits. Therefore, information exchange can not be denied after being confirmed by blockchain.

## 6.1.4 Traceability

The data recorded by each node in blockchain exists in the form of a ledger where the source of the data can be traced. The personal health file cloud service platform built by Hours Chain is based on these above-mentioned technical features of blockchain.
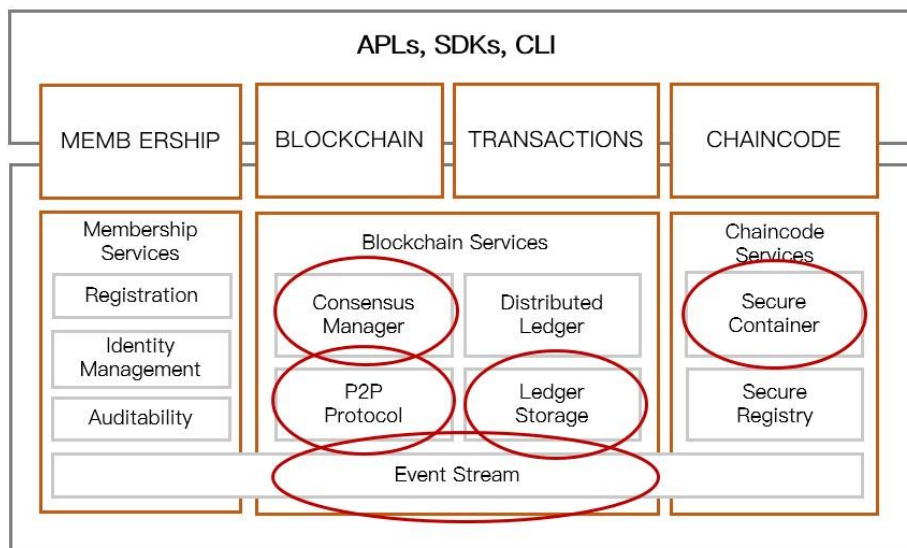
The Underlying Framework of Hours Chain Blockchain Personal Health Data File Cloud Service Platform

## 6.2 Economic Perspective

Reducing the application cost for enterprises represents an important design idea in the development of the Hours Chain blockchain personal health data file cloud service platform. On such a platform, all participants can exchange their data without the need to understand basic information of each other. Such "trust without trust" design has changed the traditional trust mode with the third party as the center. This model will break new ground.

The two major innovative features are as follows:

1)  Trust in data exchange is determined by machines and algorithms we designed. The blockchain designed by us can solve mutual mistrust in the process of anonymous data exchange through an exchange system trusted by machines and algorithms. All participants will identify themselves through a special set of keys (a private key and a public key) and reach mutual trust by Consensus Manager/System in the environment where trust is not required to be established.

2)  Data exchange process can be executed automatically by apps programs. Hours Chain Blockchain can automatically execute exchange rules (contracts) reached by both parties through programmable smart contracts. In this way, man-made disturbance can be eliminated to prevent institutional data cheating and denial in the exchange process.

This decentralized feature enables both parties to deliver value of data so as to make it valuable. Individual users can set the requirements for the data-releasing targets and exchange rules in advance. Therefore they don't need to worry about the leakage of their health data to some criminals. Instead, they benefit from releasing own health data to specific targets set by themselves.

**This is the economic value of our health blockchain: make data more valuable.**

# 7. Our Solutions

## 7.1 Personal Information Security Isolation System

In order to ensure users open up authentic and effective personal health records data accounts, we will research and develop HOURS CHAIN based on ERC 2.0. What distinguishes our home-grown HOURS CHAIN from ETH lies in the automatic hiding of transaction information (senders, receivers and volume of trade) which can only be available to people with private keys.

The home-grown HOURS CHAIN with a total amount of 1.2 billion tokens has become our token pool.

The Hours Chain security isolation system enables all LhwL of our blockchain health accounts to go through security isolation and authority management by combining zero-knowledge proof, differential privacy, homomorphic encryption and other cryptography. These techniques can prove the ownership of accounts without reading users' private data.

The Hours Chain security isolation system can also realize management at each level where users set rules for inquiry targets and exchange objects on their own. This is because respective permissions have been isolated from each other. Other permissions can be secured even if one is breached.

In practice, users can set up rules for inquiry objects and transaction requirements through a level-to-level management system of permissions. This is the way that

ensures different blockchain apps fetch different data while one app is not permitted to access all the data without knowledge of users. For example, medical clinics can only access users' physical health data while insurance organizations can only retrieve that in the last three years. Financial institutions are only able to obtain the personal digital asset data.

# 7.1 KYC(Know Your Customer) System without Thirdparty User Authentication

To apply the digital blockchain in reality, the KYC rule for user identity authentication should be introduced to prove that "you are yourself", that is, your blockchain account belongs to you.
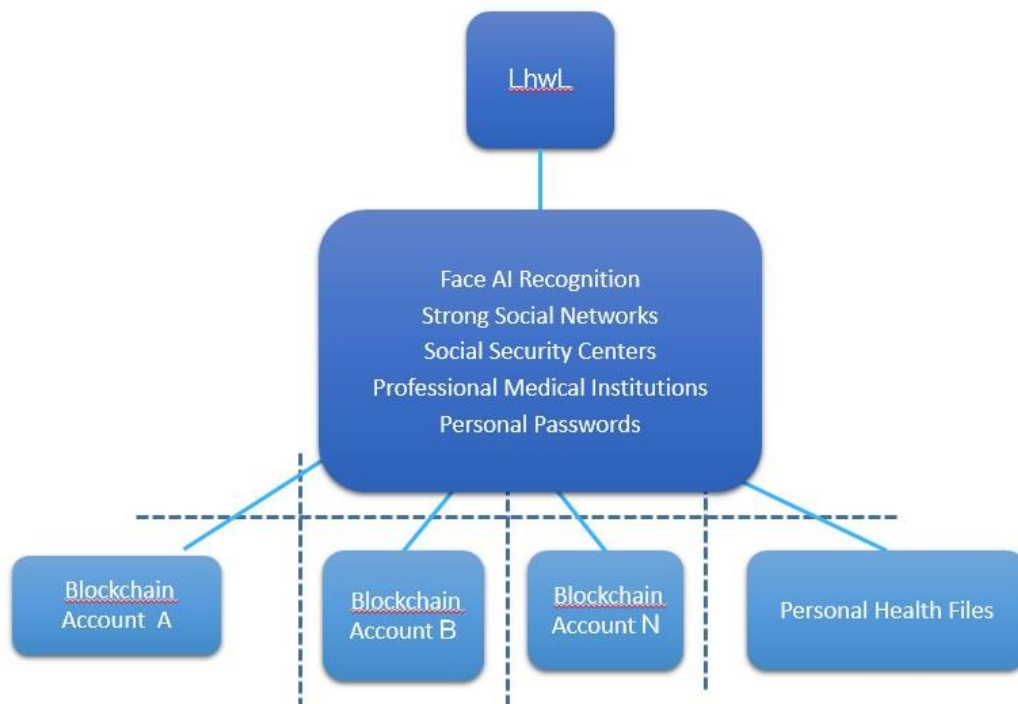


LhwL→Face AI Recognition/Strong Social Networks/Social Security Centers/Professional Medical Institutions/ Personal Passwords→ Blockchain Account A/B/N or Personal Health Files

This is how blockchain is often applied in reality. However, this kind of KYC system still relies on third-party user authentication whose solutions are still centralized. Hours Chain will apply its own AI face recognition system combined with blockchain decentralization technology and social network service, and go through multiple institution authentication to realize KYC self-verification without thirdparty verification.

Social security centers are associated with all major medical authorities, which in itself constitutes an identity authentication system endorsed by the law. KYC is a completely natural authentication system which can be matched with blockchain technology to be applied in reality.

As a result, Hours Chain is able to establish a self-authenticating KYC system that allows users to identify themselves without data exposure on their own mobile phones or by other Internet devices. In this way, centralized organizations are prevented the risk of tampering with KYC, making it a more popular KYC system worldwide. KYC after self-verification can correspond to the identity system of governments all over the world.
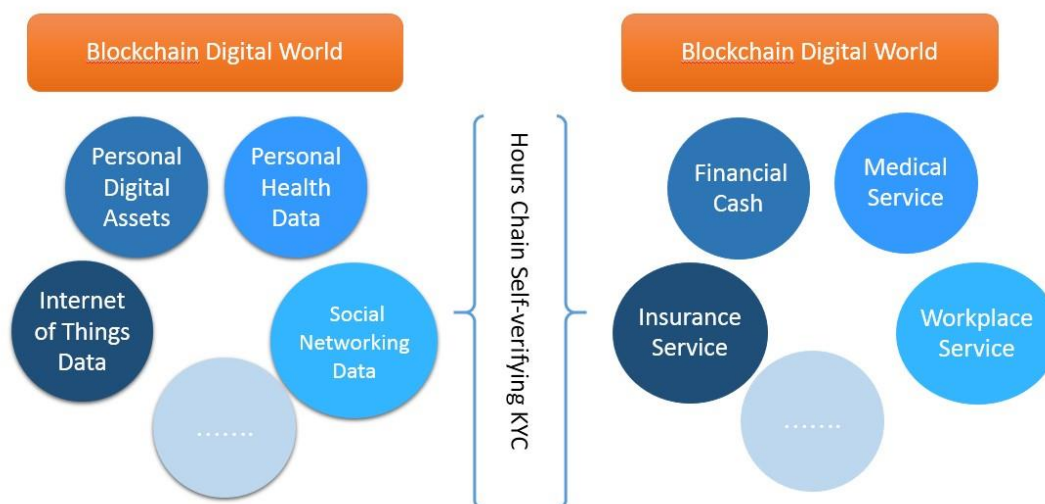


## 7.2 Solutions to Lifetime Management of Personal Comprehensive Health Data Files

In the traditional centralized network era, all data generated by users when using apps will be stored centrally on the application and related platforms, which will can

not be entirely owned and used by users. There are several drawbacks in such

a design:

1)Data Privacy: Data privacy of users will not be guaranteed. Large-scale disclosure once occurring will bear disastrous consequences;

2) Data Ownership: Users fail to own all their data, some of which goes to apps and platforms so that the interests of users are not ensured;

3) Data Island: Failure to link and connect user data among several service providers can't give full play to its value during user experience.

LhwL can remedy these drawbacks to better link the reality with the digital world. Hours Chain personal health data files mainly possess the following several technical features:

1) Data is fully owned by users. Data is stored on decentralized resources by means of encryption. In addition to users themselves, no organizations or individuals can directly obtain their original data.

2)Data can be opened to a limited extent given the trading rules and conditions set by users themselves, after which or user authorization data is encrypted by the differential privacy of cryptography. Apps can carry on big data research on some user data, but they can not parse the individual original data, let alone view, copy, and tamper with it.

3) With the permission of users, third-party services built on Hours Chain blockchain can link to their health data files through LhwL to provide smart and superb user experience and service.
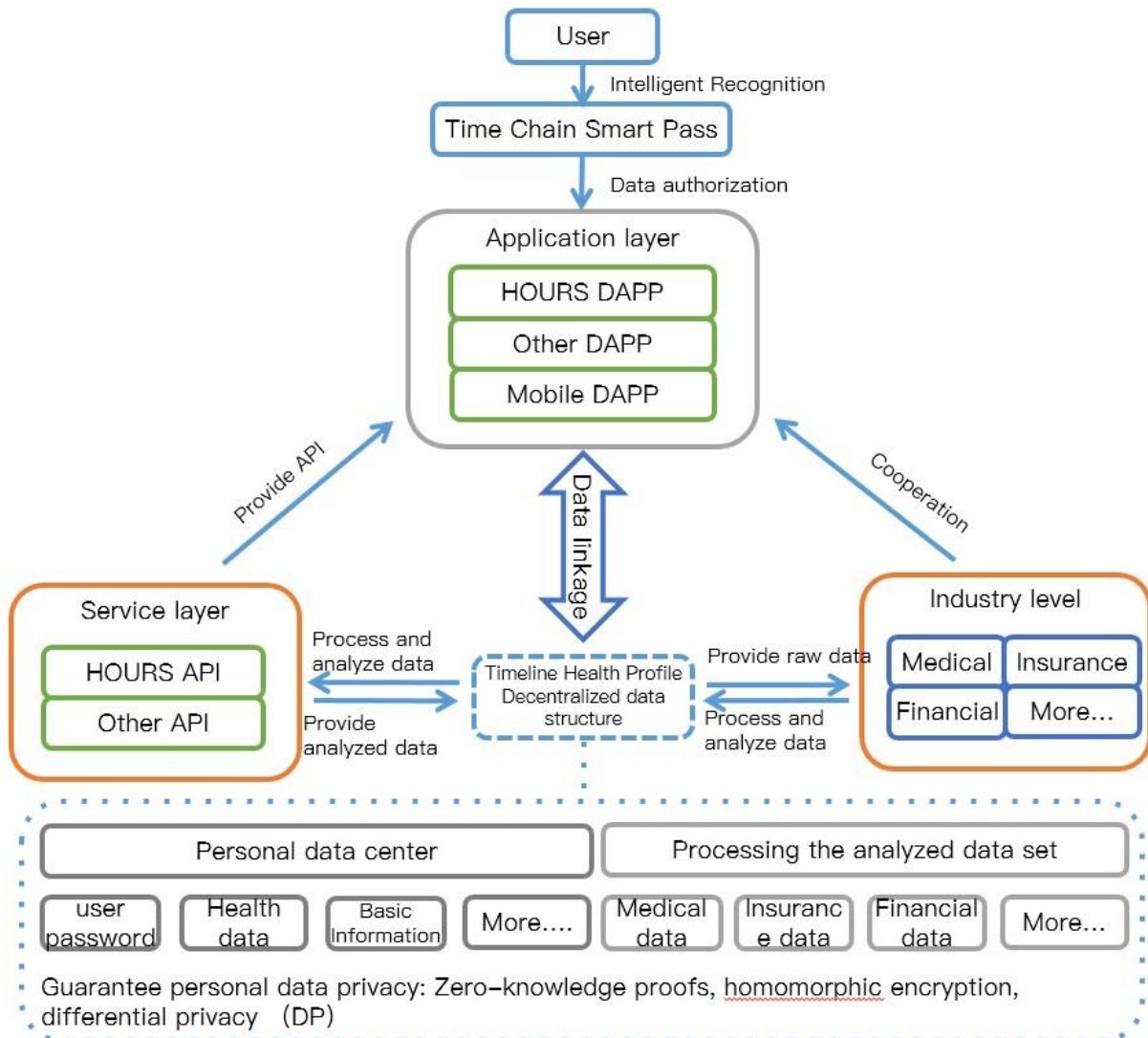
Flow Chart of Management of Hours Chain Personal Health Data Files

LhwL is one of the core elements of Hours Chain blockchain, featuring the following aspects:

1) The privacy of user data is protected: Cryptography like zero-knowledge proof, homomorphic encryption and differential privacy is applied to provide the most advanced data security assurance.

2)Users own all data: Users enjoy the complete ownership of all data while the third party must be authorized by users to comply with their rules and conditions of use before using the data so as to ensure the fundamental interests of users;

3)AI face recognition can be used as the private key of pass: Based on AI face recognition technology and algorithms, user identity can be verified accurately and account security can be protected.

4) KYC with no third parties: It solves KYC problem stemming the blockchain application in the real world. With the permission of users, LhwL associated with identity of actual users can deliver better communication between the digital world and reality. Given authorization of users, identity verification can not interfere with privacy of users based on zero-knowledge proof technology.

5) The data is completely credible: As blockchain can not be tampered with and traced back, it ensures the credibility of user data;

6) Aggregation of data fragments among applications: after user authorization, data fragments users scatter among different applications can be aggregated. With Hours Chain security isolation encryption technology applied, they can circulate while privacy is assured.

LhwL is distinguished as the continuously self-improving mean of passage. Digital Twin comes into being when data on the increase gradually matches our physical traits and health data in the reality. It is a cloned image of the user in the digital world to perform multiple digital tasks for the user.

# 8. Design Ideas of Hours Chain Blockchain Scheme

Hours Chain is going to design "Hours Chain health files blockchain" solutions to provide superb service for both enterprises and individuals through independent innovation. Guided by the philosophy of opening-up and sharing, we are ready to establish the BAAS framework and infrastructure, open and share our internal capabilities with enterprises or government agencies so as to put in place a blockchain ecosystem of credible health data files and further boost the credible Internet.

## 8.1 Design Principles and Purposes

Hours Chain commits itself to the holistic solutions in the comprehensive health industry as well as safe, reliable, and flexible blockchain cloud service.

### Design Principles

Independent Innovation: With great attention to independent innovation, Hours Chain enjoys its own unique expertise in terms of consensus algorithm, smart contracts, LhwL, massive data concurrent processing, account security management, risk control and so on. Security and Efficiency: Based on the principle of building reliable blockchain, priority is given to improve system efficiency in the aspects of information sharing, data query, data security and so on.

Opening and Sharing: Hours Chain is willing to put in place the comprehensive health data blockchain infrastructure, open up internal service capabilities, and share findings with industry counterparts for a win-win climate of this industry.

### Design Purples

The Hours Chain reliable blockchain of comprehensive health data is designed to provide an enterprise-level blockchain BAAS service cloud platform for industry partners, a holistic solution for the industry, and secure, reliable, and flexible blockchain cloud service for customers. While ensuring secure and reliable data transaction through high performing blockchain service, we can employ the visual means of data information management to effectively reduce the comprehensive cost of operation and enhance its efficiency for enterprises.

## 8.2 Overall Framework

Guided by the design principle of "independent innovation, security and efficiency, and opening and sharing", the overall framework of our comprehensive health data blockchain scheme is three-folds:

1) The bottom layer is the self-developed SF Trust SQL platform. SF Trust SQL provides the core positioning of blockchain basic service and builds a leading enterprise-level blockchain foundation platform for the upper application scenarios.

2)The middle layer is the SF Trust Platform providing highly available and extensible blockchain application platform products built on SF Trust SQL, such as sharing health file ledgers, verification service, and digital assets. It integrates functions of basic products in related fields to help correspondent enterprises quickly set up upper-level blockchain application scenarios.

3) SF Trust Application provides trusted, secure and efficient blockchain apps to end users (both enterprise and individual users). Hours Chain will join other industry partners and their technology suppliers to explore the direction of blockchain development and facilitate the realization of comprehensive health blockchain application scenarios.
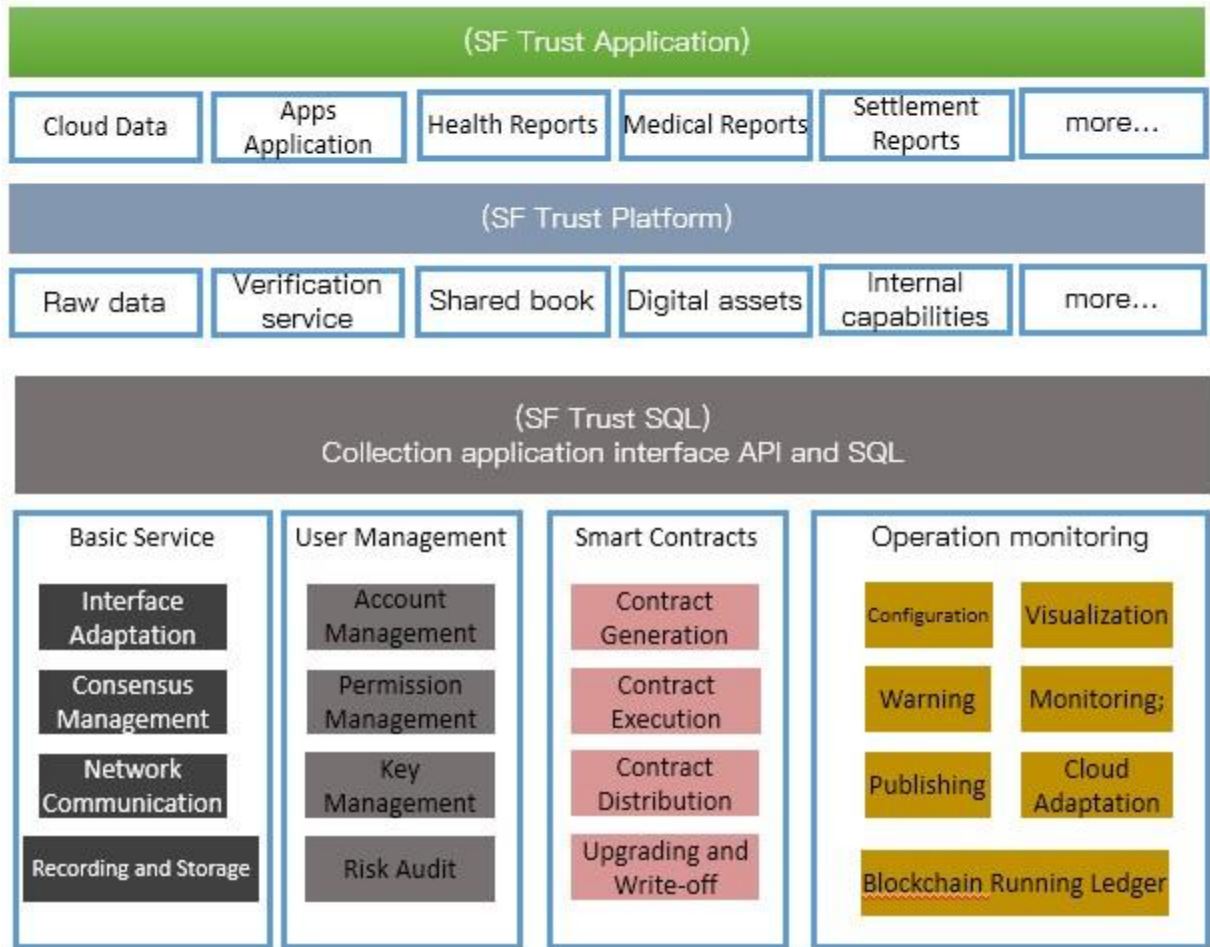
Hours Chain Comprehensive Health Blockchain Basic Architecture SF Trust SQL

Basic Service: Interface Adaptation; Consensus Management; Network Communication; Recording and Storage

User Management: Account Management; Permission Management; Key Management; Risk Audit Smart Contracts: Contract Generation; Contract Execution; Contract Distribution; Upgrading and Writeoff:

Operation and Monitoring: Configuration; Visualization; Warning; Monitoring; Publishing; Cloud Adaptation; Blockchain Running Ledger

## 8.3 SF Trust SQL

Basic Services: Basic services are deployed on all nodes in blockchain to verify the validity of business requests and to record valid LhwL requests on the storage after reaching consensus. As for a new business request, basic services first parse the interface adapter and process the authentication, then attach the information transaction or contracts with signature and encryption through consensus algorithms, and store them on the shared account ledger in a complete and consistent manner. The consensus mechanism is adaptive due to its high

concurrency under normal network and nodes, and strong error-correction in the case of network anomaly or node spoofing.
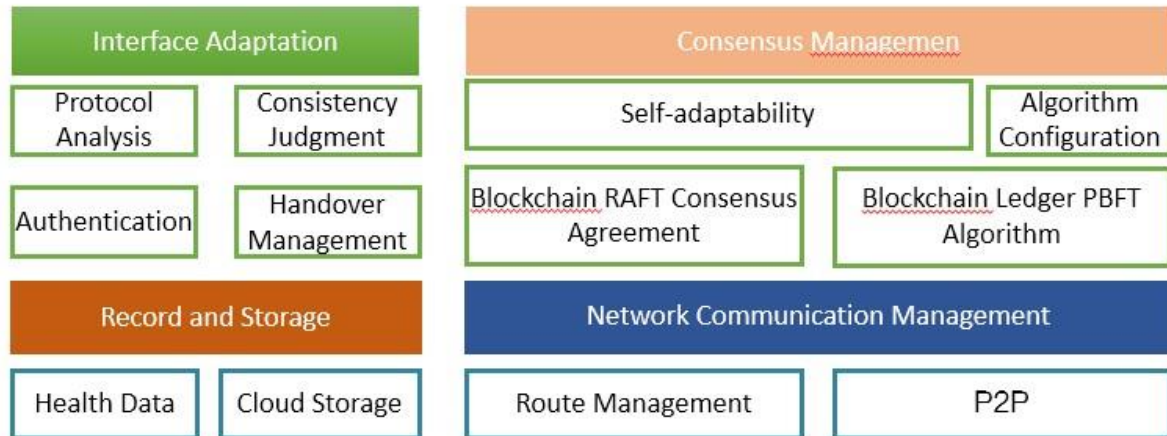


Interface Adaptation: To ensure users get convenient access to Hours Chain comprehensive health blockchain at a low cost, SF Trust SQL provides SQL and API interfaces to support both synchronous and asynchronous modes of operation. After parsing, authenticating and verifying the business request, the interface adaptation layer records it on the account ledger storage by consensus algorithms. As the client of the consensus management module, the interface adaptation module also involves consensus management. It is mainly responsible for the summary and consistency judgment of the results returned by each consensus node.

In addition, when applying other improved raft consensus algorithms, the interface adaptation module will receive and carry out summary statistics on the request from the service side of the election switch. When the switching conditions are met, the consensus management module is informed to re-elect.

**Consensus Management:** Consensus mechanism is one of the core technologies in blockchain. Consensus is the process by which multiparty nodes agree on data, behaviors or processes through interaction among nodes under preset rules. Hours Chain blockchain conforms to absolute consistency before reaching consensus which means confirmation. It also provides two configuration modes of self-adaptation and user-specifying.

**Network Communication:** The network communication module is in charge of the transmission of message data among nodes and on the service side. Hours Chain chooses a dynamic self-organizing network featuring multiplexing and connection sharing. Strongly compatible with existing firewalls, proxy servers and other security facilities, the network communication provides P2P networking and secure and reliable data transmission.

**Record Storage:** Hours Chain comprehensive health blockchain record storage can support storage of a variety of media like Orales and the file system. It can also store cloud storage media such as cloud DB. Under the block chain structure of record storage, any tampering with historical data can be detected by self-checking, then warned and automatically corrected.

**User Management:** User management is responsible for identity information management of all blockchain participants, including maintaining public and private key generation, true identity of users and blockchain address correspondence as well as key storage management. Besides, it can be authorized to supervise and audit certain real-identity data transactions. Financial transaction apps such as digital assets are also provided with the rule configuration of risk audit control to ensure the security of system data transaction.
Hours Chain comprehensive health blockchain will provide the following three key management modes:

**Traditional Key System Integration**: Its users enjoy a relatively high security level of original private key system, including social security centers, insurance institutions, and banks with U aegis and electronic signature. Therefore, Hours Chain comprehensive health blockchain only needs to associate the original private key system with blockchain addresses.

**Partial Escrow:** It is applied in scenarios with multiple interworking blockchain technologies or when part of the body that accesses blockchain service enjoys a relatively high security level of private key system. Under partial escrow, Hours Chain blockchain ensures the association and consistency of multiple-party blockchain addresses involved.

**Full Escrow**: It fits in new accessed scenarios as well as those highly accustomed to the original Internet. The original system with names and passwords is matched with the management system by a secure key generation to separate users from blockchain for their privacy security.

| Account Management | Key Management | Permission Management | Risk Control Audit |
|---|---|---|---|
| Account Registration<br>Account Sign-up<br>Account Cancellation<br>Non-correlation | Key Generation<br>Key Association<br>Key Coffer<br>Key Signature Blockchain | Permission Classification<br>Visit Control | User Association<br>Audit Control<br>Risk Control Management |
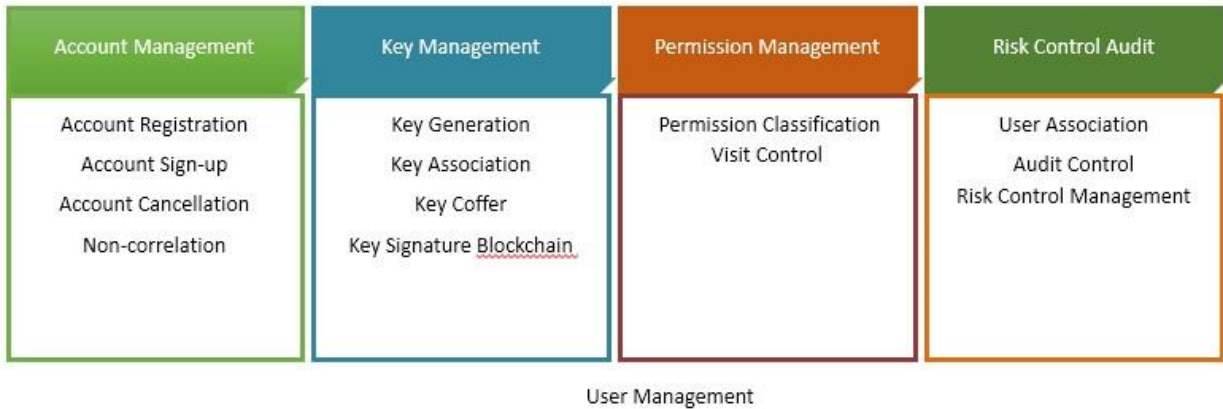
User Management

Under the full escrow mode, the user management system of Hours Chain comprehensive health blockchain will perform the following tasks:

**Smart Contracts**: It is responsible for generation, issuance, triggering and execution of contracts. Users define the contract logic by some programming language and post it in the blockchain. In accordance with the logic of contract terms, triggered by the user signature or other events, the contract is executed to complete the logic of the contract such as data transaction settlement.

There are two types of contracts in Hours Chain comprehensive health blockchain: the standard contract and the business customized contract.

The standard contract includes digital asset conformance checks, automated data dealmaking, transfer, confirmation, and liquidation of digital currencies with multiparty recognition , and other relatively simple contracts. They are built-in contracts which can be posted in blockchain for direct use. The customized smart contract includes the business rules and conditions set by users based on the contract template or other business logic. It can also support more complex user-programming operating in a separate environment.
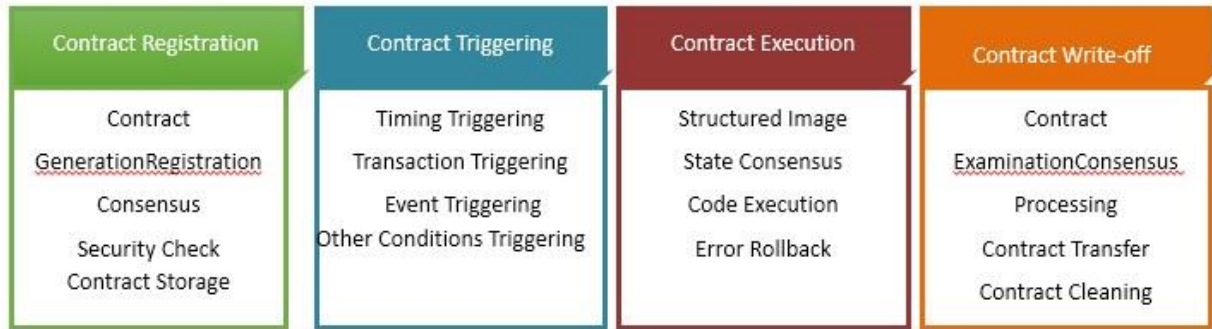
Smart contracts consist of four parts: generation (registration), distribution(triggering), execution and write-off:

**Monitoring and Operation:** It is in charge of deployment, configuration modification, and contract setting during release of products and real-time status and visual output during their operation, such as alarm, data trading volume, network situation, health status of nodes, etc.

## 8.4 SF Platform

The SF platform abstracts all kinds of typical blockchain apps with their basic capabilities and implementation frameworks provided. Users can superimpose their own unique business characteristics on these basic capabilities to easily implement the business logic.Users can also quickly move existing services to blockchain to meet new requirements of scenarios, or to build new business scenarios. Given non-tampering and non-repudiation features of blockchain, problems that were difficult to solve before can be addressed.

**Digital Assets:** Our user digital assets in Hours Chain blockchain mainly consist of two parts. One is converted off-chain assets while the other is revenue generated from the transaction of data. All operations like transfer, split and cash-out of on-chain assets will be strictly controlled by the account public and private key system and verified by signatures of both parties which cannot be eliminated.

**Authentication Service**: In terms of personal health data and medical data, Hours Chain blockchain will fully leverage its non-tampering ability and publicity. Institutions and individuals can post all insurance information, health reports and medical reports in

blockchain through a simple interface or the app client with all recording notes witnessing. More than that, the self-developed personal health file data cloud platform based on blockchain technology will facilitate the maintenance of ownership registration, confirmation and cancellation of user identity nodes.

**Shared Accounts**: As blockchain technology is a distributed accounting method, shared accounts of Hours Chain blockchain can be carried out at any time. As long as the reconciliation logic of data transaction is docked to blockchain, both parties can complete the reconciliation of digital assets.

**Internal Capabilities:** The system of main service capabilities includes LhwL, KYC system, matching and speed of data transaction and other internal capability apps.

## 8.5 SF Trust Application

The SF Trust Application provides application service based on blockchain schemes to end users. In solutions to Hours Chain comprehensive health blockchain, the SF Trust Application is committed to offer massive users application service in all kinds of blockchain scenarios. For instance, users are supplied with reliable, secure and convenient blockchain service in network insurance, network medical treatment and public welfare. Guided by the principle of opening and sharing, Hours Chain blockchain will further open the SF Trust SQL and SF Trust Platform. It will also join other industry partners to explore more application scenarios, open up new application service with a concerted effort to maintain the eco-environment of the comprehensive health blockchain.

The Hours Chain comprehensive health blockchain platform enjoys the following advantages:

High Integration: It can connect and consist with system nodes with each network feature;

High Security: It can provide various permission policies, security key management system and user privacy scheme to ensure security of user data. Self-verifying nodes and the accurate real-time data verification system with multiple nodes are effective measures to ensure security of user data.

High Efficiency: The comprehensive, real-time, and visual operation and maintenance management system is provided as it can quickly identify system status and meet the needs

for multi-layered operation management. It can also shuttle among various application modules by LhwL in a convenient, speedy, and efficient manner.

High-speed Access: It can provide colorful application development frameworks and flexible deployment methods to facilitate the rapid access of different types of users to build their own applications.

High Concurrency: It can provide massive data storage and support high concurrency of data with flash confirmation.

# 9. Initiating the Future

Hours Chain expects to create a great access to comprehensive health data blockchain through which users can enjoy a secure and credible digital identity with LhwL and the blockchain world can therefore embrace a more trusted environment. Users are also allowed to bind their assets scattered among blockchain applications to access more convenient and secure super keys. The identity of users in the digital world can be verified to connected blockchain with reality by the means of the decentralized KYC system.

Moreover, in order to develop more application service to our benefits, Hours Chain blockchain has put in place an "opening and sharing" blockchain foundation platform. Instead of developing the comprehensive health blockchain bottom layer, developers can focus on the business logic of applications. Hours Chain blockchain will inevitably embrace a sound ecological environment.

LhwL lays the path in the real world leading to the reliable and secure blockchain while our blockchain foundation platform provides developers with more convenient and prudent infrastructure. Two major technological innovations, that is, LhwL and the decentralized KYC system, will ensure the safety and interests of users and developers, and build up a comprehensive health data network platform in the blockchain world.

Hours Chain is bound to initiate a new world of comprehensive health blockchain.

# 10. HOURS CHAIN Issuance and Deployment Plan

Hours Chain will issue Ethereum tokens (ETH) based on ERC2.0 according to the Ethereum Smart Contract. HOURS CHAIN is the official TOKEN of Hours Chain, totaling 1.2 billion with no additional issuance.

## 10.1 Purposes of HOURS CHAIN

1) Issuing and Raising: HOURS CHAIN is issued for early investors to raise resources for project development;

2) Paying the listing fee to the exchange;

3) Paying for the use of the Hours Chain platform;

4) Paying the personal health file account opening fee on the Hours Chain comprehensive health blockchain platform;

5) Paying the health data query fee and transaction commission on the Hours Chain comprehensive health blockchain platform;

6) Paying for the purchase of health reports, insurance contracts and financial digital assets on the Hours Chain comprehensive health blockchain platform;

7) Paying for the gifts users send to each other on the Hours Chain comprehensive health blockchain platform;

8) The amount of coins held and coin days will be partly considered to evaluate the number of year-end bonuses;

9) The amount of coins held and coin days will be partly considered to evaluate whether one can be an assurer or not.

## 10.2 Obtaining of HOURS CHAIN

1) Participating in Private Placement and ICO, and purchasing on the third-party data and token exchange platform;

2) Rewarding on the Hours Chain platform;

3) Annual dividend on the Hours Chain platform; 4) Gifts platform users send to each other.

## 10.3 Value of HOURS CHAIN

As the only circulation token of the platform, HOURS CHAIN will see its value on the constant increase with more and more users and data transaction.

## 10.4 Incentive Mechanism of HOURS CHAIN

Hours Chain will have its own token pool. Be it individuals and institutions, they all need to use native tokens to pay platform account setup fees and commission on the platform royalties. This part of tokens will be deposited in the special incentive fund of the specific token pool. When one's health data, health reports, medical insurance materials, and insurance information are used for query, he or she will be rewarded with tokens in his or her account. These tokens will be drawn from the special incentive fund of the token pool. At the same time, application developers and participants who contribute to the platform will be awarded by the special incentive fund of the token pool. The platform also promises to all token holders that 30% of the platform revenue (platform royalties, transaction commissions, etc.) will be allocated annually to token holders, node maintainers and platform contributors by means of bonuses.

## 10.5 Allocation Plan

- Cornerstone Investors: 5% of the total amount of tokens at the price of 1ETH=35000 HOR; A total of 2,000 ETH is planed to be raised; From the first day of trading on any exchange, 100% of the positions are locked in the first two months, 50% unlocked since the third month, and all the remaining parts unlocked in the fourth month;

- Private Placement Early-bird Investors: 5% of the total amount of tokens at the price of 1ETH=30000 HOR; A total of 2,000 ETH is planed to be raised; From the first day of trading on any exchange, 100% of the positions are locked in the first two months, 50% unlocked since the third month, and all the remaining parts unlocked in the fourth month;

- Private Early-bird Investors: 30% of the total amount of tokens; A total of 12,000 ETH is planed to be raised; From July 10th in 2018, 100% of the positions are locked in the first six months, and all the remaining parts unlocked in the seventh month, and rewarded with 2% HOR;

- The Team and Early Contributors: 20%;

- Token Pool and The Special Incentive Fund: 20%;

- Market Expansion, Development and Operation: 20%;

## 10.6 Issuance Plan

- Upper Limit Model: 17,600ETH for the hard-top model; 8,000ETH for the soft-top model;

- Implementation: tokens of smart contracts ;

- Method of Obtaining: Tokens can be immediately obtained through smart contracts when participating in its issuing;

- Cut-off: The total amount raised reaches the hard top or the cut-off date is up.

## 10.7 Deployment Plan

- On February 5, 2018, the Whitepaper on the Hours Chain Comprehensive Health Blockchain was officially issued;

- On February 20, 2018, we initiated the private placement and the development of wallets, and set up the overseas foundation;

- In July 2018, it will land three overseas digital currency exchanges at the same time;

- In October 2019, we will complete the system development of the Hours Chain Comprehensive Health Blockchain platform.

## 10.8 Fund Allocation Proposal

The fund raised by public sale is fully earmarked for the development and operation of the Hours Chain comprehensive health blockchain platform. The initial budget proposal is as follows:

**Core Development**: 40%; It is used for the development and interface optimization of underlying architectures like LhwL, decentralized KYC system, Hours Chain blockchain management system and data transaction system for better user experience.

**Recruitment:** 20%; It is used to attract, retain and motivate experienced management, technology and marketing personnel in the aspect of blockchain technology and the comprehensive health industry so as to upgrade and build a team with strong operation capability.

**Operational Security**: 15%; Faced with extremely high security requirements of platform hardware and software, the Hours Chain team will strive to maintain top-notch security for users at the expense of human and material resources.

**Market Expansion:** 15%; It is used to enhance brand recognition of Hours Chain. Specifically, it aims to build brand credibility and attract platform registered users, thirdparty application service developers and institution users through various marketing, advertising and public relations activities.

**Platform Operation:** 10%; In order to ensure efficient operation of the Hours Chain platform and our market share on the steady increase, we will employ professional operation, customer service, and management staff to train into an efficient operation team. At the same time, we will carry out refined operation to deliver a more sustainable, flexible and stable platform.

## 10.9 Team's Commitment to Locked Positions

20% HOURS CHAIN held by the Hours Chain founding team will be fully frozen after end of the pre-sale as it promises to lock the positions for 24 months in a voluntary manner. 30% HOURS CHAIN held by the team will be unlocked six months after completing the

fund-raising. No more than 10% of the total amount held by it will be unlocked quarterly thereafter until end of the unlocking.

## 10.10 Landing Exchanges

The Hours Chain plan will land three overseas digital currency exchanges.

## 11. Contact Information

Official Website: http://www.hourschain.info/

Contact WeChat: Eeic2018

Tech WeChat: davyonline2008

Tech Email: 839950450@qq.com

# 12. Risk Warning

## 12.1 Systematic Risks

On the one hand, the risk of this investment will go up if the future digital asset market sees a dramatic change in its overall situation. On the other hand, systemic risks also include a series of force majeure factors, such as natural disasters, large-scale breakdown of computer networks worldwide, political unrest, etc.

## 12.2 Policy Risks

We believe that countries around the world are likely to introduce related policies and laws that regulate blockchain and electronic tokens in the near future. There are indeed some uncertainties about future policies. Therefore, significant changes in government policies on ICO projects or new laws and regulations related will cause fluctuations in the ICO market and exert impacts on the issuance and price of tokens, putting ICO participants at a great risk.

## 12.3 Team Risks

Hours Chain Team is made up of senior insiders and veteran technology developers and researchers in the industries of blockchain, the capital market and the Internet. However, future chances are that core staff leaves and team members run into conflicts to take the toll on the whole program.

## 12.4 Talent Risks

At present, blockchain technology is still in its fledgling stage of exploration and development. Besides, the blockchain industry is going through the talent shortage and the resulted cut-throat competition. Thus there is no guarantee that the project development progress will be completed as expected.

# 13. Team Members

**Z.GEORGE MOU Ph.D**.: Mr. MOU is known as a veteran data scientist with PhD in Computer Science and Master of Philosophy from Yale University. He has been appointed as professor of Computer Science, advanced system engineer, research lab director and so

on in Department of Computer Science in University of Blendes, IBM Supercomputer Department, Laboratory of Applied Physics of Johns Hopkins University, Distributed Computing Laboratory, Boeing Institute of Mathematics and Computing Technology for years. In recent years, he has also been leading the program *High Efficiency Multi-core Algorithm and Its Model* at Yale University. Dr. Mou's achievements in the fields of scientific research, military, aerospace, simulation and industry also include:

- Divacon advanced distributed computing programming language
- BORG supercomputer and its communication, programming and application system
- The optimal algorithm for the K-dimensional FFT distributed system in Mdimensional networks
- Spectrum analysis of communication networks in the distributed system and its Applications
- The optimal parallel algorithm for the linear system with limited bandwidth
- The parallel algorithm for Log(N) time of N automata when N is an extra large number

**Davy Zhou**: Davy graduated from Fudan University with a major in Computer Science and further studied the MBA program at Nanyang Polytechnic University in Singapore. After returning back from overseas, he has worked in Shanghai Jiahua 600315, and assumed an important position in Singapore Informatic Education Group. Later on he initiated a startup company as CTO in the Internet industry. With more than 10 years experience in software development and system framework, he has led his technical team to bid for a development project on the interactive platform of the listed company Oriental Pearl (600637) (BST IPTV Shopping Channel). He is also the founder of the "Rui Lv Cloudwealth" system framework and Rui Lv new energy science and technology. Thanks to his extensive knowledge in the blockchain technology, he has engaged in setting up the blockchain health platform. Currently, he is appointed as the CEO and CTO of Rui Lv New Energy Technology (Shanghai) Co., Ltd. and Rui Lv Network Technology (Shanghai) Co., Ltd. with rich experience in team management, technology development and market operation.

**Tomlee Li**: MBA from University of Hong Kong. Li's working experiences include: NOKIA after-sales system development engineer, 2001-2003; big data processing expert, China Intelligent Transportation Holdings Co., Ltd., 2004-2010; cloud computing and mobile internet application technology director, Beijing Gusen Mingchen Holdings Co.,

Ltd., 2010-2012; COO of Libai.com in 2013; COO of e-commerce business department in Beijing Youpinyuedong Technology Trade Co. Ltd., 2015-2017; CEO of Beijing Shiwu Technology Co., Ltd from 2017 until now. Li has engaged in the R&D and operation of multiple projects based on big data and dealt with products, operation, marketing and management of companies with several hundred staff.

**Nelson**, founder of Aliyoyo. CEO of hours chain. His company has landed on Forbes China's 2018 potential business list. HOR is on the list of Hurun 2018 blockchain innovation companies. Nelson is a well-known veteran entrepreneur among post-90s who started business with 500 yuan in 19. For the first time in life he earned 800,000 yuan at 22. Aliyoyo, a start-up enterprise founded in 25 cumulatively raised venture capital investments worth tens of millions of yuan from investment institutions. Aliyoyo won the outstanding prize in 2017 International Innovation and Entrepreneurship Competition, 2017 China Most Innovative Program Award and 2017 Haichuang Startup Star Award. The same year saw the investment in six blockchain projects and digital currencies with an average return of 20 times. Covered by various TV and media outlets, Li was dubbed as a post-90's "entrepreneurial madman" among post-90s.

**Lo KING Yiu**, an early blockchain investor in Hong Kong, enjoys rich investment experience and a keen sense of investment, thus holding digital currencies worth hundreds of millions. Lo KING Yiu has been a cornerstone investor in NEM, ANS, QTUM, WAVE, AE, COINDASH, ELF, LBTC, LRC, DAF, SCRY among other projects, all resulting in huge returns.

**David Zhang** graduated from Huali College Guangdong University of Technology with major in Computer Science and Technology; Zhang was awarded with the first prize of 2011 National Software Professionals Design and Development Competition (Guangdong Section); the outstanding prize of 2011 National Software Professionals Design and Development Competition National Finals; the third prize of the Sixth National Information Technology Application Level Competition; the first prize of the Third "Lanqiao Cup" National Software Competition Guangdong Preliminary; the outstanding prize of the Third "Lanqiao cup" National Software Competition Finals; the golden prize of the Ninth

"Challenge Cup" Guangdong College Student Entrepreneurship Plan Competition. Zhang's work experiences include CEO of Huayue Network Technology Co. Ltd. (HK), 2013.032014.12; CEO of Imuse Network Technology Co. Ltd. (Beijing) in 2015.05; and CEO of Beijing Phonetic Culture Media Co., Ltd. From 2016.07 until now. Zhang set up the Cfan

Forum "9nybbs" as head of the forum and developed a variety of forum open-sourced plugins based on the LeoBBS platform.

**Jun Zhang:** partner of Sybernaut Investment Group, former vice-president of Huawei Technology Co., Ltd., and deputy secretary general of EUCNC. As an expert in the digital and electronic fields, Mr. Zhang is also a member of Chinese Institute of Electronics and director-general of Chinese Association of Smart Hardware Industry. Zhang was granted a post-doctoral degree in Institute of Image Communication and a master degree of Computer Graphics, Huazhong University of Science and Technology. As a returned expert from Silicon Valley, USA, He joined the Medium and Long-term Development Plan Panel for 2020 under State Ministry of Industry and Information Technology, the National Eleventh Five-Year Plan Panel, National 863 Project Digital Television Panel as well as National Terrestrial Digital Television Standard Panel.

**CAITLIN MATERAC:** As the special consultant of Hours Chain, Caitlin Materac is a microbiologist, a pathologist, and a member of "National Adult Medical Education Representative Training Committee" of Australia. Ms. Caitlin has received education at University of Melbourne, then University of Sydney among other top-notch institutions. She is currently a professor of Clinical Medicine at University of Sydney, a teacher at School of Medicine, Australian National University, and a guest lecturer at Queensland University of Science and Technology. As an expert in the field of pathological medicine, she is also appointed as member of RCPA Student Advisory Board, ASID, IDSA, and AIDA, as well as representative of "ASID-ASM 2017 Project" Committee. Professor Caitlin has taken the lead in a series of research projects on "Medical Dilemma" and been honored with numerous medical awards, including "Outstanding Prize of Innovative Findings in Clinical Practice" of Australia, "Harry Collins Award of the Year of 2017" and "Seslhd Award of Improvement and Innovation".

**Investment worth tens of million RMB has been secured from the following institutions:**

# 14. Disclaimer

This is a concept paper (Whitepaper) to explain our WUJI platform and HOR tokens. This document may be modified or replaced at any time. However, we have no obligation to update it or provide any additional information for readers.

The flowing items as a reminder:

Not open to everyone: The WUJI platform and HOR tokens are not open to everyone. Participation may require a series of steps, including the providing of specific information and documents.

No controlled articles in any jurisdiction: HOR tokens (as stated in the Whitepaper) are not intended to constitute securities or any other controlled articles in any jurisdiction. The Whitepaper does not constitute a prospectus or any form of offer document By no means does it mean to constitute an offer or solicitation of securities or any controlled articles in any jurisdiction. The Whitepaper has not been reviewed by regulators in any jurisdiction. No recommendations: The Whitepaper does not constitute any recommendation as to whether you should participate in the Hours Chain platform or purchase any HOR tokens, nor should it be used as a basis for any contract or purchase decision.

No any declaration or warranty: We do not render any declaration or warranty as to the accuracy or completeness of information, statements, opinions or other matters described in the document, or information about the plan conveyed by any other means. Without limitations, we do not give any statement or assurance in terms of the achievement or rationality of any forward-looking or conceptual statements. Nothing in the document shall serve as a basis for future commitments or statements. To the maximum extent permitted by the applicable law, despite any negligence, breach of contract or lack of concern, all liabilities of any loss (whether foreseeable or not) arising out of or relating to any person or

party involved in the Whitepaper shall be exempt. The scope of liability, which may be limited but not entirely exempt, is limited to the maximum extent permitted by applicable law.

The English version prevails: The Whitepaper is only available in the official English version. Any translation is for reference only and is not certified by anyone. If there is any discrepancy between the translation of the Whitepaper and the English version, please refer to the English version.

Other companies: Use of the name and trademark of any company and/or platform other than "HOURS CHAIN/HOR" does not imply any association or approval with any party. The Whitepaper only refers to specific companies and platforms for illustrative purposes. You must take on board all necessary professional advice, including tax and accounting matters. We are very confident about the great success of the HOURS CHAIN project. However, we can't 100% guarantee it given risky digital assets and platforms. You shall assess the risks and your tolerance.