DHC

Whie Paper

Digital Health Certificate

Foreword

"I will respect the privacy of any patient;

I will treat my peers as my brothers and sisters;

I will not allow any religious, national, ethnic, political or status considerations to fall between my duties and patients;

I will never use my medical knowledge to violate human morality, even if threatened;

I will do my best to maintain human life from the time of its conception. "

----"Geneva Declaration" 1948, World Medical Association

Vision

From the perspective of the global vaccine immunization medical health market, whether the user's vaccine immunization medical health information is recorded, whether the vaccine immunization medical health treatment method used is effective, whether there is data information traceability, etc., these will no longer be the focus. What is really considered is what is the significance of these vaccines for medical health? In particular, this time the global spread of the new crown virus 2019-nCoV development, the value of vaccine immunization medical health has been greatly improved, and people are paying more and more attention to the vaccine immunization medical healthmarket.

The blockchain can help us realize and build a belief, and build a new generation of medical ecology that realizes medical data information interconnection, chain network integration, data sharing, cross-network query verification and medical value transfer.

The vision of this project is to use blockchain technology to lead the global vaccine immunization medical health ecosystem into a reliable digital life, so as to achieve the common epidemic and sharing of medical data in the information age.

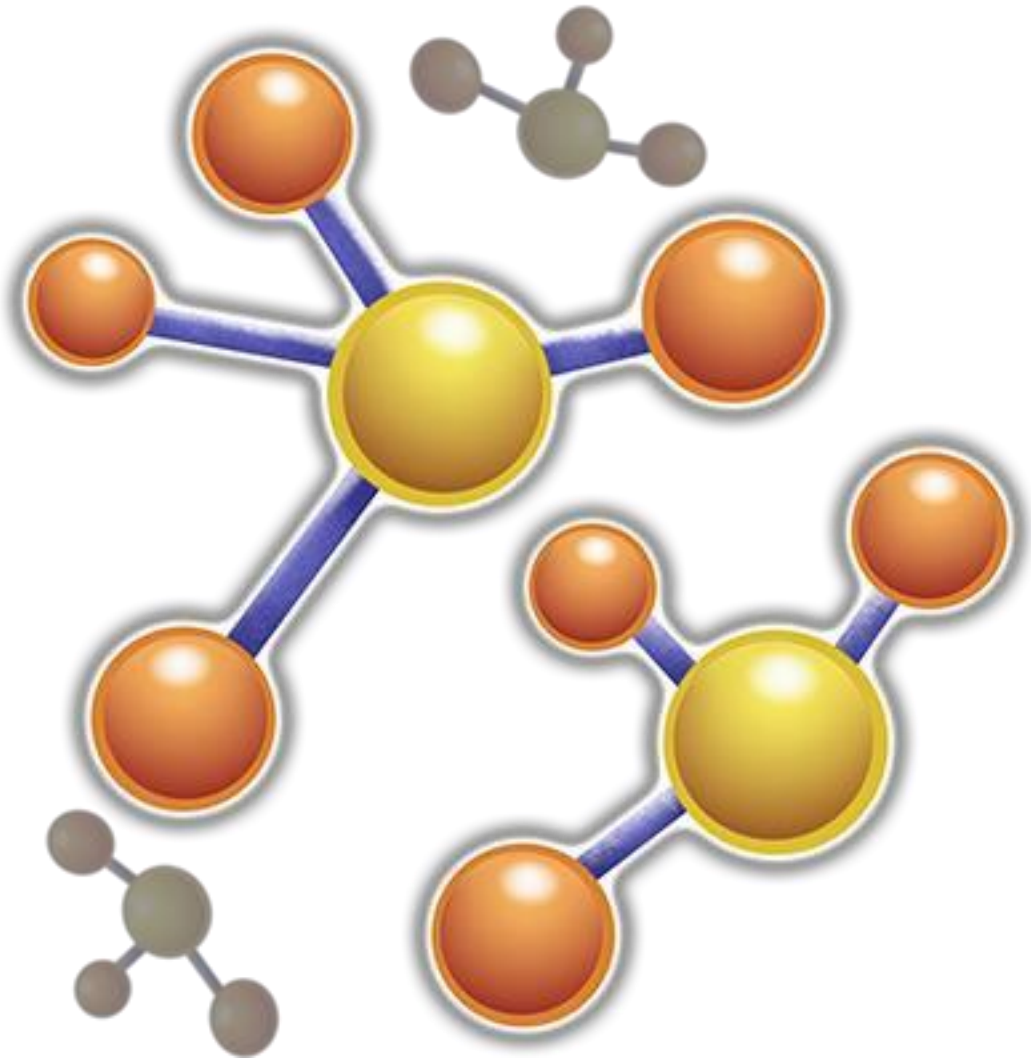
- **Communicable:** The characteristics of blockchain distributed storage have achieved decentralization. Under the consensus mechanism, global vaccine immunization medical health doctors work together to create a new vaccine immunization medical health service ecosystem for users, which can be encrypted Or confidentiality agreements to efficiently achieve the joint creation of a market environment for the management of vaccine immunization medical health.

- **Sharing:** The medical data network of the blockchain has a cross-chain ecology, which allows medical data to access data from other chains on different chains, enabling the sharing of vaccine immunization medical health data with global humans and effective rapid indexing of patient vaccines Immunological medical health records.

DHC is under the global integration trend, the development of the global vaccine immunization medical and health-related industries is uneven, and there are great barriers to medical data. The global vaccine immunization medical health chain uses the blockchain to track and trace the medical field, as well as data Share to create a global smart vaccine immunization medical health ecosystem.

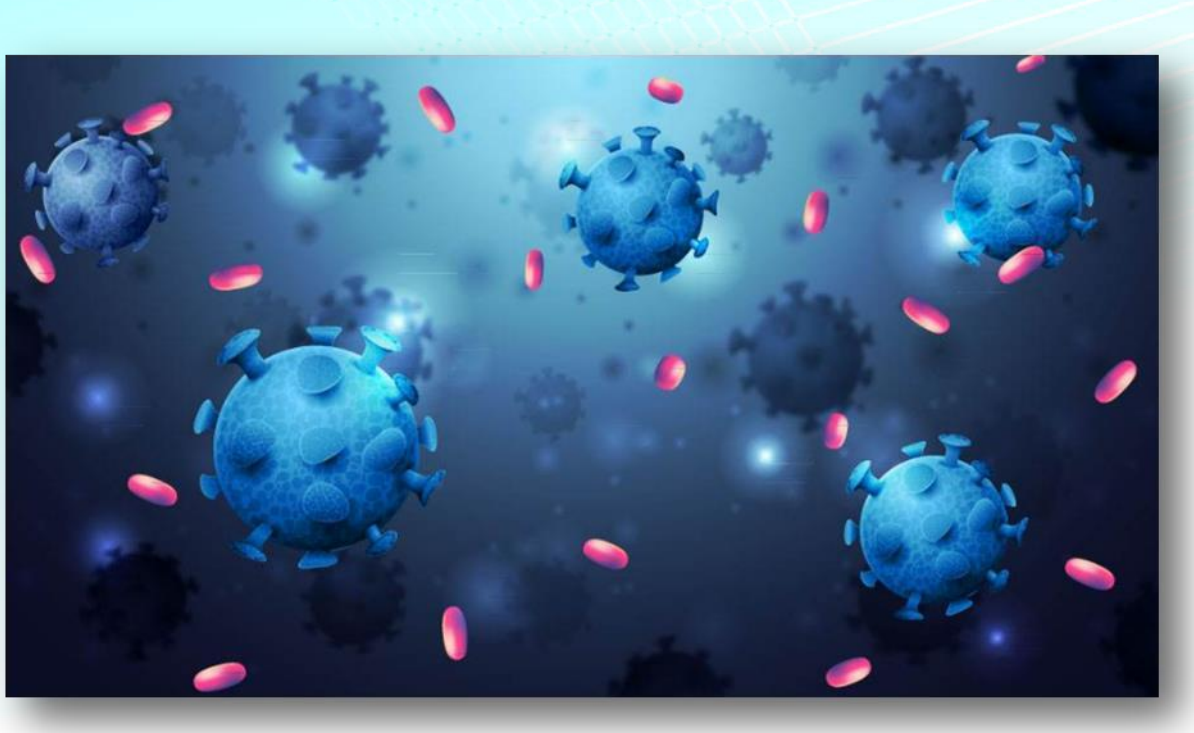
Therefore, blockchain technology is expected to become a changer in the traditional vaccine immunization medical and health market. The point-to-point distributed behavior link does not require any third party as an intermediary. The centralized management of its vaccine immunization medical and health information system can no longer meet market demand. 3. Lack of advanced vaccine immunization medical health record system, lack of medical system data service providers, serious problem of transmission of personal electronic medical records, low efficiency of medical reimbursement process, long time-consuming, less personal medical health management information, and lack of clinical vaccination medical health market The inferior ecological pain points such as the trust mechanism can be gradually broken.

CONTENT



ONE The rise of blockchain and the way forward

In 2003, there was an outbreak of SARS in the world. After 16 years, at the end of 2019, a new coronavirus incident suddenly occurred. In the same year, there were African bird flu incidents and brucellosis incidents... These incidents have severely hit the global economic industry. Large-scale enterprises or companies that once flourished have frequently collapsed, and global market performance has shrunk by more than 60%. Many countries All should be given various remedial economic measures to revitalize the economy. At the same time, the epidemic has also caused more and more people to pay attention to the vaccine immunization medical and health market and people's healthy life. How should the vaccine immunization medical and health market go?



Times are evolving and technology is advancing. The market is ubiquitous, and now all corners of the world are full of voices sharing medical care, general health, vaccine immunization and related medical health, and the blockchain is also at the mouth of all economies in the world. The industry brings new light and prospects. So, what is blockchain? What is the blockchain industry formed?

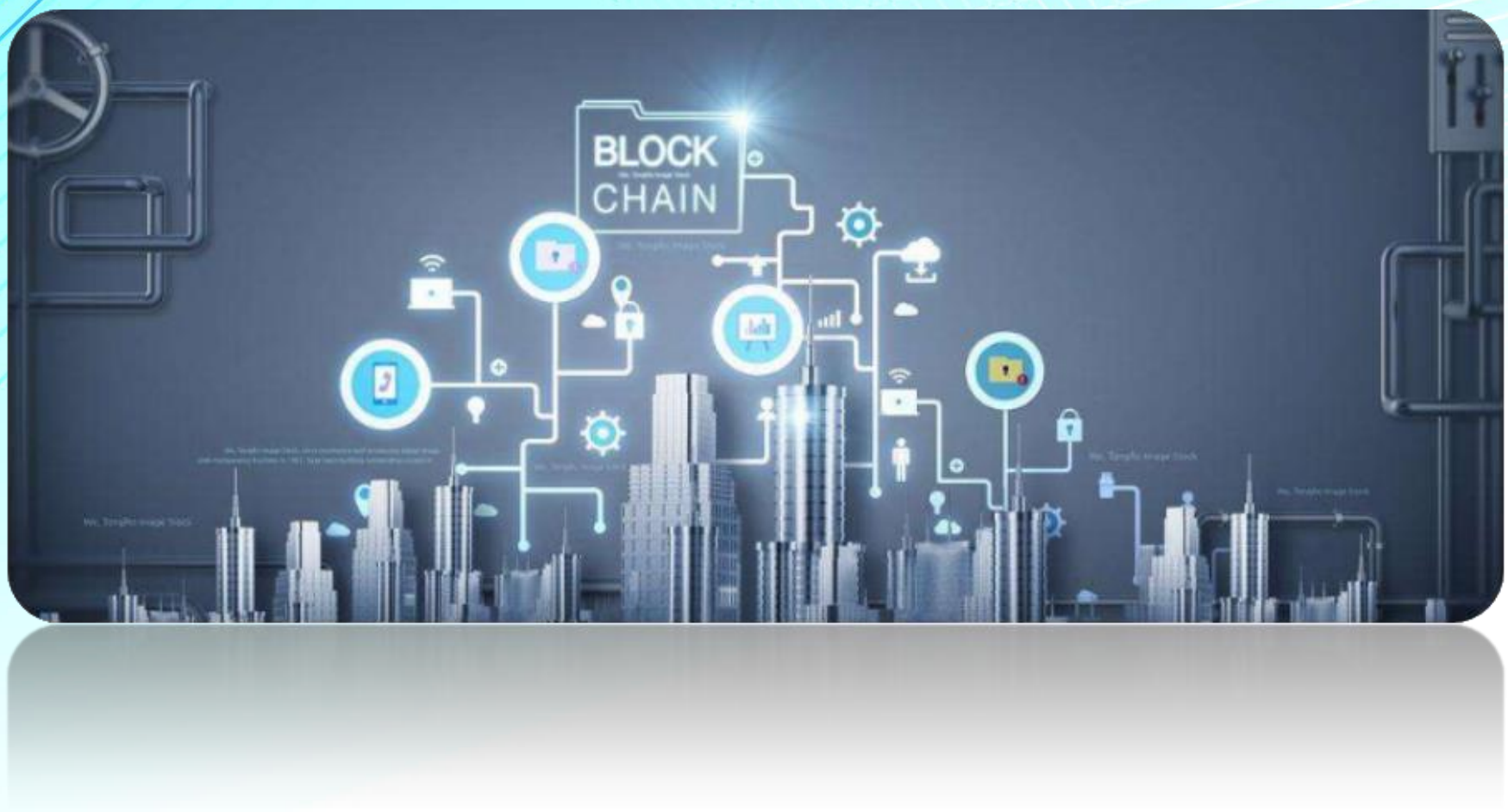
The biggest tuyere in 2020 is not to catch up with the tuyere, but to create a tuyere. A new tuyere is taking shape. Blockchain empowers the vaccine immunization medical and health industry and creates a new outlet!

The birth of blockchain

Since human society entered the Internet era, in order to guarantee the freedom, equality and openness of the online world and realize the full flow of information, scientific, technical and engineering personnel have broken through all kinds of artificial control and division through continuous innovation or technological change. In 2008, the pseudonym Satoshi Nakamoto proposed the concept of blockchain, which was recorded in the article "Bitcoin: A Peer-to-Peer Electronic Cash System", which explained based on P2P network technology, encryption technology,

time stamping technology, blockchain technology, etc. The concept of the electronic cash system architecture, which marks the birth of blockchain.

Blockchain technology is considered to be the next generation of disruptive core technology after steam engines, electricity, and the Internet. If the steam engine releases people's productivity, electricity solves people's basic life needs, and the Internet has completely changed the way information is transmitted, then the blockchain, as a machine for building trust, may completely change the way the entire human society transmits value. The significance of blockchain is that it can build a more reliable Internet system, and fundamentally solve the fraud and deprivation in value exchange and transfer. With the popularity of blockchain technology, the digital economy will become more authentic and credible, and the economic society will become more just and transparent.



Blockchain technology can be managed autonomously through a peer-to-peer network and a distributed timestamp server. The blockchain invented for Bitcoin makes it the first digital currency to solve the problem of repeated consumption. The design of Bitcoin Has become a source of inspiration for other application scenarios. In August 2014, Bitcoin's blockchain file size reached 20 gigabytes, and the first block created by Satoshi Nakamoto was the "Genesis Block".

Due to the huge application scenarios of blockchain technology, many countries and regions around the world have begun to design the development path of blockchain from the national level. In the United States, "Blockchain Belief" has become a national strategy, and the US Federal Government has formed a basic consensus on the attitude of digital currency and blockchain: strengthen ICO supervision and explore blockchain technology. At the same time, the World Bank and the International Monetary Fund are also studying blockchain technology very carefully, hoping that this technology will be used in developing countries in the future to more effectively track the flow of funds and reduce corruption.

In recent years, the blockchain has exploded, and many blockchain technologies have been introduced. The

so-called next-generation Internet technology has shifted the information Internet to the value Internet. At the same time, the value network, decentralized consensus and other characteristics of the blockchain can combine with many industries to develop a more complete economic system, reconstruct the business ecology, and even encourage greater technological innovation. In particular, the distributed nature of the blockchain allows participants on the entire chain to share the economic benefits of the entire ecology without forming a monopoly. It can be used to break the island effect of the industry, allow the entire industry to compete in collaboration, exchange basic data andfacilities, and form a more benign technical and commercial cooperation.

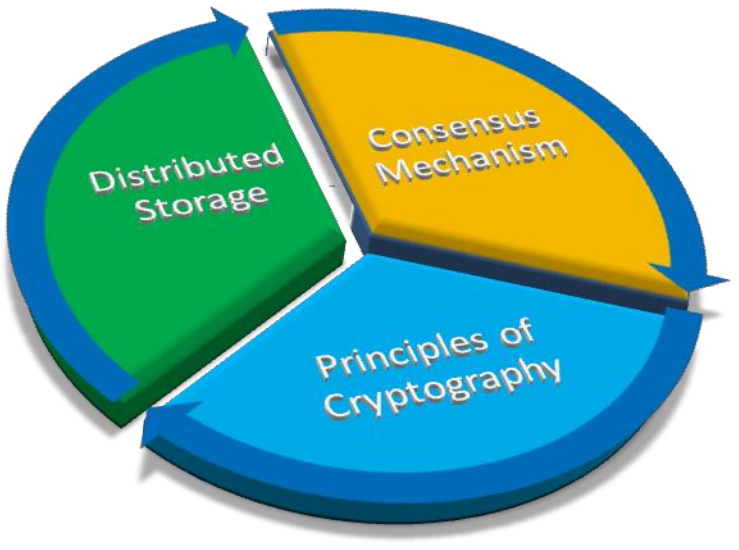
The core technology of blockchain

Blockchain technology is not a single-item technology, but a comprehensive technology system that integrates many aspects of research results. Most people believe that there are three indispensable core technologies, namely: consensus mechanism, cryptography principle and distributed data storage.

First, the consensus mechanism

The consensus mechanism is how to reach consensus among all accounting nodes to determine the validity of a record. This is both a means of identification and a means of preventing tampering. The blockchain proposes four different consensus mechanisms that are suitable for different application scenarios and strike a balance between efficiency and security.

The consensus mechanism of the blockchain has the characteristics of "minority obeys the majority" and "everyone is equal". Among them, "minority obeys the majority" does not completely refer to the number of nodes, but can also be calculated by computing power, equity or other computers. Feature amount. "Equality for everyone" means that when the nodes meet the conditions, all nodes have the right to give priority to the consensus result, be directly recognized by other nodes, and may eventually become the final consensus result. Taking Bitcoin as an example, proof-of-work is used. Only when controlling more than 51% of the accounting nodes in the entire network, can a fake record be forged. When there are enough nodes to join the blockchain, this is basically impossible, thus eliminating the possibility of fraud.



Second, the principles of cryptography

In the blockchain, the dissemination of information is based on the asymmetric digital encryption technology of

public key and private key to achieve mutual trust between the two parties of the transaction. In the specific implementation process, after the information is encrypted by one of the public and private key pairs, the process can only be unlocked by using the other key. And after one of the keys is made public (that is, the public key), another public key (that is, the private key) cannot be calculated based on the public key.

Third, distributed storage

The distributed storage in the blockchain is that each participating node has its own independent and complete data storage. Different from traditional distributed storage, the uniqueness of blockchain distributed storage is mainly reflected in two aspects: first, each node of the blockchain stores complete data according to the blockchain structure, and traditional distributed storage Generally, the data is divided into multiple parts for storage according to certain rules. The second is that each node of the blockchain storage is independent and equal in status, relying on the consensus mechanism to ensure the consistency of storage, while traditional distributed storage generally synchronizes data through other backup nodes at the central node. Data nodes can be different physical machines or different instances in the cloud.

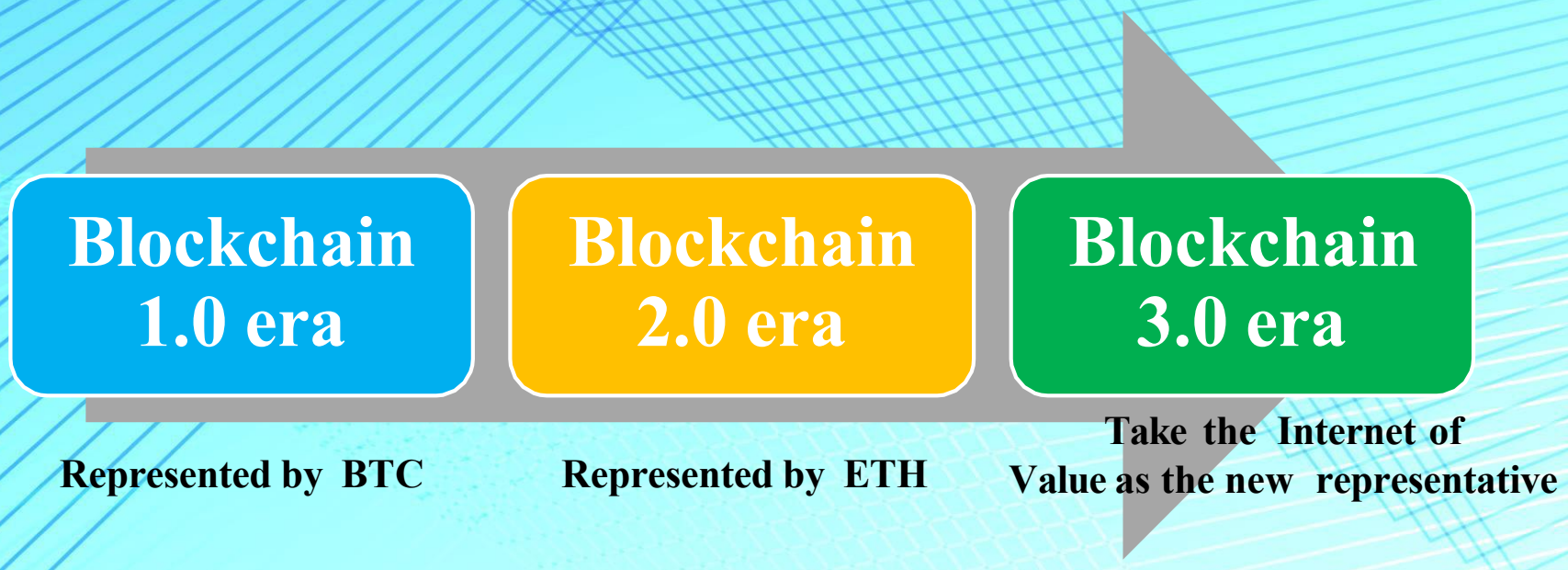
The future of blockchain

Blockchain is one of the most revolutionary emerging technologies in the field of information technology. It connects the data (blocks) in chronological order (chain) in a way that multiple nodes in the network jointly keep accounts to form a transaction record that can be traced in time sequence and cannot be tampered with.

The core value of the blockchain lies in the realization of a tamper-proof, safe and reliable distributed accounting system. Based on technical guarantees such as cryptography, distributed consensus protocols, peer-to-peer network communications, and smart contracts, multiple participants using a blockchain ledger system can form a trust foundation for multi-party transactions without the need for additional third-party guarantee institutions. In turn, low-cost, low-latency information exchange and transaction processing are realized, and efficient circulation of digital value is realized.

Under the development of the Internet, the financial crisis caused by the subprime mortgage crisis has swept the world. People are once again aware of the shortcomings of the traditional financial system and have tried to improve and optimize it. Satoshi Nakamoto only defined Bitcoin as a decentralized peer-to-peer payment system, and the

development of blockchain today has long gone beyond payment. Blockchain has three development eras, as follows:



The first generation: In the era of blockchain 1.0, the value of digital currency, represented by Bitcoin (BTC),

Bitcoin is a distributed autonomous system, which is a perfect combination of applied mathematics and financial economics. If you study this system carefully, you will find that it also includes the central bank (issuing currency), business (payment) and as a currency. Its own function. In this system, the talented Satoshi Nakamoto uses asymmetric cryptography to solve the problem of Bitcoin ownership, uses the UTXO model to define a "coin" concept, and uses blockchain to solve the problem of distributed transaction verification. Proof-of-work (POW) maintains the normal stability and security of the system. Under the role of game theory, all miners maintain a unified blockchain to ultimately solve the double payment problem. But Bitcoin's algorithm is outdated and the processing speed per second is too slow. From a technical perspective, Bitcoin will collapse sooner or later. Just because it is the first practical signage application that has attracted widespread attention since the emergence of blockchain technology, it has firmly secured the position of the leader of digital currencies. In addition, bitcoin transaction fees are too high, and small bitcoins are used by fewer and fewer people. Therefore, more platforms will also work to promote the progress of blockchain digital currency. Ethereum has triggered new algorithms, promoted the upsurge of blockchain technology, and spawned many digital currencies. If Bitcoin is regarded as a social experiment, Ethereum activates isolation verification, which confirms this statement again.

Among the many generations of coins, one development branch is still renewed with vigorous vitality, that is, the main anonymous digital currency, and BTC and LTC are the representatives.

The adopted public chain will absorb the advantages of many pioneers of virtual currency and be comprehensively applied to consensus mechanisms, algorithms, privacy, etc.

The second generation: the era of blockchain 2.0, creating an era of smart contract value, represented by Ethereum (ETH)

After people gradually clarified the relationship between Bitcoin and the blockchain, the vision suddenly opened up and found that Bitcoin is only an application of blockchain, and blockchain will have other applications. "Coin" turns to "chain". Many people now know that the blockchain can be regarded as a distributed database. The core feature of this database is to record data and contracts along the time axis, and can only read and write, not modify and delete.

Bitshares was the first to sound the horn of blockchain exploration, and Ethereum really made this revolution a qualitative change. Ethereum not only inherits many advantages of Bitcoin, but also introduces many innovations. He is a smart contract platform and a low-level protocolfor distributed applications.

The most fascinating thing about Ethereum is its virtual machine (EVM) with almost "Turing completeness". Of course, it also brings huge technical complexity and fault tolerance cost. Ethereum has also experienced a hard fork for this purpose. . Nowadays, technical experts generally believe that this system is far from perfect, and there are still many places to be optimized. The exploration of blockchain and smart contracts is still a long way, and this is also an opportunity in the future.

The next generation: Blockchain 3.0 era, creating the value of the application era, with the value Internet economic application as a new type of representative

In the past 8 years or more, the digital asset industry has evolved from the development of coins into the era of chains, so how will it develop next? The Internet in the world has only been born for more than 30 years, and it has changed the world. It is generally believed that after the Internet, the next network is the Internet of value, and the Internet of Things has been mentioned for many years, and IBM has been working tirelessly on research, but always No substantial progress has been made, and even why the Internet of Things cannot clearly describe it.

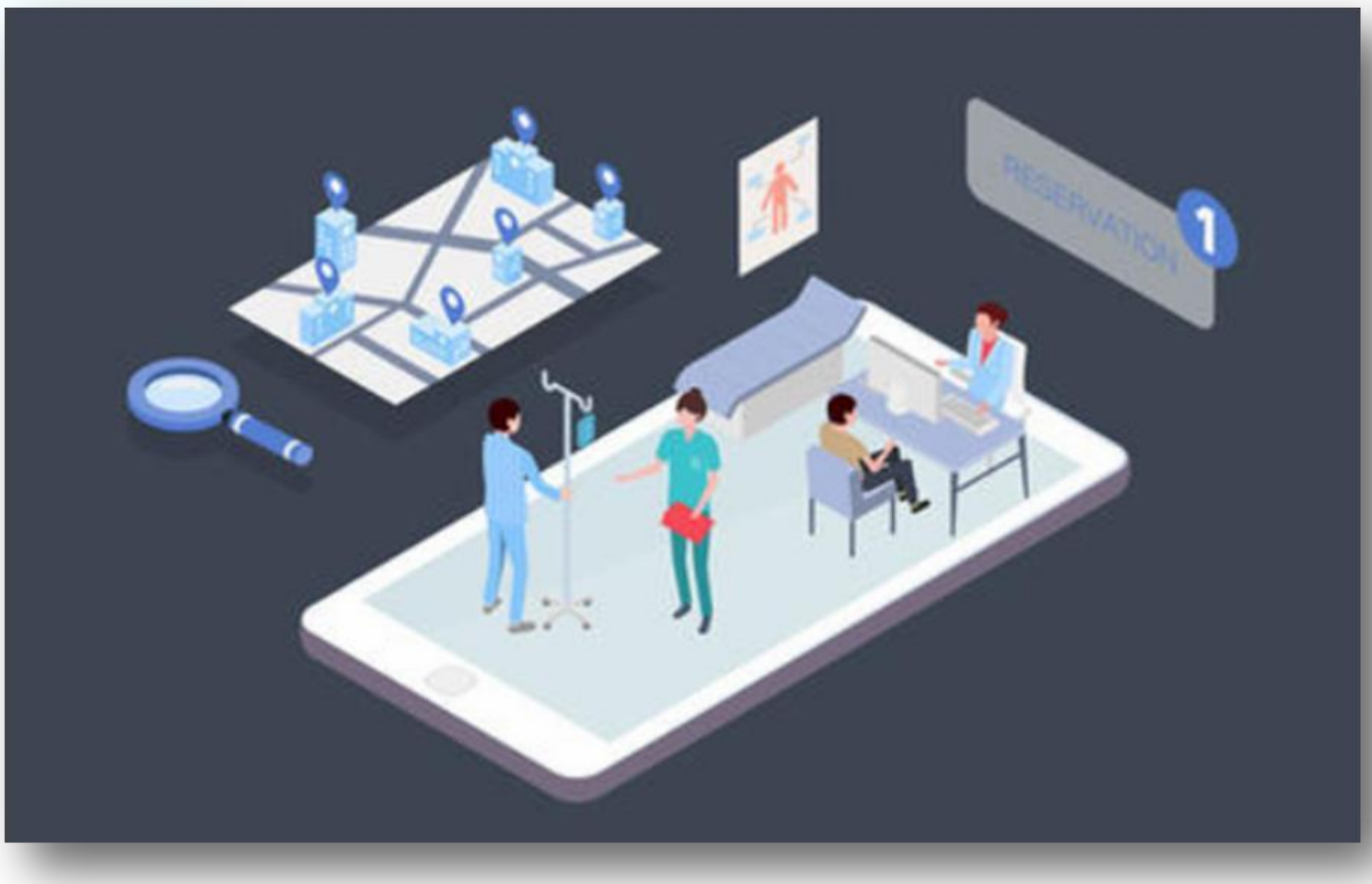
It was not until the blockchain emerged that the situation was gradually opened. One of the reasons for this dilemma is that the technology in the past cannot be truly automated and cannot generate real value. The distributed autonomous system (DAC), which has proved to be feasible, solves this problem perfectly. It provides automated genes, which can be used as the foundation of the Internet of value. The value blockchain economy is in

line with the development of the times, and its network has the characteristics of high efficiency, high security, and high stability. value.

Blockchain technology can build an efficient and reliable value transmission system, promote the Internet as a network infrastructure for building social trust, and realize the effective transfer of value, and this is called the value Internet. It is noted that the blockchain provides a new type of social trust mechanism, which lays a new foundation for the development of the digital economy. Innovation under the application form of "blockchain+" indicates the new direction of industrial innovation and services. The widespread application of the value blockchain economy will be a major trend in the general development of the blockchain in the future, and it also has a strong potential value.

Nowadays, blockchain technology has been deployed in the world, and developed countries such as the United States, Britain, Japan, Germany, Canada, and Australia have realized that blockchain technology has great application prospects in public service and social mechanism optimization. Design the development path of blockchain. Blockchain can provide systematic support for economic and social transformation and upgrading. The obvious advantages of blockchain + economy lies in optimizing business processes, reducing operating costs, and improving collaborative efficiency. This advantage has been in financial services, supply chain management, intellectual property rights, medical immune health, social service industry, social welfare, social networking, education and employment And other areas of society have initially manifested.

The current development of blockchain is not yet very popular. The future of blockchain is coming. With the development of the era, blockchain will gradually involve all corners of the world and lead the trend of the era. This will be the future. The revolutionary new generation of blockchain development is glorious.



TWO Global Vaccine Immunology and Healthcare Industry Market Development Analysis

At the end of 2019, the strange new pneumonia virus swept the world. As of today, 10 million people have been diagnosed, and more than 500,000 people have died from this epidemic. As a result, the world is very concerned about the development of this vaccine immunization medical health industry. If there is a good vaccine, the world will have a great improvement, and the regression of economic development will be effectively controlled.

Global vaccine immunization medical industry market size

Global vaccine immunization medical protection is not only related to the vital interests of every member of society in the world, but also directly related to the sustainable development and comprehensive competitiveness of a country. Vaccine immunohealth medical service system is a service chain that includes analysis of epidemic virus samples, vaccine development, clinical trials, production and marketing, immunization, epidemiological drug development, and immunorehabilitation. The vaccine medical service chain supports vaccine research and development. The production and distribution operation system and the vaccine immunization insurance cost

collection and payment system. Only if these three systems operate in a coordinated manner can the largest social security and the effectiveness of medical resources in the whole society be maximized.

The upstream of the vaccine medical industry chain mainly includes vaccines, pharmaceutical production R&D and medical device production R&D; midstream includes large medical institutions and small institutions that provide public medical services. Large institutions mainly refer to public hospitals and large private hospitals, pharmacy chain institutions, and small institutions. Refers to community hospitals and private clinics; the downstream of the medical industry chain is the people and patients who need immunization.

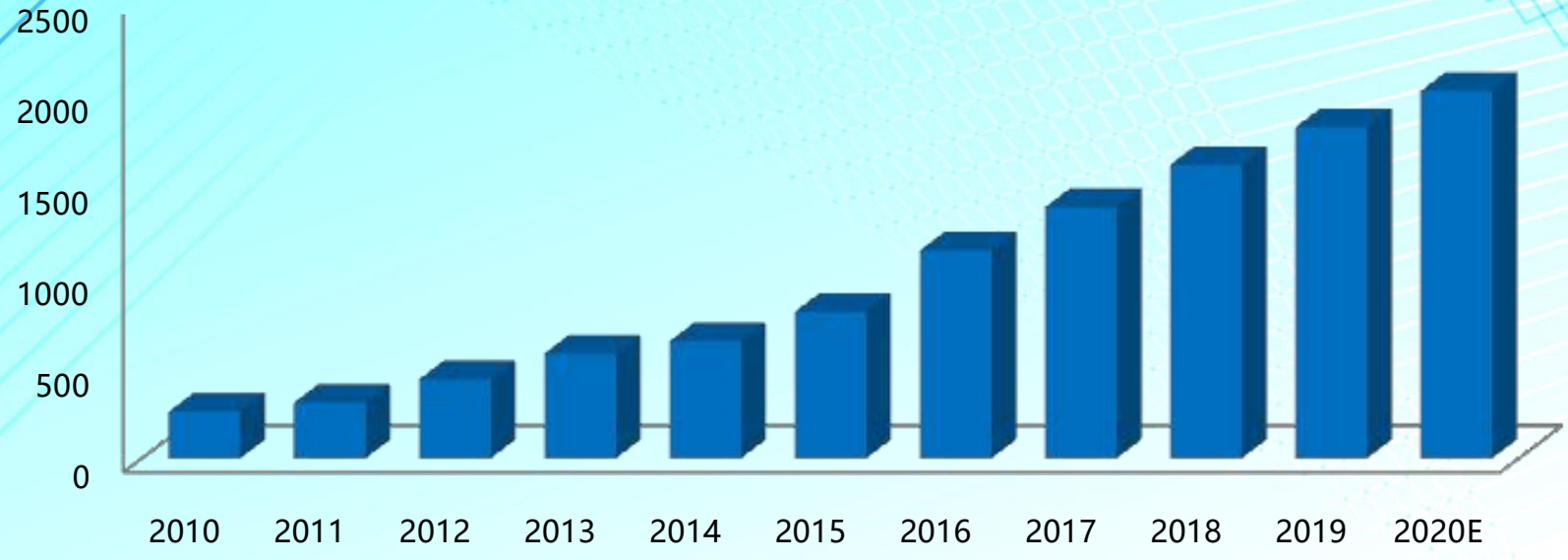


Figure 2-1: Global vaccine immunization medical market size from 2010 to 2020 (Unit: USD 100 million)

Due to the relatively closed and semi-market characteristics of the vaccine immunomedicine industry, the development has been relatively slow, but the vaccine immunomedicine industry also has an extremely broad market space. At present, the global public healthcare market has reached tens of trillions of dollars annually. According to the evaluation data, in 2015, the global vaccine medical industry was about trillions of dollars, and the value of the global digital vaccine medical market was 80 billion dollars (accounting for 8%)), is expected to increase to more than 200 billion US dollars (accounting for 20%) by 2020, with a compound annual growth rate of 21%. Among them, the children's vaccine immunization health medical market is mainly driven by new vaccines such as Pfizer pneumococcus, and the adult vaccine immunization health medical market is mainly driven by influenza vaccines.

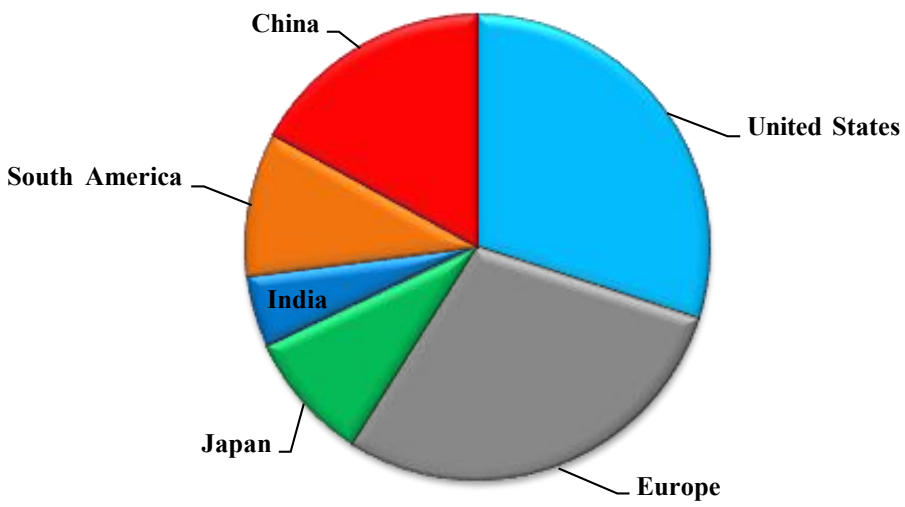


Figure 2-2: Proportion of the global distribution of the global vaccine immunization health market in 2019

American market

In 2016, the US vaccine immuno-health medical market value was US$18.38 billion, and by 2019 the US vaccine immuno-health medical market value increased to US$21.57 billion. The United States will continue to take the lead in the global vaccine immunization health care market, due to the continuous spread of

human and animal infectious diseases in the region and the improvement of biotechnology. Although a specific vaccine with a short shelf life will have a negative impact on the development of this market, many series of products of multinational companies will overcome this problem and promote the future development of the market.

European market

In 2016, the European preventive vaccine immunization health care market will increase from approximately US$4 billion in 2006 to approximately US$12.98 billion. In 2019, the European vaccine immunization health care market value reached 15.75 billion US dollars. Five major countries account for most of the European vaccine immunization health care market, namely Germany, France, the United Kingdom, Italy and Spain. Germany has become the leader in the vaccine immunization sales market in 2019, reaching US$5.3 billion. The growth is mainly affected by the aging population and some epidemic diseases. The vaccine market in France and the UK is comparable. The growth of vaccines in this region is not only driven by the aging population, but also the increase in income and the expansion of the immunization range of children are also important factors.

Chinese market

China is the world's largest producer of vaccines and the country with the largest number of vaccine product manufacturers in the world. It produces more than 1 billion vaccines per year. The types and quantity of vaccines are also among the highest in the world. Among them are used to prevent hepatitis B, polio, The production of vaccines for common pediatric diseases of measles, pertussis, diphtheria, and tetanus has reached 500 million, and all planned immunizations have been achieved. The scale of the vaccine immunization health care industry has also reached nearly 100,000 yuan, accounting for 5% of GDP, and there is still huge room for growth.

Globally, with the attention of governments of various countries, the public's active awareness of disease prevention and prevention, the development of new vaccine products and other favorable factors, the global vaccine immunohealth medical market is expected to usher in new market opportunities and become the biomedical industry

and An important development direction for medical and health services.

At the same time, looking into the future, due to the development and changes of the human disease spectrum, the increasing demand for vaccines, and the continuous improvement of the level of biotechnology, the role of vaccines in the prevention and treatment of diseases will become more and more prominent. It can be predicted that the global vaccine industry will maintain a continuous development trend in the next few years.

Ecological pain points of the current vaccine immunization medical and health industry

The development of the global vaccine immunization medical and health market is receiving more and more attention, and the development is getting faster and faster, especially the development of new coronaviruses this year. Vaccine immunization medical services have restricted economic development to a certain extent. With the continuous advancement of science and technology, the level of global medical care has also continued to improve, which has brought great improvements to people. However, these developments have encountered different difficulties and ecological pain points to a certain extent, and their specific manifestations are in the followingaspects, as follows:

1) The centralized management of the vaccine immunization medical information system can no longer meet the market demand

The development of the vaccine immunization medical and health industry seems to have become a field that lags behind the development of the times. For most hospitals today, the information of vaccine immunization medical treatment or the management of patients in each hospital or community is independent, and there is no In the same way, there is centralized management of individual hospitals, which results in the same vaccine immunization from one hospital/community to another hospital/community, especially the fee-charging project, which increases the cost of patients.

At the same time, the health information of vaccines, immunizations and health care of patients in the hospital is in the central database, which is centralized control, easy to be hacked, modify the database information or delete its information, and the patient management information manager also has its authority to modify Or delete. Add a lot of

distrust to users, and question some data.

2) Lack of advanced vaccine immunization medical health standard system

As far as the current global vaccine immunization medical system is concerned, different national public health medical institutions, vaccine pharmaceutical biological R&D institutions, and major biopharmaceutical companies have their own policies, respectively mastering different R&D routes of the same epidemic virus, and immunization of different races. Immuno-medical data for different reactions and different patients. With the end of each vaccination medical service, these medical data will be scattered everywhere, unable to form a complete and coherent chain system. Therefore, the next time the same type of epidemic virus mutation occurs, in order to ensure the accuracy and safety of the judgment, the doctor needs to ask the patient's physiological change characteristics and multiple tests again, resulting in a huge waste of manpower and material resources.

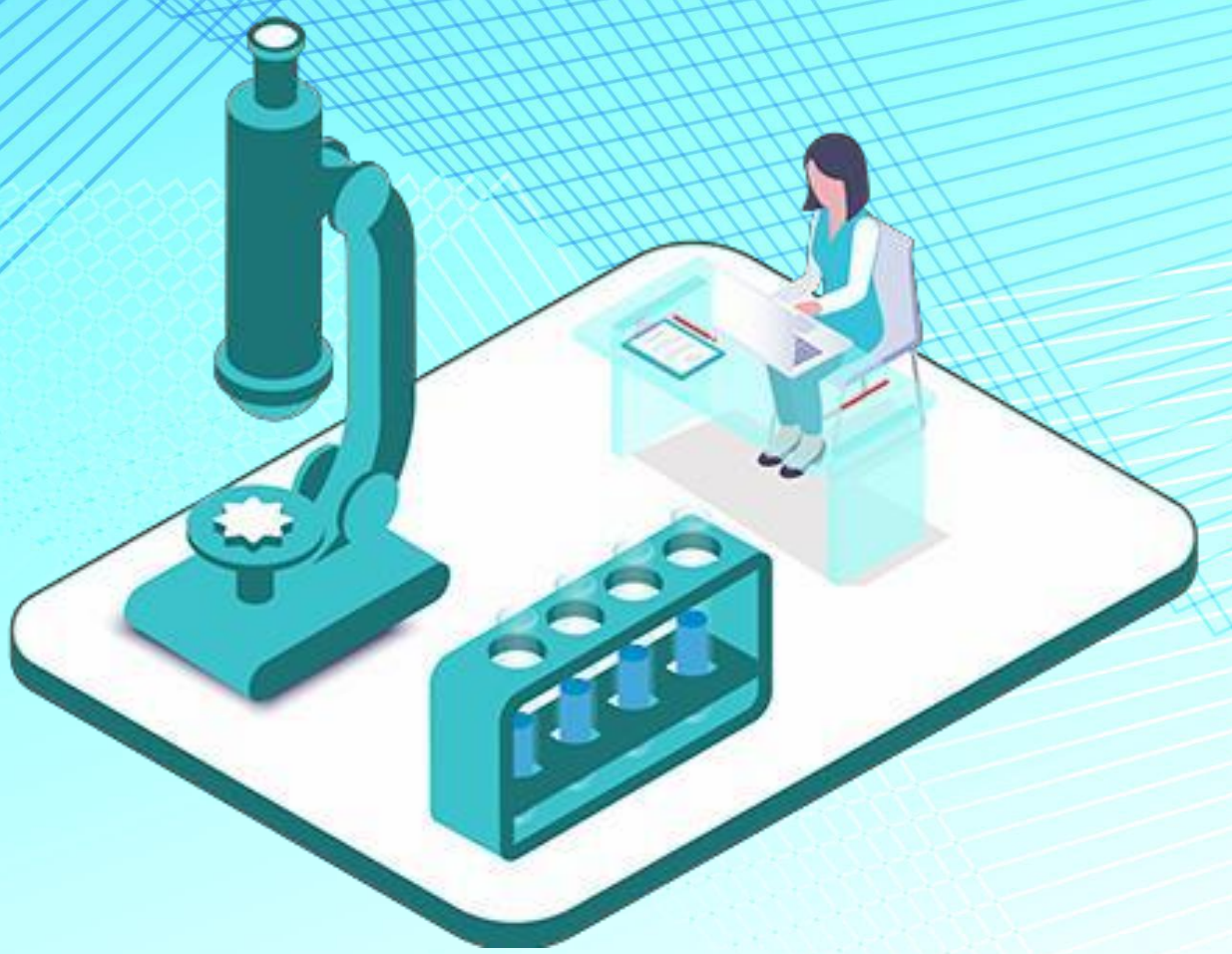
If you can record a person's immune medical health history completely, it will greatly simplify the process of epidemic prevention and diagnosis and treatment. Doctors can intuitively understand the vaccinated patients, the drugs they have taken, the previous physical pathology visit records, the previous illnesses and the treatment methods when they receive the patient. When they make this diagnosis, they can be more accurate and High efficiency, the level and coordination of immunomedicine can be further improved, and the risk of misdiagnosis will also be reduced.

In addition, the key personal medical data and information are scattered in different departments and systems,

which also leads to the lack of the entire industry standard system. There is no standardized medical data recording system among vaccine immunization medical institutions. Even if medical data is shared with each other, it cannot be integrated and effectively used. At the same time, most of the big health data collected by various smart devices are also disorderly and unable to form effective data.

3) Missing medical data service providers for vaccine immunization

In the current vaccine immunization medical market, there is no service organization that provides big data solutions for vaccine immunization medical health. The growing information of vaccine immunization medical records has now become astronomical figures. Creating and maintaining this information will consume a lot of Resources. And every time a patient visits a doctor, especially when a hospital is changed, he needs to re-enter various cumbersome personal information and medical record data to make the already anxious medical treatment process more painful. If there are a large number of data service providers serving the vaccine immunization medical system, the speed of medical treatment and diagnosis will be greatly improved, and the disease will be effectively treated.



4) Vaccine immunization medical data security is difficult to guarantee

When the medical record data of vaccine immunization is transmitted between different medical institutions, there is a great possibility of recording, transcoding and new errors. If the medical records of a patient who is not allergic to drugs are mistakenly placed on a severely allergic patient, the treatment process will have very little effect and may even have very serious consequences during surgery.

Take a complete safe and effective vaccine immunization medical file as an example, which contains various information, such as epidemic virus gene sequence, vaccine reagent research and development, clinical trial data at different stages, vaccine production process production data, procurement warehouse logistics information, different Individual immunization information, the presence or absence of adverse reactions information, distribution data of different countries and regions, immunization treatment institutions, doctor information, etc., such medical data leakage will bring great harm to personal privacy. In particular, the centralized way to store fingerprint data (most payment methods involve fingerprint payment), genetic data and iris data and other important health data, once a large-scale leak occurs, it will have disastrous consequences.

And traditional vaccine immunization medical data may cause sensitive information about patients and health to be leaked due to internal errors or external attacks. The difficulty of privacy protection in the medical system is that there are many potential leak points caused by many participating nodes. There is a single point of failure in the centralized database and the single-key private key leakage leads to the complete collapse of the database security defense line. External attacks cannot be prevented. The existing The storage mode cannot achieve its security.

HEIMDAL's “Mid-2016 Review: 2016 Cybersecurity Threat Analysis Report” released in 2016 pointed out that, globally, the medical industry was the industry most attacked by ransomware that year, of which the proportion in the

second quarter reached 88 %. The British "Guardian" investigation on February 27, 2017 also revealed that the British National Health Service (NHS, National Health Service) has lost up to 500,000 copies of medical information. Large-scale leaks of medical data have emerged in an endless stream, reflecting the status of the industry's urgent need for technological innovation.

5) The medical reimbursement process is inefficient and takes a long time

Many people now participate in the medical insurance system, especially in some developed countries. In order to reduce the cost of medical treatment, they have participated in medical insurance, but medical insurance reimbursement due to the more cumbersome procedures, more processes, and mostly manual operations, need to consume a few The processing time of hours or days will cause the patient to wait for too long, which will affect the efficiency of the patient's fund circulation and is very dissatisfied with the medical insurance service.

6) Personal vaccine immunization medical health management information is less

Many countries now pay attention to personal health status, but there is relatively little health management of vaccine immunization medical treatment for individuals. Even when starting to pay attention to health, sometimes there is no data to check or only the health status in recent years can be checked. By now, especially in the later years, it is impossible to check the physical condition in the early years. For personal vaccine immunization medical health management, there is relatively little identity management information.

7) Unclear ownership of vaccine immunization medical data

The progress of vaccine immunization medical level is closely related to human health. Clinical medicine, medical research and other work depend on the collection, analysis and use of medical information by medicalworkers. For example, clinical medical evaluation and review often involve multiple drug use and various clinical medical diagnosis results, so it is necessary to integrate medical data from multiple sources for longitudinal cross-study and comprehensive comparison. The rising Internet data mining and analysis industry has become the main force to promote the development of commercial vaccine immunization medical information. Take IMS Health, a leader in the global data mining industry as an example. In order to obtain vertical or life-long communication with patients or medical systems, in addition to purchasing vaccine immunization medical data from the vaccine immunization medical industry, the agency also strips identification from electronic cases Information, the establishment of a basic medical database, only in 2006, the company's vaccine immunization medical data processing business benefited 1.96 billion US dollars.

However, under the current situation of such centralized storage, the use of medical data is not authorized by the owner. A large number of personal privacy is controlled by a centralized organization, which is authorized by the organization to be used by third parties. This method of data storage and use may have legal flaws. According to the

Gaplow poll in the United States, 66% of people opposed the opening of medical data to medical data miners. The biggest reason for this is personal privacy issues arising from data mining. At the same time, medical institutions may avoid data exchange as much as possible because of the legal risks involved in the use of data. Therefore, the protection of the ownership of personal medical data has also become an important factor in the research work of vaccine vaccine immunomedicine.

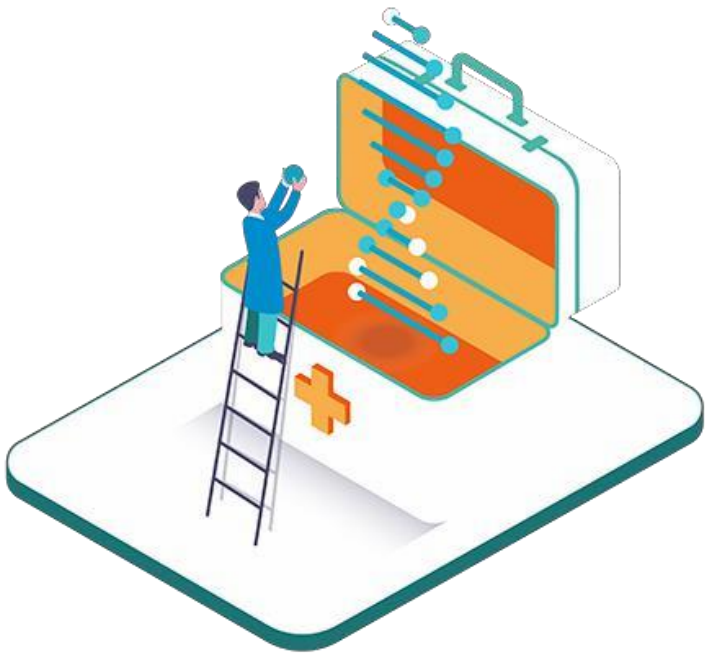
8) Poor traceability of vaccine immunization medical product supply chain

The most fundamental purpose of traceability is to verify the authenticity of goods and build consumer trust in the quality of the goods. The supply chain of the vaccine immunopharmaceutical industry is composed of many participants such as vaccine research and development institutions, vaccine biopharmaceutical manufacturers, buyers, storage and distribution companies, and medical institutions at various levels in different countries. There is a large number of interactive collaborations, and the information is discretely stored in each link. There is a lack of transparency in the system. The lack of information makes it difficult for each participant to accurately understand the real-time status of the relevant issues and existing problems, affecting the supply chain coordination efficiency. When disputes occur between the various subjects, it takes time and effort to prove and blame.

In terms of anti-counterfeiting of vaccine-immunized pharmaceutical products, according to the US Department of Commerce, the annual global counterfeit drug transaction volume is approximately between 75 billion and 200 billion US dollars. In many developing countries in Asia, Africa and South America, fake drugs account for 10% to 30% of the total sales of drugs, and illegal transactions cause more than 100,000 people to die from fake drugs every year. In 2018, China's longevity organisms were exposed twice to vaccine fraud, stinging the public's sensitive nerves, and traditional tests have become increasingly difficult to meet market regulations and consumerrequirements.

In the treatment of vaccine-immunized medical waste, disposable medical devices have been widely used in clinics, and the treatment of these medical wastes involves many links, from the generation to the centralized processing cycle, it has to undergo department classification, packaging, temporary storage, and in-hospital transfer , Centralized storage, transfer outside the hospital, terminal disposal and other links. Because of neglecting the whole process of supervision from the source to the end, medical waste even spawned a "black industrial chain", such as the use of inferior products, and even the simple use of needles for secondary use, resulting in littering Environmental pollution and cross infection.

On the whole, the global vaccine immunization health care industry can be divided into two categories: vaccine research and development, production, distribution, pharmaceutical business and immunization medical. The main pain points of the industry are that the data on vaccine immunization medical services are not fully utilized, and vaccine development 1. The problem of anti-counterfeiting traceability of vaccine products in production and distribution. Traditional medical data has encountered many problems in the development of informatization. Compared with other traditional industries, the development progress is extremely slow. The root cause is that the current medical data is islanded and lacks a standard system, the data security is difficult to guarantee, and the data participants are not clear about the right to informatize. The medical data in the medical services are not fully utilized. However, due to the large number of participants in the supply chain of the vaccine and pharmaceutical industry, there is a lot of interaction and cooperation, and the information is discretely stored in the respective systems of each link, lacking transparency. The lack of information makes it difficult for each participant to accurately understand the real-time status of the relevant issues and existing problems, affecting the supply chain coordination efficiency. When disputes occur between the various subjects, it takes time and effort to prove and blame. The blockchain has natural advantages in data confidentiality, smart contracts, ecological incentives, etc., and has a high degree of fit with the medical industry. It can provide multi-link security solutions for the medical industry, and can also promote the intelligent development of the medical industry.



THREE New era and new hope

With the development of science and technology and the call of the times, people are now enjoying more and more the convenience brought by science and technology, and also using technology to transform vaccine immunization medical and health services. Short videos, celebrity economy, fan economy, market economy, health economy, etc. surround people's lives, allowing people to experience the new generation market all the time, as well as the vaccine immunization medical and health market, which brings a share to the vital market of society Security guarantee.

Blockchain application opportunities in vaccine immunization health care

The current blockchain community is the Internet community more than two decades ago. Many people did not understand, despise, or want to look at the Internet more than 20 years ago. However, the first batch of crab-eating people who really see the Internet are now at the forefront of the times, leading the trend of the times.

The current booming blockchain industry market is also the same. A large number of digital asset investors who have entered the market early have already enjoyed the dividends brought by the rapid development of the market, but more people are still hovering outside the door. I believe that the sooner investors enter the blockchain industry market, the greater the gains.

In recent years, with the maturity of blockchain technology and the rapid development of digital currencies, the market size of decentralized encrypted digital currencies is increasing. According to the latest data from CoinMarketCap.com, as of June 31, 2020, there were a total of 319 digital currency exchanges in the world, with 5,290 digital currencies issued, with a total market value of up to 181.4 billion U.S. dollars, and the top three by market value are Bitcoin and Ether respectively With XRP, the market value of Bitcoin exceeds 114.8 billion USD.

While the market size is gradually expanding, the influence of digital currencies is becoming wider and wider. More and more users and institutions are beginning to accept digital currency. The application scenarios of digital currency have involved many fields of daily life such as shopping, transportation, travel, and travel. In addition,

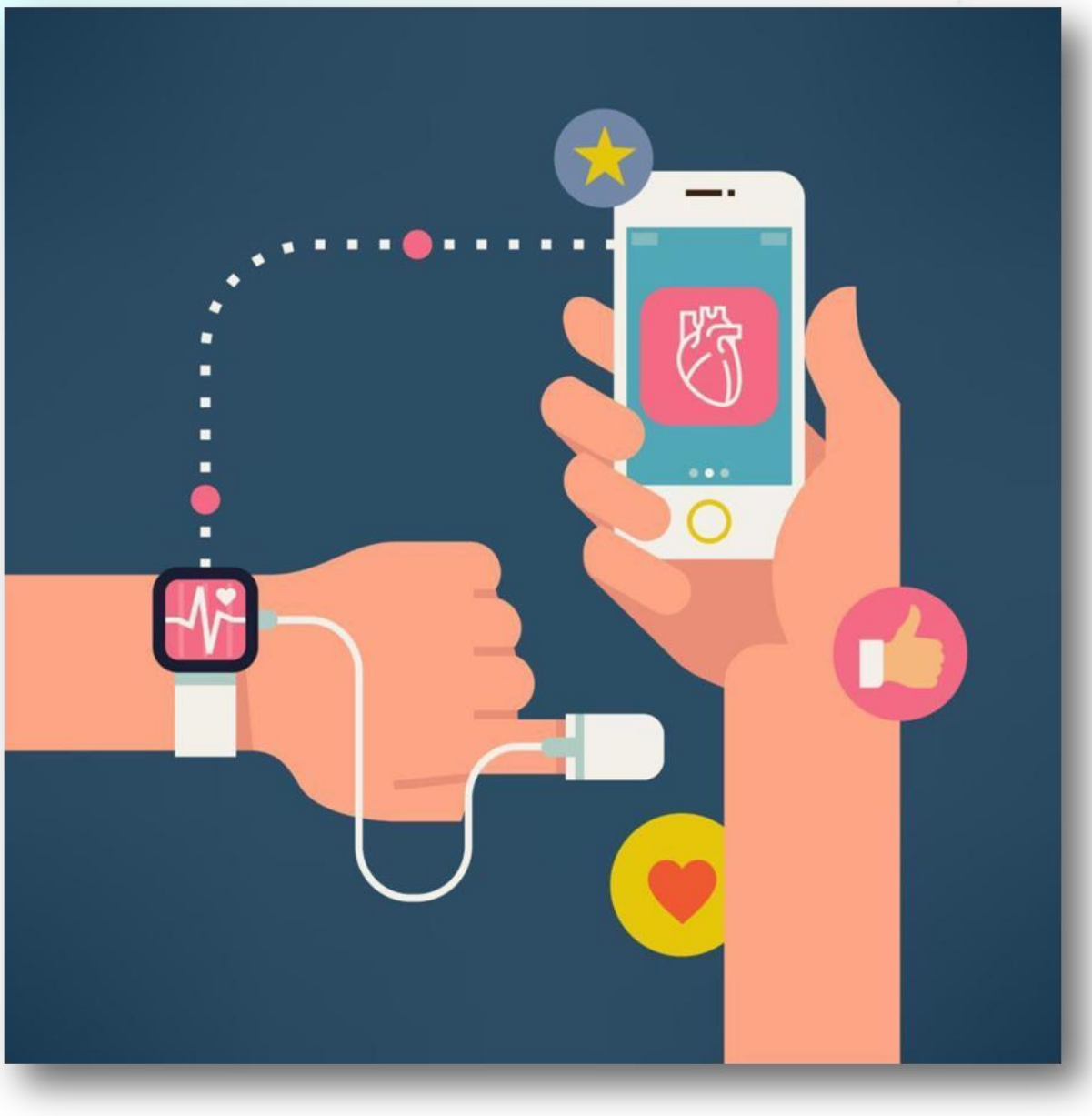
many foreign commercial institutions have successively launched digital currency issuance plans, and many countries such as Canada, China, Sweden, and the United Kingdom are also actively promoting the introduction of legal digital currencies.

Digital currency is becoming an indispensable and important factor in the modern economy with an unstoppable trend.

If blockchain technology is used in the vaccine immunization medical and health market, then blockchain technology is a brand-new encryption authentication technology and a decentralized consensus mechanism to maintain a complete, distributed, and non-tamperable ledger, so that participants do not need to Under the premise of mutual understanding and the establishment of trust relationships, a unified ledger system ensures the safety of information management, exchange, and related information. Letting trust be the basis of asset exchange is of great significance for data statistics, analysis and information exchange.

(1) Blockchain technology can reduce the risk of trust

Blockchain technology has the characteristics of open source and transparency. Participants of the system can know the operating rules of the system, verify the authenticity and integrity of the account book content and account book construction history, and ensure that the asset exchange data and history are reliable and not Tampering is equivalent to improving the traceability of the system and reducing the trust risk of the system.



(2) Blockchain technology can reduce the cost of vaccine immunization medical records management

The registration and exchange of medical vaccine medical record information of the original vaccine often face the current status of long process, multiple links and asymmetric information. Blockchain technology can simplify the recording process, reduce the information exchange link between different medical service institutions, save a lot of manpower, material resources

and time, and is of great significance for improving the circulation of the value of patients' medical records.

(3) Blockchain technology can effectively prevent network failures and attacks

The current chaotic and inefficient vaccine immunization medical health management status and information opacity greatly increase the risk of vaccine immunization medical health management and transmission. The blockchain is supported by many distributed nodes and computer servers on the peer-to-peer network. Problems in any part will not affect the overall operation, and each node saves a copy of the blockchain data. The smart contract built into the blockchain is the key The core information circulation business has extremely high reliability and fault tolerance.

(4) Blockchain technology can improve the level of intelligence

Since all files or vaccine immunization medical health management information data can be embodied in the form of codes or ledgers, by setting up data processing procedures on the blockchain, smart contracts and automatic exchanges may be realized on the blockchain. For example, a smart contract can write terms such as medical claims matters into the agreement to ensure the automatic execution of the contract and payment of claims.

(5) Blockchain technology can meet the needs of asset supervision and audit

At present, the laws and regulations of the blockchain industry in various countries around the world have not formed a unified set of regulations. Since the first day of birth, the project aimed at the registration of vaccine immunization medical and health information has been working with different countries and legal advisers to do its best to ensure that it complies with major international laws and regulations, and has completed national supervision Registration required by the organization.

Blockchain empowers vaccine immunomedicine industry

Under the integration of blockchain technology, the global vaccine immunization medical health ecosystem empowers the vaccine immunization medical health industry to use big data analysis, which greatly guarantees the normal analysis of user behavior and the global economic value of vaccine immunization medical health. Fairness greatly promotes the healthy development of the global vaccine immunization medical and health market. The aging population and changes in diseases have increased the demand for vaccine immunization. More than 2 million comprehensive hospitals worldwide have immunization departments, and 5 million community hospitals will have immunization departments, but only a few hundred hospitals have used professional vaccine immunizations. Medical information management system. In the future, with the improvement of the vaccine immunization medical health system, more and more will be applied to the very specialized vaccine immunization medical health, which will become more and more perfect.

In 2020, blockchain technology is still highly concerned by investment institutions and professionals, and has huge potential for development. Blockchain technology has very good advantages, and it has good empowerment in the vaccine immunization medical and health market, which is manifested in the following aspects:

A. The patient's diagnosis process can be traced to the source and the information is permanently recorded, highlighting the reliability of the vaccine immunization process.

Vaccine immunization medical health ecosystem using blockchain technology will register patient information on the blockchain public chain. This will be a public blockchain platform with open source code and smart contracts. Provide decentralized virtual machines to process peer-to-peer contracts through its dedicated cryptocurrency. In the entire blockchain, each node holds all the data information of the blockchain. As long as one node disappears or has changed, it can be noticed by other nodes. Vaccine immunization medical health ecology uses this feature of the blockchain to prevent the patient's medical record information from being tampered with at will. At the same time, the information published on these systems is saved to the super network service node of vaccine immunomedicine health management, and each server keeps a copy of all the content published on the network. By this means, the reliability of data information can be guaranteed.

B. Vaccine immunization medical health ecology is realized through mechanisms such as popular participation and equity.

Related to the technical attributes and environment of the birth of the blockchain, the blockchain technology also shows the characteristics of popular participation and fairness. In the blockchain + vaccine immunization medical health ecosystem, the token mechanism used encourages as many people as possible to participate in vaccine

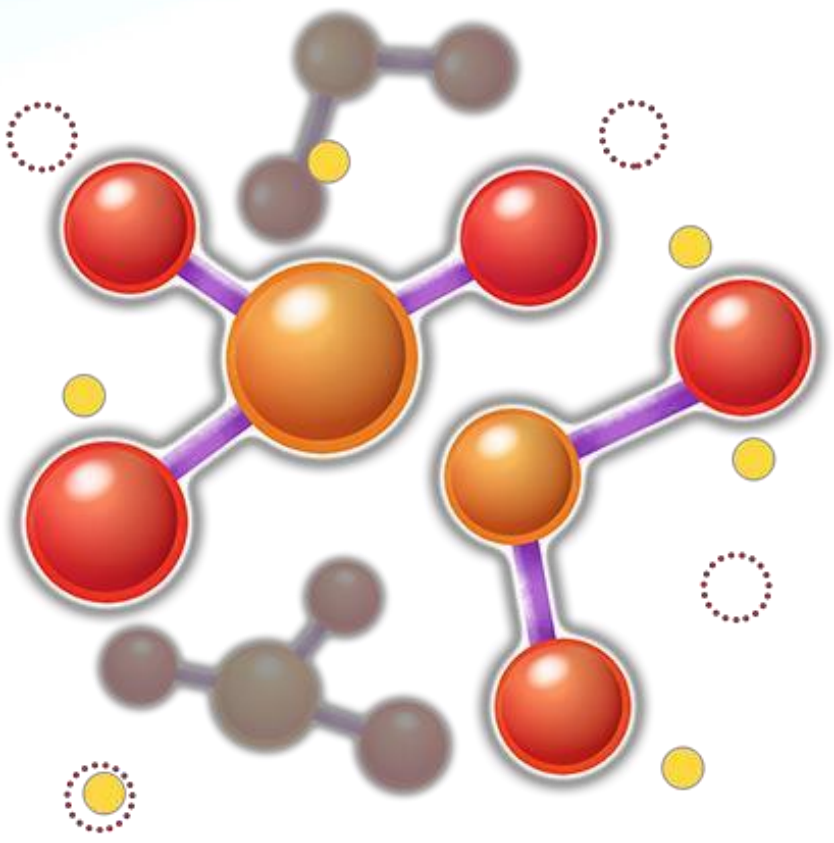
immunization medical health construction and data collection. Anyone can provide medical data information, but you must first use Token (a digital asset issued by the platform) to purchase data exclusive rights. Only after the user submits the vaccine immunization medical health data is reviewed, the authenticity is confirmed and released, the user can withdraw his own token, and will purchase the data based on the readings generated by the vaccine immunization medical health data or medical researchers And get additional token rewards. The value of these tokens is often linked to the value of some digital assets that have been recognized by the society. At the same time, the number of tokens issued needs to be limited and explained. This guarantees the value of the token and makes it attractive to users. Vaccine immunization medical health data in management makes information get rid of the control of commercial capital to the greatest extent, return to the information value itself, and maximize the value of vaccine immunization medical health data.

C. Realize the transparency of the vaccine health medical health ecology and ensure the authenticity of the data.

In the global vaccine immunization medical and health market, the transmission process of vaccine immunization medical health data is basically still a black box, and users cannot understand the entire process of

transmission between medical/community institutions, even if medical/community service institutions want to make the data transparent and technically Can't do it either. The blockchain technology makes all operations transparent, and almost every operation has a clear and unchangeable record. In addition, in the activities of blockchain technology, factors such as the flow and trend of information and the credit of doctors are also clearly visible. This new blockchain data transmission method allows users to have more right to know and participate in the medical system, making vaccine immunization medical health services and other auxiliary activities transparent, ensuring the authenticity of data information and reliability.

As can be seen from the above, the development of the new era, "Blockchain + Vaccine Immunization Medical Health" provides a new and diversified enabling program for the vaccine immunization medical health market, with a decentralized structure to achieve The data information is complete and transparent, distributed accounting andstorage, programmable smart contracts, a global database, and the anonymity behind the transparent world. These characteristics of blockchain technology, combined with the advantages of the existing vaccine immunization medical health system, use cross-chain and big data, artificial intelligence technology to establish a standardized and complete and transparent medical information infrastructure that meets compliance requirements and is easy to trace and use. Distributed bookkeeping and storage to improve medical institutions' fault tolerance and error correction capabilities. Provide customizable smart contracts to provide medical institutions and medical service providers with development capabilities without burdened evolution models, realize medical records circulation and prescription verification, and solve the plight of many vaccine immunization medical health markets at present, free to complete The transfer of value allows the vaccine immunization medical and health market to connect with the blockchain world and achieve a friendly vaccine immunization medical and health market development.



FOUR DHC---

Ecological application of distributed vaccine immunization medical health

What is DHC?

Global Vaccine Ecology Blockchain Network, English is Vaccine Ecology Block Chain Network, abbreviated as: DHC, which means metaphor for intelligent vaccine immunization medical health ecological application on blockchain, is a distributed vaccine immunization medical application on block chain application Health ecology is also a unified and open blockchain vaccine immunization medical health service platform. It allows every user to use blockchain technology to record their own vaccine immunization medical health system at zero cost. Multi-functional application management is a super vaccine immunization medical health platform in the era of blockchain 3.0 application, which will continue to expand the blockchain The application boundary and technical boundary of information value provide users with a decentralized vaccine immunomedicine health business ecological service platform.

DHC is to freely build blockchain vaccine immunization medical health ecological applications and digital smart contracts based on compliance with international conventions. Relying on the blockchain system's strong compatibility and integration capabilities, it will expand the unlimited application of super vaccine vaccine medical health business Application ecology. It is also a bridge connecting the diverse vaccine immunization medical health ecosystem and the blockchain world, building a value Internet based on blockchain technology, and giving the global vaccine immunization medical health market a completely new ecology.

DHC, which is jointly organized by the World Health Organization and the Singapore Government, DBS Bank, Alibaba Health Foundation, Bill and Melinda. The Gates Foundation, CanSino, SoftBank Vision Fund, USA, Silicon Valley Community Foundation, World Vaccine Immunization Alliance, World Red Cross Federation and other international organizations and investment institutions have cooperated to explore the blockchain together Diversified vaccine immunization medical health ecosystem, and effective use of artificial intelligence and big data analysis technology to create a global diversified digital vaccine immunization medical health commercial platform based on blockchain technology to solve the current global vaccine immunization medical process encountered Some dilemmas. Based on the characteristics of blockchain decentralization, data tamper-proof, traceability, distributed ledger, etc., and synchronization of all block information, it can create and import patient user personal vaccine

immunization medical health information to achieve point-to-point viewing, Registration, uploading and other various distributed vaccine immunization medical health service ecosystems.

DHC establishes a vaccine immunization medical health ecosystem based on the underlying technology of the blockchain. It is about the development of human public health, popular virus vaccines, and the establishment of a decentralized and centralized development platform. DHC distributed records ensure that the information cannot be tampered with and traced, fair and safe, and real-time data such as R&D, diagnosis, treatment, and clinical feedback are shared quickly without borders, and point-to-point transmission ensures the availability and affordability of vaccines, especially to speed up the new crown virus Pneumonia vaccine development, production and distribution provide convenience and support to jointly fight diseases, save lives, and build a human health and health community. At the same time, DHC also involves global ecological environment governance, balance and sustainability, and has the nature of public welfare and universal value.

DHC is also a diversified vaccine immunization medical health information industry application ecology based on blockchain technology and with blockchain network as the core derivative ecology. Based on this blockchain network, the characteristics of blockchain decentralization, distributed storage, and peer-to-peertransactions, integrate multiple excellent features in the blockchain field, and develop it for free. Multi-party collaboration and timely sharing of patient medical records and information To form a highly transparent, highlytrusted and highly efficient blockchain vaccine immunization medical health business application ecosystem.

Under the DHC ecosystem, developers, patients, doctors, hospitals, medical care, community service institutions, etc. will all build on the blockchain super network to build a vaccine and medical health ecological service with super network nodes to make more Many institutions or users enjoy the application services of the vaccine immunization medical and health industry of Blockchain 3.0, and they have a clearer division of fast, safe, high trust, data value judgment, digital empowerment, etc. New ecology of business applications.

DHC positioning vision

DHC will also have its own positioning in the future

development of the global vaccine immunization medical health market system: taking the vaccine immunization medical health market as a starting point, radiating the application of the global economic market, giving full play to the advantages of blockchain technology, using traditional The advantages of the global vaccine immunization medical health system have reshaped the new global vaccine immunization medical health application ecosystem, and achieved a good, trustworthy, fast and economically friendly decentralized global vaccine immunization medical health service application newecosystem.

In the global vaccine immunization medical and health market, let more people have a safer, high-quality distributed global vaccine immunization medical health service application security network, trace the true value of the trust blockchain, and enable the global market to develop healthily and trustably And incentives are realized through DHC tokens, which is also the vision of the DHC ecological team.

DHC Design Principles

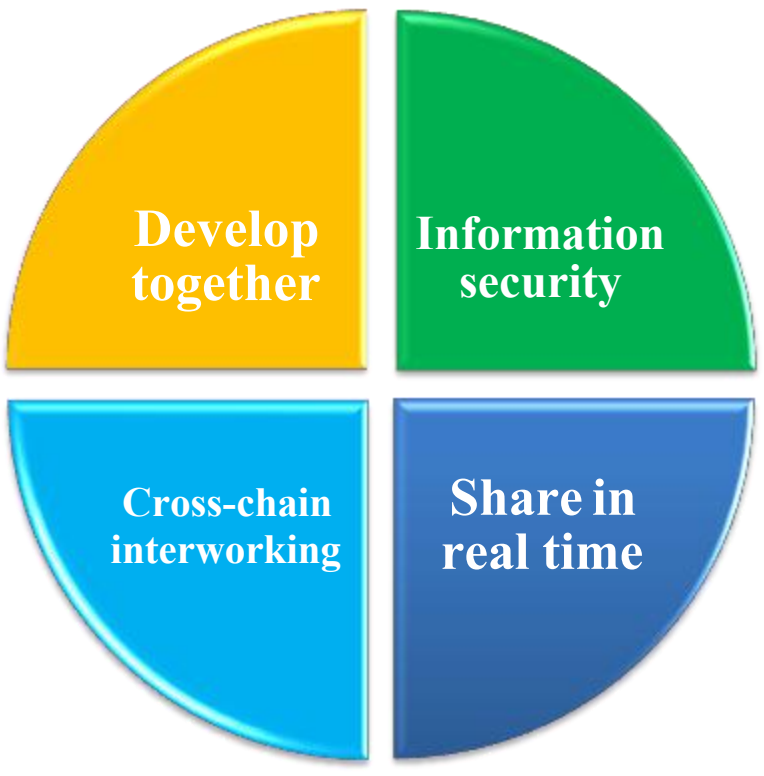
DHC develops under the global vaccine immunization medical health ecological economy, and has the following design principles:

1) Information security

DHC provides a personal-centric data security structure that separates personal data from its identity information, while allowing trusted parties to secure and structured read/write access to P2P data repositories.

2) Real-time sharing

Through the DHC database, personal health information is permanently stored to achieve full sharing of medical and health data, and a rapid and low-cost establishment of a regional population health data center can be achieved to achieve epidemic prevention data tracking. DHC Ecology BlockChain supports the on-chain storage of multiple encrypted signatures of data information to ensure that patient data is faithfully recorded on the blockchain to prevent privacy leaks; supports credential withdrawal function; supports distributed storage of fragments and signature verification.



3) Cross-chain communication

Users upload "high utilization value" data to the blockchain through DHC, connect medical data islands, and realize inter-regional and cross-industry interoperability. The DHC blockchain aims to build a shared ecosystem of vaccine immunomedicine data, supporting a secure multi-party computing platform; supporting ciphertext analysis in the cloud to achieve zero-touch data applications; and supporting a unique biometric identity authentication system based on genetic digital IDs.

4) Common development

Based on perfect health data information, carry out innovations in service models and business models based on personalized products to promote the healthy development of vaccine immunomedicine ecology. The ultimate goal of the DHC blockchain is to promote the ultimate goal of "preventing disease, health and longevity" through the interaction of the value of personal medical data. The vaccine immunization medical health ecosystem based on the underlying architecture of the blockchain, individuals can not only authorize the use of data Earning DHC rewards can also be achieved by achieving health improvement goals.

DHC Design ideas

In order to create a distributed future decentralized DHC ecosystem, blockchain technology and vaccine immunization medical and health applications can be more widely used. According to the research on existing technologies, considering the characteristics of blockchain decentralization and its application scenarios, the design idea of DHC is as follows:

A. Intelligent vaccine immunization medical health medical record ecology

The intelligent vaccine immunization medical health electronic medical record ecology will be the most important application of blockchain technology in the vaccine immunization medical health market. If you think of the medical record of vaccine immunization medical treatment as a ledger, it turns out that it is in the hands of various hospitals/community service agencies. The patients themselves do not have control, and all patients cannot obtain their own medical records and history of vaccine immunization medical treatment. Patient medical treatment/vaccination can cause great problems. Because the doctor cannot fully understand the patient's medical history.

But now if you use blockchain technology to save, you have the historical data of personal vaccine immunization medical health, whether you see a doctor, or plan your own health, there is vaccine immunization medical health data available, and The real master of this data is the patient himself, not a hospital or a third-party platform institution.

B. Intelligent hospital/community service blockchain informatization

For each hospital/community service that holds the key to carry out blockchain informationization, they can view the same vaccine immunization medical health information of patients on blockchain medical. All the medical record information of vaccine immunization medical treatment on blockchain medical treatment will have different time stamps and encryption keys, and store the patient's medical record data in a distributed ledger. These medical record data cannot be tampered with at will, they will only be recorded in the same account book or the patient's medical record, so as to improve the confidentiality of the medical record data.

At the same time, in the hospital/community service informatization ecology, the hospital doctor's learning growth background and treatment cases are also preserved, and there is a basis for choosing when choosing the doctor's treatment for the patient. Doctor information is permanently recorded on the blockchain. Once there is a stain, it will be permanently recorded on the blockchain. With its life, more doctors will be treated with caution in treating patients.

C. Intelligent block linking species/therapeutic solutions and their derivatives

Prescription and validation of vaccine immunization medical health for patients is a problem that needs to be solved in the current vaccine immunization medical health environment. When the intelligent block linking species/treatment scheme and its derivative, the vaccine immunization medical health system can be The medical service organization, pharmacy, pharmaceutical manufacturer, or medical device manufacturer in the company can verify the prescription declared by the patient through the blockchain, and the verification will have 100% credibility. At the same time, due to the trusted nature of the blockchain technology, this verification link can be hidden behind the transaction, with extreme reliability, bringing very effective medical rehabilitation treatment solutions to patients.

D. Intelligent DNA management asset payment ecology

If there is a market, there will be asset circulation. The same is true for the blockchain vaccine immunization medical and health market. Building an intelligent DNA management asset payment ecology will promote the circulation of tokens. Gene DNA and medical data can be safely stored using blockchain technology and obtained by using private keys, which will form a DNA asset management wallet. This allows vaccine immunization health care providers to safely share and count patient data, helping pharmaceutical companies develop drugs more efficiently. On the one hand, this kind of ecology has stimulated vaccine immunization medical health research enterprises or institutions, on the other hand, it has also promoted the development of vaccine immunization medical health ecosystem.

DHC Innovation Ecology

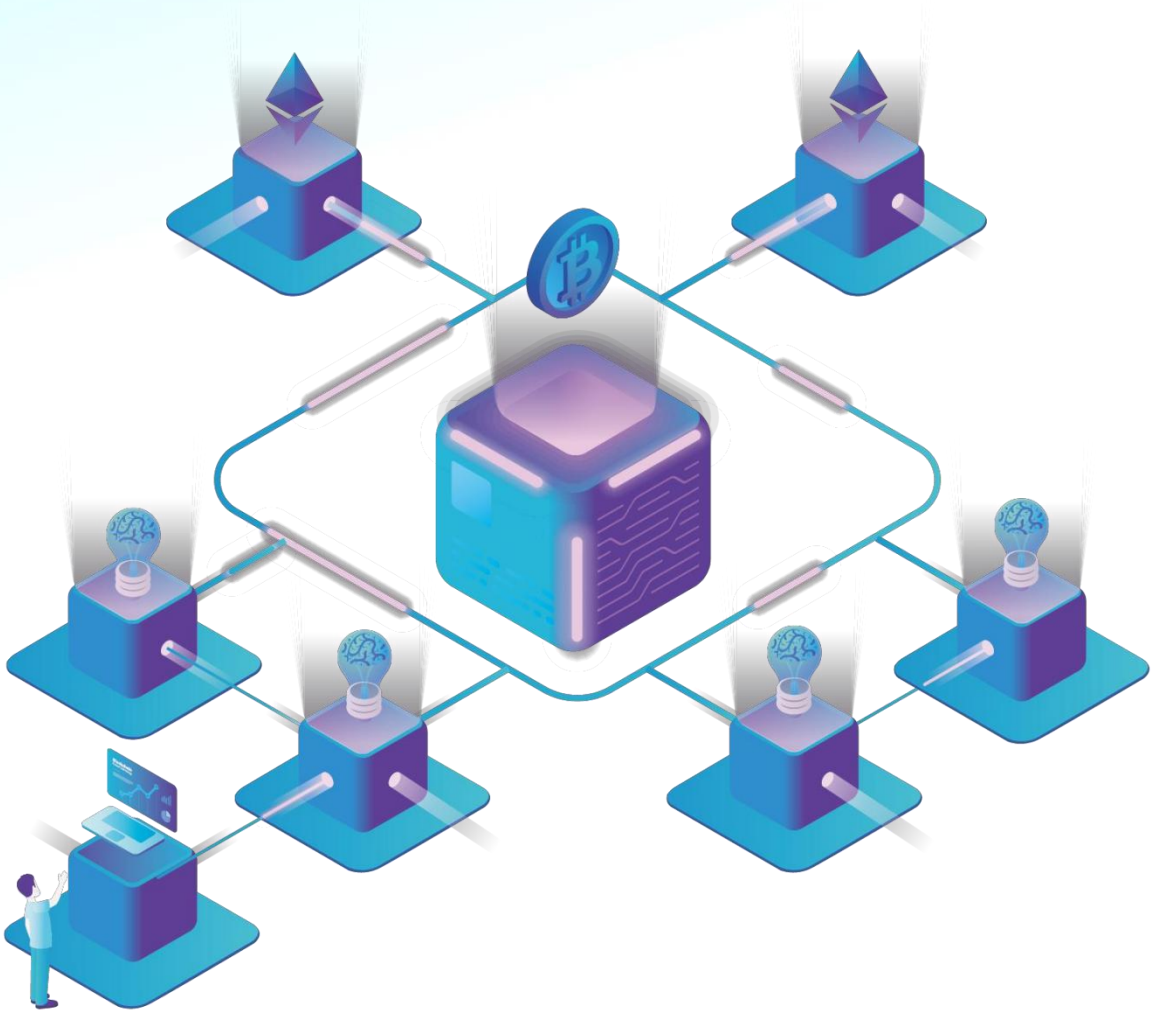
With the development of technology and continuous improvement, the DHC ecosystem based on blockchain technology has a unique innovation ecology, which is manifested in the following aspects:

Innovation ecology 1: distributed ledger, decentralization

Distributed ledger means that transaction accounting is done by multiple nodes distributed in different places, and each node records a complete account, so they can all participate in supervising the legality of transactions, and can also jointly testify for them.

Different from the traditional distributed storage, the uniqueness of the distributed storage of the blockchain is mainly reflected in two aspects: First, each node of the blockchain stores complete data according to the blockchain structure, and passes the "time stamp "Technology and chain structure enable the traceability of data information, and each event and transaction has a time stamp, which becomes part of a long chain or permanent record. The second is that no one node can record the account data separately, thus avoiding the possibility of a single bookkeeper being controlled or bribed to record false accounts. Because there are enough accounting nodes, in theory, unless all nodes are destroyed, the accounts will not be lost, thus ensuring the security of the account data.

Because the DHC digital vaccine immunization medical health ecosystem is based on blockchain technology, there is no central database, and there is no centralized centralized server management. It has the most cutting-edge super medical network service nodes, and there are distributed ledgers. The user of a node can query and summarize the past data or current data under the authorization.



Innovation Ecology 2: Asymmetric encryption, data cannot be tampered with

Asymmetric encryption refers to a key pair to encrypt and decrypt. Encryption and decryption use different keys. The information encrypted by the public key cannot be decrypted even if it is intercepted on the Internet, because the

information encrypted by the public key can no longer be decrypted by the public key, but must be decrypted by the private key, and the private key Only you can guarantee the security of information.

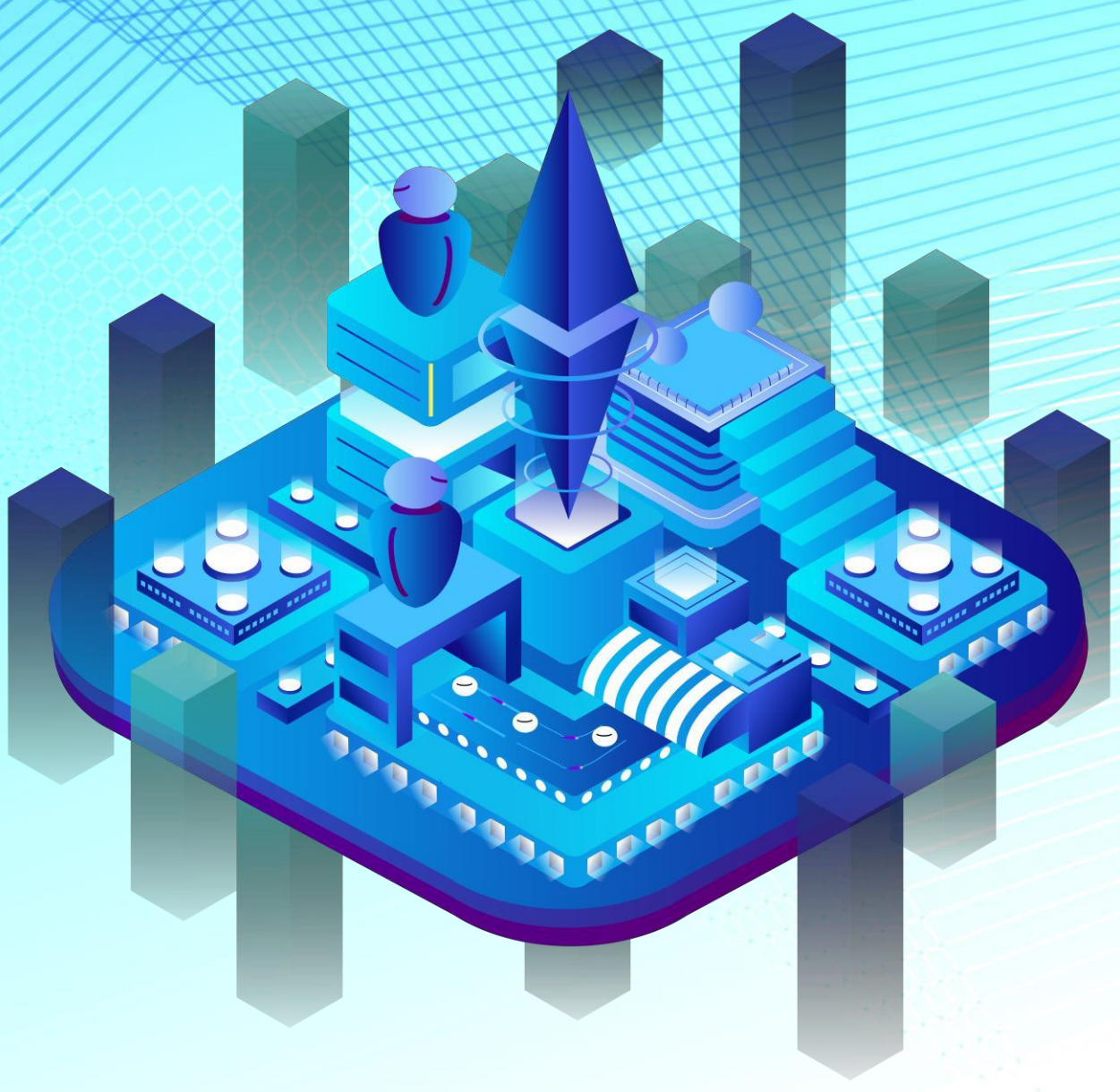
Therefore, in the DHC ecosystem, the transaction information stored on the blockchain is public, but the account identity information is highly encrypted and can only be accessed under the authorization of the data owner, thereby ensuring the security of the data And personal privacy. In addition, the data on the blockchain cannot be tampered with, and any tampering on the blockchain will leave cryptographic evidence to be quickly discovered.

Innovation ecology 3: Turing smart contract

In the DHC ecosystem, Turing-style smart contracts are computer protocols designed to spread, verify, or execute contracts in an informatized manner. Based on these credible and non-tamperable data, a fully automated process can be used without any human involvement. As long as the requirements listed in the smart contract code are met, some predefined rules and terms can be automatically executed. These transactions can be Tracking and irreversible. The advantages are higher efficiency, lower costs, more accurate transactions, and cannot be changed. In addition, smart contracts remove any third-party interference, further enhancing the decentralization of the network. This is also the most distinctive feature of the DHC ecosystemstandard.

Innovation ecology 4: tokenized ecological incentives

The block chain's token economy wants to turn free social behaviors into market behaviors motivated by money derivatives, and imagine that this can be accurately quantified and directed to produce valuable behavioral results. In addition to the role of payment or value storage, the token is also designed to have more complex and diverse functions such as equity, financial assets, and reward points. In the decentralized blockchain world, the incentive mechanism is the core point of interest distribution and use. Through the incentive mechanism, a network consensus is reached, so that participants in each link of the blockchain can receive corresponding returns, and the division of labor is clear. , Actively complete all tasks, so that the system is largely protected from various threats and attacks. This is equivalent to the participants jointly maintaining the security of the system and promoting the ecological development of the system



Innovation Ecology 5: Vaccine Medical Value

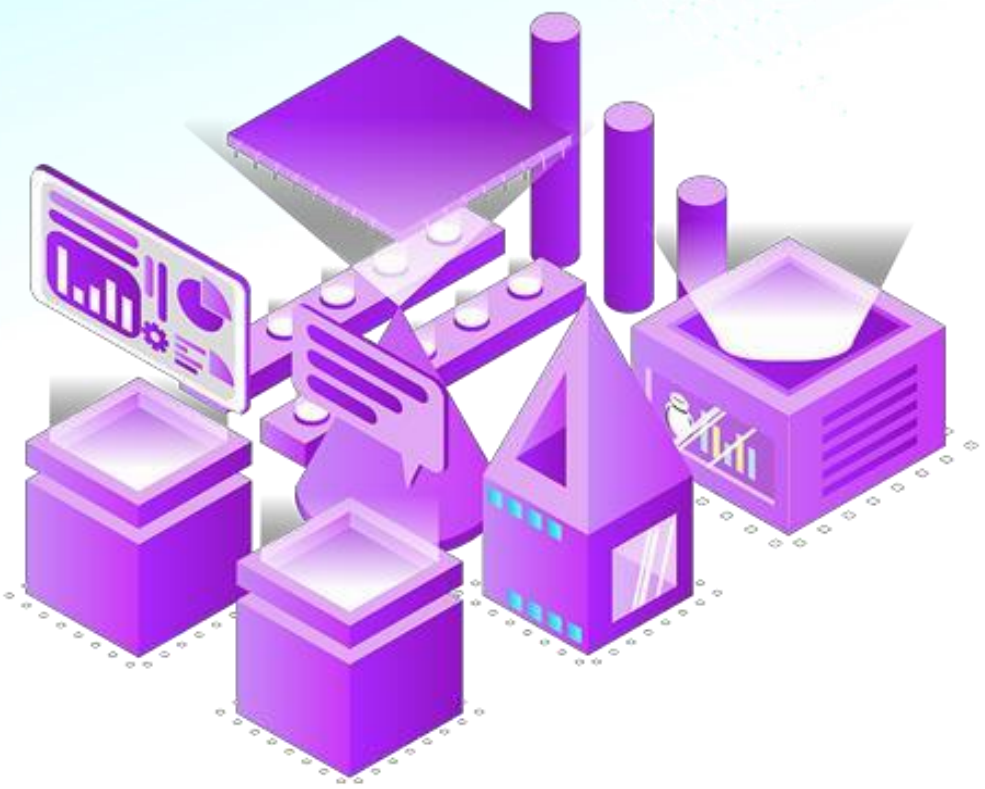
In the DHC ecosystem, in the process of data transmission by vaccine immunization medical and health service institutions, because there was no value circulation before, it cannot be traced back to the original recorder, so it is impossible to value the vaccine immunization medical health data, often many patients Vaccination medical health information is ignored, or intermediary medical service institutions earn a small fee, making the value of vaccine immunization medical health data transmission very small. Under the blockchain technology, this system maximizes the value of vaccine immunization medical health data to the patient data uploader, and realizes the value of vaccine immunization medical health data.

FIVE DHC's technical architecture design

The goal of DHC is to provide a global open blockchain vaccine immunization medical health business service platform, combined with the advantages of blockchain technology, to solve the current dilemma encountered in the process of traditional vaccine immunization medical health market, and to realize the DHC ecosystem The implementation of the DHC and the DHC digital vaccine immunization medical health business ecosystem promoted the ecological development of the DHC.

Technical ideas

The DHC technical team is committed to providing low-level blockchain services suitable for diversified vaccine immunization medical health applications and various ecological needs, so as to ensure that the low-level development maintains its ideal low-level technology stack and facilitates the upper-level application development of the blockchain.



The underlying platform of DHC blockchain is designed with hash randomness, versatility, modularity, pluggability, and security, making the construction of the underlying blockchain as lightweight as possible. In the underlying organization, each consensus module and function module can be customized and pluggable, which is convenient for adapting to specific diversified vaccine immunization medical health application scenarios.

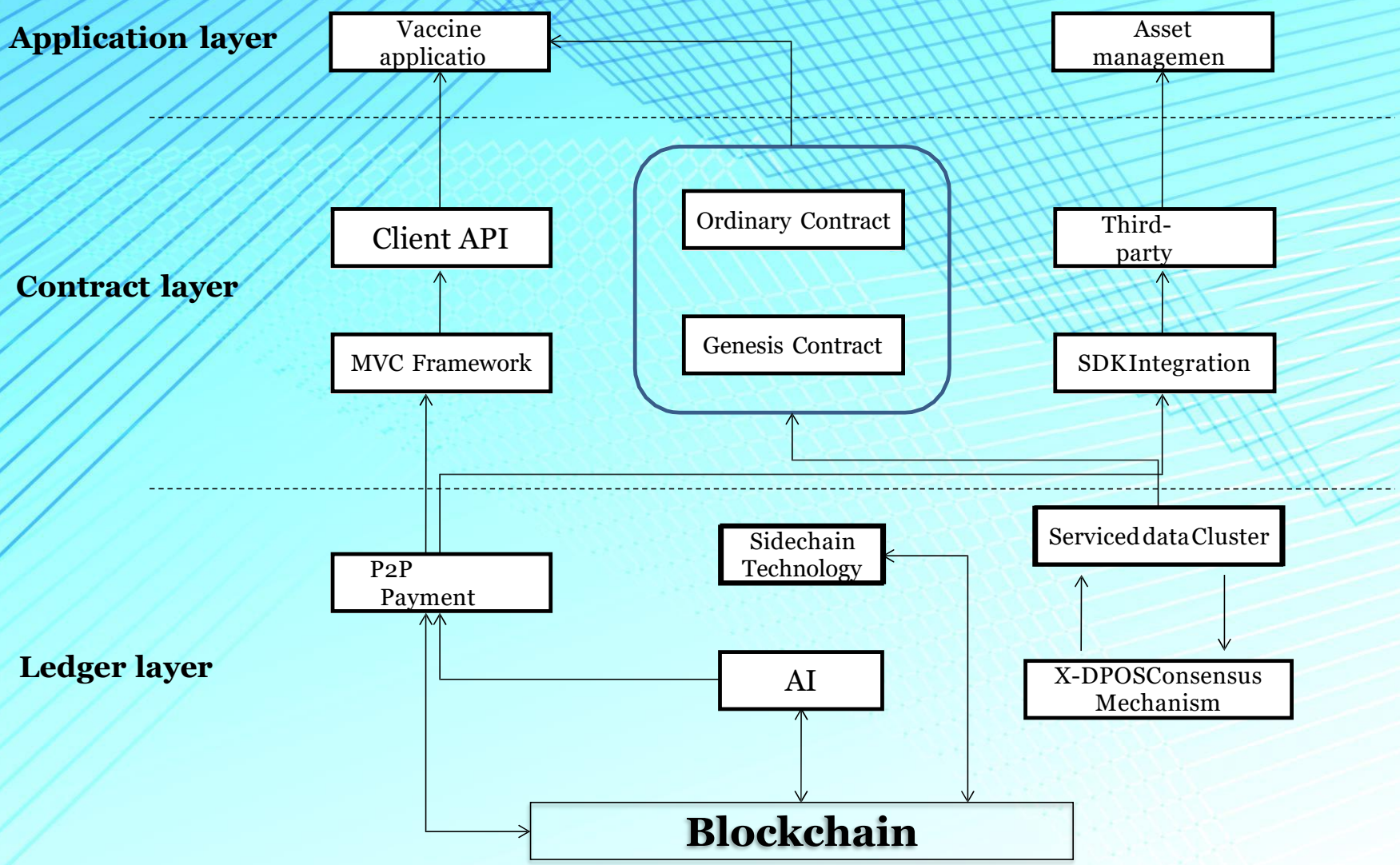
Overall structure

The DHC ecosystem will adopt a three-layer structure of application layer, contract layer, and ledger layer (data layer), as follows:

1) Application layer: support the development of programmable distributed ecological applications, call contracts for asset transactions, transfer and management, incentive (dividend) and other ecological applications;

2) Contract layer: account system, contract code support;

3) Ledger layer (data layer): public chain layer without permission, X-DPOS consensus mechanism.



Application level

The DHC ecosystem provides various forms of PC, WEB, and mobile application terminals to facilitate calling contracts for asset management operations. Through the packaging of the underlying technology of the blockchain and reducing the application threshold, it provides developers and data distributors with a more flexible and friendly interface, so that developers and data distributors can focus on business models and business logic Innovation.

Contract level

A. Ordinary contract

There are two functions of this contract, which are asset management and dividend setting and identification. Such authority is released, and each contract is equivalent to a fund in reality. If you need to develop or introduce a new asset in the contract, you need to submit a request to the Genesis contract, which will be released on the blockchain after being approved. The underlying implementation of the ordinary contract will call the control program in the data transmission layer.

B. Genesis contract

The Genesis contract is a special type of contract on the DHC ecosystem. It is a contract that can issue and review smart contracts. The developer will retain some permissions, such as private keys, scope, etc., and has certain specifications and automated audits. Function to ensure that the assets on the chain meet the corresponding specifications and templates are recorded and released, and the underlying implementation of the Genesis contract will call the release program in the data transmission layer.

Ledger level (data layer)

At the ledger and data transmission layer, the more mature DPOS mechanism on the public chain of the DHC ecosystem has been improved, using a friendly algorithm for artificial intelligence, and using a sharding mechanism. The X-DPOS consensus mechanism has been creatively proposed. Accelerate the efficiency of transaction processing while ensuring data consistency.

Consensus mechanism

In order to ensure the security of transaction data of the entire blockchain, the generation of blocks needs to comply with a certain consensus program (Consensus Program). A secure asset blockchain consensus program should include the following attributes:

(1) Verification of transaction authenticity: transaction authenticity verification is only related to public-private key pairs, and a single participant can generate and use multiple key pairs;

(2) Non-repudiation: After the fact, the participant cannot deny that the transaction has occurred;

(3) Integrity: After the fact, the transaction cannot be tampered with. Once the transaction is created, it is broadcast to the peer-to-peer network.

According to the principle of the least feasible blockchain, transactions need to be packaged into blocks, so that the transaction fee is low relative to the value of the asset itself; valid blocks require effective proof of work, which makes it difficult to generate workload, but it is very difficult to verify Easy; the workload is realized by the hash cash algorithm, which is based on the energy cost, thereby increasing the cost of generating effective blocks, making it difficult for malicious attackers to bear the cost of the attack.

Since the DHC ecosystem is focused on a blockchain solution for diversified vaccine immunization and health value, a strong consensus needs to be reached on multiple nodes, and the entire system is not vulnerable to Sybil Attack and 51% attacks. Therefore, the requirements for security (global consistency) and decentralization in the impossible triangle are high, and efficiency is sacrificed to some extent. Based on the DPOS mechanism adopted by the Bitcoin public chain and the Ethereum public chain, the DHC ecosystem implements a consensus algorithm that is friendly to artificial intelligence ASIC chips, so that computing power can be applied to the field of AI hardware acceleration, thereby solving the DPOS mechanism The problem of hardware consumption has innovatively created a new consensus mechanism—X-DPOS consensus mechanism.

The X-DPOS consensus mechanism has friendlyly improved the infrastructure for the vaccine immunization medical health ecosystem, and brought new impetus to the further development of the vaccine immunization medical health market.

SIX DHC Technology Innovation Based on Blockchain

In order to meet the needs of good business operation and application of vaccine immunization and health care, the DHC ecosystem builds a core technical architecture and core infrastructure. It has important innovative features based on blockchain technology.

Noblock technology engine

With the enhanced application of the DHC ecosystem, the original NOBLOCK technology engine will allow the ecology to truly achieve the lightest purpose. At present, there is a huge problem in the vaccine immunization medical health ecology. It is necessary to receive the block BLOCK information of the blockchain network. Since the blockchain network realizes data security through data synchronization redundancy, ecological network requests occupy a large number of networks. bandwidth.

The design idea is to make the blockchain browser our block BLOCK data source, and no longer synchronize the block BLOCK data. And the data source using the blockchain browser will bring a question, how can the accuracy of the data source be guaranteed. The design architecture of BCBP (Block Chain Browser Pool) blockchain browser pool is adopted.

SHA512-ZERO algorithm encryption technology

SHA (Secure Hash Algorithm) is a series of cryptographic hash functions designed by the National Security Agency (NSA) and issued by the National Institute of Standards and Technology (NIST).

The first member of the SHA family was released in 1993. However, people now give it an informal name SHA-0 to avoid confusion with its successors. Two years later, SHA-1, the successor of the first SHA, was released.There are also four variants, which were released to increase the output range and change some subtle designs: SHA-224, SHA-256, SHA-384 and SHA-512 (these are sometimes referred to as SHA-2).

The DHC ecosystem uses SHA512 encryption technology to innovate the SHA512-ZERO algorithm encryption technology to ensure data security for the DHC ecosystem.

Code show as below:

```
/** Define the content information structure of SHA-512 hash operation */
  typedef struct SHA512Context {
  #ifdef USE_32BIT_ONLY
uint32_t Intermediate_Hash[SHA512HashSize/4];/* Information Summary */
```

```
uint32_t Length[4];                                    /* The length of the message digest in bits */
#else /* !USE_32BIT_ONLY*/
uint64_t Intermediate_Hash[SHA512HashSize/8];/* Information Summary */
uint64_t Length_High;                                  /* The length of the message digest in bits */
uint64_t Length_Low;                                   /* The length of the message digest in bits */
#endif /* USE_32BIT_ONLY*/
int_least16_t Message_Block_Index;                     /* Index of information grouping array */
uint8_t Message_Block[SHA512_Message_Block_Size];/* 1024-bit messagegrouping */
int Computed;                                          /* Summarycalculation logo */
int Corrupted;                                         /* Message Summary Damage Identification */
} SHA512Context;
```

Next, initialize the SHA512Context structure to prepare for the subsequent calculation process.

```
#ifdef USE_32BIT_ONLY
static SHAStatusCode SHA384_512Reset(SHA512Context *context,uint32_t H0[SHA512HashSize/4])
#else /* !USE_32BIT_ONLY*/
static SHAStatusCode SHA384_512Reset(SHA512Context *context,uint64_t H0[SHA512HashSize/8])
#endif /* USE_32BIT_ONLY*/
{
int i;
if (!context) return shaNull;
context->Message_Block_Index= 0;
#ifdef USE_32BIT_ONLY
context->Length[0]= context->Length[1] =
context->Length[2]= context->Length[3] = 0;
for (i = 0; i < SHA512HashSize/4; i++)
context->Intermediate_Hash[i]= H0[i];
#else /* !USE_32BIT_ONLY*/
context->Length_High = context->Length_Low = 0;
for (i = 0; i < SHA512HashSize/8; i++)
  context->Intermediate_Hash[i] = H0[i];
#endif /* USE_32BIT_ONLY*/
context->Computed = 0;
  context->Corrupted = shaSuccess;
```

```
return shaSuccess;
 }
```

Next, the input of the information grouping is implemented. This function accepts a byte array as the next message grouping for processing.

```
SHAStatusCode SHA512Input(SHA512Context *context,const uint8_t *message_array,unsigned int length)
 {
if (!context) return shaNull;
if (!length) return shaSuccess;
if (!message_array) return shaNull;
if (context->Computed) return context->Corrupted = shaStateError;
if (context->Corrupted) return context->Corrupted;
while (length--)
 {
context->Message_Block[context->Message_Block_Index++]=*message_array;
if ((SHA384_512AddLength(context, 8) == shaSuccess) &&
(context->Message_Block_Index == SHA512_Message_Block_Size)) SHA384_512ProcessMessageBlock(context);
 message_array++;
 }
return context->Corrupted;
}
```

Of course, a function for message processing and final digest output is needed. This function will return a 384-bit or 512-bit message digest to the Message_Digest array given by the caller. The returned informationsummary, the first element index is 0, the last element index is 47 (SHA-384) or 63 (SHA-512).

```
static SHAStatusCode SHA384_512ResultN(SHA512Context *context,uint8_t Message_Digest[], int HashSize)
{
int i;
#ifdef USE_32BIT_ONLY
int i2;
#endif /* USE_32BIT_ONLY*/
if (!context) return shaNull;
if (!Message_Digest) return shaNull;
if (context->Corrupted) return context->Corrupted;
```

```
if (!context->Computed)
SHA384_512Finalize(context,  0x80);
#ifdef USE_32BIT_ONLY
for (i = i2 = 0; i < HashSize; ) {
Message_Digest[i++]=(uint8_t)(context->Intermediate_Hash[i2]>>24);
Message_Digest[i++]=(uint8_t)(context->Intermediate_Hash[i2]>>16);
Message_Digest[i++]=(uint8_t)(context->Intermediate_Hash[i2]>>8);
Message_Digest[i++]=(uint8_t)(context->Intermediate_Hash[i2++]);
Message_Digest[i++]=(uint8_t)(context->Intermediate_Hash[i2]>>24);
Message_Digest[i++]=(uint8_t)(context->Intermediate_Hash[i2]>>16);
Message_Digest[i++]=(uint8_t)(context->Intermediate_Hash[i2]>>8);
Message_Digest[i++]=(uint8_t)(context->Intermediate_Hash[i2++]);
}
#else /* !USE_32BIT_ONLY*/
for (i = 0; i < HashSize;  ++i)
Message_Digest[i] = (uint8_t)(context->Intermediate_Hash[i>>3]>> 8 * ( 7 - ( i % 8 ) ));
#endif /* USE_32BIT_ONLY*/
return shaSuccess;
}
```

At this point, the SHA-512 (SHA-384) encoding is completed, and this encoding can be verified.

Zero-Knowledge-Proof

Zero-Knowledge Proof (Zero—Knowledge Proof) was proposed by S. Goldwasser, S. Micali and C. Rackoff in the early 1980s. It means that the prover can make the verifier believe that a certain statement is correct without providing the verifier with any useful information. Zero-knowledge proof is essentially an agreement involving two or more parties, that is, a series of steps that two or more parties need to take to complete a task. The prover proves to the verifier and makes him believe that he knows or owns a certain message, but the proof process cannot reveal any information about the proven message to the verifier. A lot of facts prove that zero-knowledge proof is very useful in cryptography. If zero-knowledge proofs can be used for verification, many problems will be solved effectively.

For example: A wants to prove to B that he owns the key to a certain room, assuming that the room can only be unlocked with the key, and cannot be opened by any other method. There are 2 methods at this time:

① A shows the key to B, and B uses the key to open the lock of the room, thereby proving that A has the correct key for the room.

②B determines that there is an object in the room, A opens the door of the room with the key he owns, and then

shows the object to B to prove that he really owns the key of the room.

The following ② method belongs to zero-knowledge proof. The advantage of it is that, during the entire proof process, Bcannot always see the key, thus avoiding the leakage of the key.

The DHC ecosystem uses this zero-knowledge proof to enable the verifier to believe that a certain conclusion is correct without verifying useful information to complete the cross-chain and cross-smart contract technology of the DHC.

Ring Topology HDHC ring topology relay technology

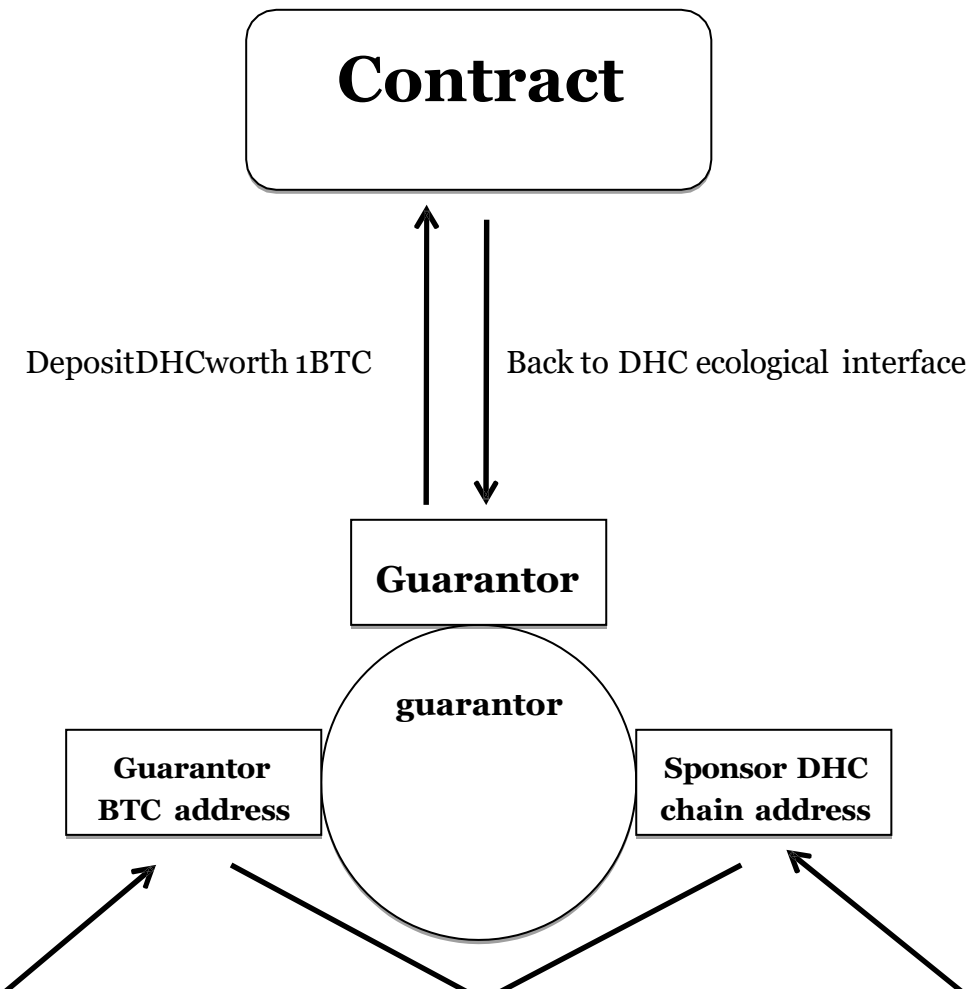
The Ring Topology HDHC (ring topology relay) technology of the DHC ecosystem connects multiple chains to one HDHC, allowing digital token asset terminals to easily realize one-key cross-chain and conversion. The advantage of the ring is that the topology consumes much less resources than stars and trees.

It may not be obvious if there are few nodes and the distance is short, but the advantage of environment will be obvious if the distance is long and there are many nodes. The DHC will be combined with the form of a super node to make more networks fluent and stable, avoiding network congestion and network dullness.

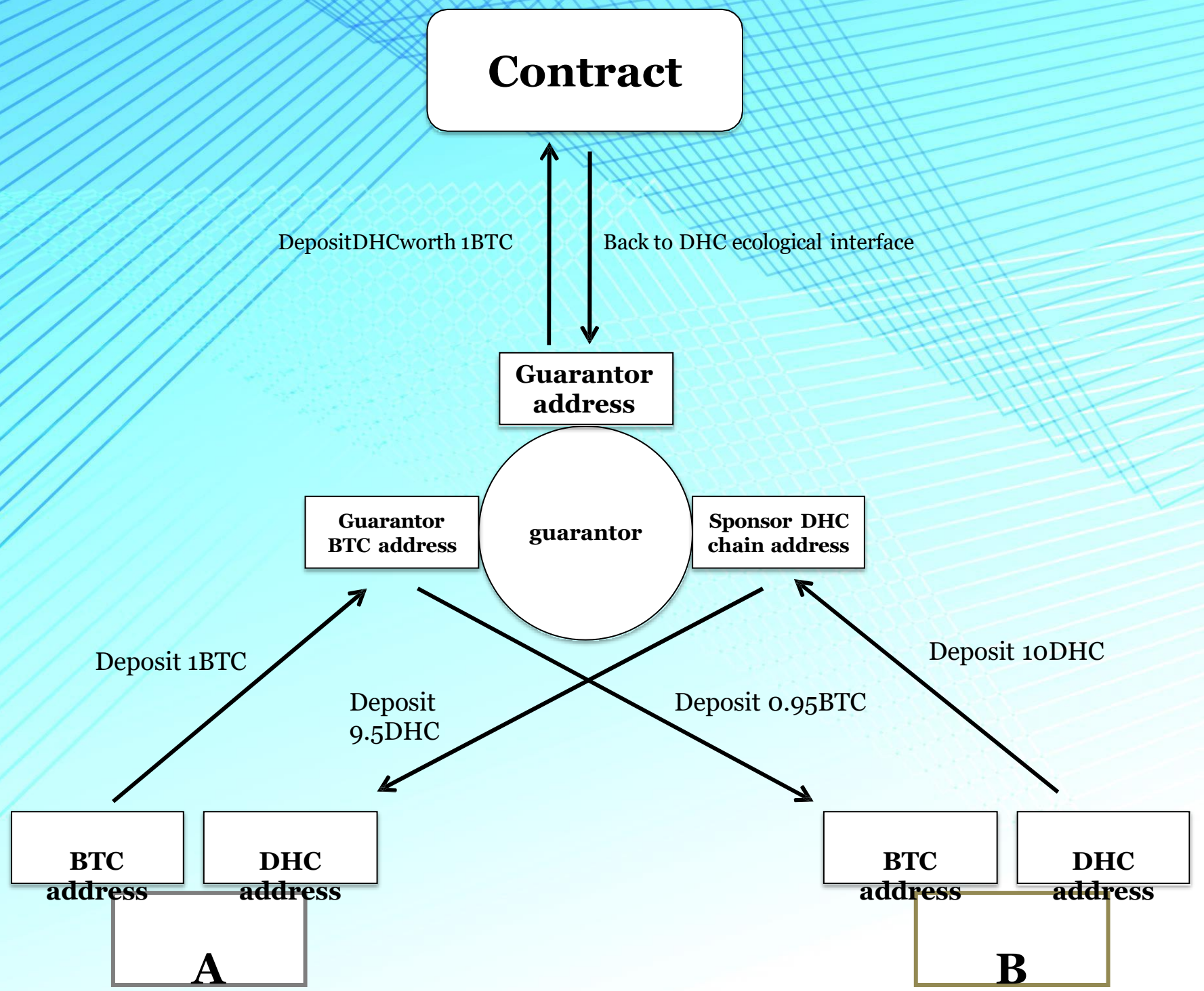
NO-Localcoin exchange and network

The NO-LOCALCOIN exchange and payment network is based on the DHC blockchain platform through customized smart contracts and cross-chain gateway technology to achieve risk-free digital currency exchange. DHC or users holding other digital tokens can create exchange smart contracts, provide guarantee services through the creation of contracts, and use contract mechanisms to circumvent breaches by parties and avoid arbitration biases of centralized custodian institutions, so that all three parties have no risk of loss . After the contract creator facilitates the exchange transaction, he obtains a corresponding proportion of the guaranteed return.

The decentralization of the blockchain will bring about the problem of low payment efficiency. The DHC ecosystem implements the lightning payment network through NO-Localcoin technology (essentially, the DHC VPN subnet is built based on the existing blockchain network), and the transfer is confirmed in seconds to ensure real-time arrival and is not affected by the blockchain block. The technical design focus is as follows:



Deposit 10DHC



Customized client, SHA512-ZERO encryption mark of DHC ecosystemuser's blockchain transfer;

Develop enterprise-level blockchain nodes, detect blockchain activities of users of the DHC ecosystem at any time, and perform legality verification and traffic analysis. 7x24 hours continuous detection of enterprise-level nodes, analysis of changes in balance provided to server users, and reported to the DHC ecosystemserver;

The DHC ecosystem server receives the analysis results of enterprise-level blockchain nodes. When a user initiates a payment request, it can already know in real time whether the user has actually initiated a blockchain transfer request to prevent malicious double spending.

SEVEN Equity token (Token)

Token introduction

Token abbreviation: DHC

Core algorithm: SHA256

ReleaseDate:February2021

Block speed: 3-5 seconds/block

Difficulty adjustment: 1 block

Total quantity: 600,000,000 pieces (1 billion pieces, the number is constant, and will never be issued)

Main features: Applied in the field of global vaccine immunization medical health, not only in vaccine immunization medical health ecology, medical data management, personal electronic medical records, telemedicine, smart wearable device health management, medical billing and insurance automation, vaccine anti-counterfeiting traceability, Vaccine immunization medical waste tracking also includes other industries to expand the development and application of its economic fields, including medical advertising, medical malls and other applications.

In order to make the DHC project ecosystem run more flawlessly, DHC Token is issued to reward users who contribute to the information construction of the digital value ecosystem. The system Token (that is, DHC Token) is based on the rights and interests issued by Ethereum Ethereum Token, an open source, publicly maintained distributed computing underlying system, provides a decentralized virtual machine to support Turing's complete smart contract operation.

Distribution and distribution

The equity token issued by the global DHC ecosystem is DHC Token, with a total amount of 600 million issued, a constant number, and no additional issuance. It is distributed through an ecological incentive mechanism. With the accumulation of applications, the ecological growth and prosperity gradually produce until All releases are complete.

The specific distribution plan is as follows:

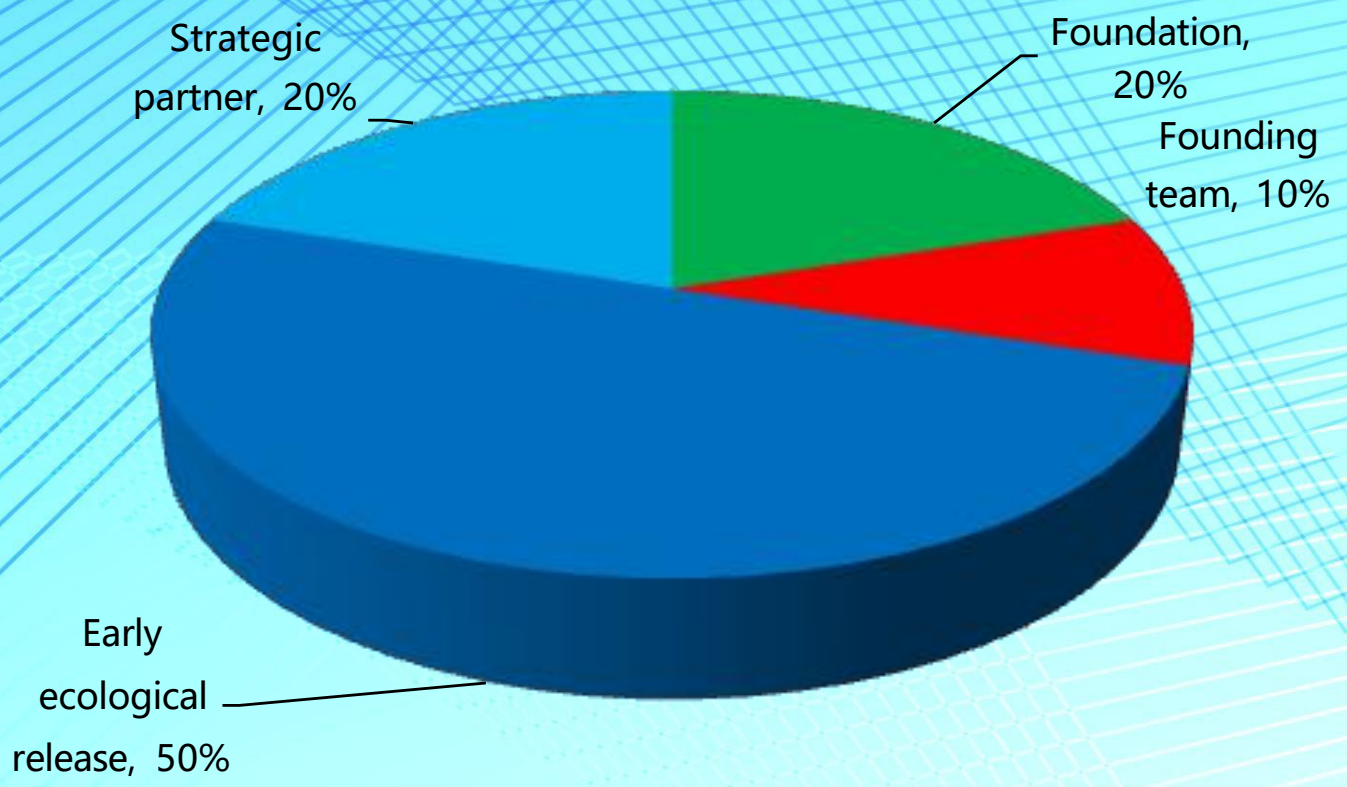


Figure 7-1: DHC proportional distribution diagram

Foundation (accounting for 20%): allocate this part to the foundation to adjust the market value of the foundation to prevent the market value from rising and falling. The lock-up period is 1 year, and the monthly release is 0.5 after one year. %.

Founding team (accounting for 10%): It will be allocated to the founding team to incentivize the personnel for team formation, operation, planning and other work of the DHC blockchain ecology, used for a certain number of tokens for incentive feedback, lock-up period 1 Yearly, 1% is released every month after one year

Early ecological release (accounting for 50%): This part is open to early members, used to snap up purchases, encourage early members, and facilitate members to freely trade in the secondary market in the future, with a closed period of 3 months.

In the early ecological release of DHC, it will be released in 120 installments from February 3, 2021, and the price will be released in successive increments. The time will be carried out according to a certain period of time. Thenstart the next round.

Early release of 600 million DHCs will never be issued, divided into 120 issues	
Time	After February 3, 2021, release subscriptions will be conducted every day until the release is completed
Quantity	5 million pieces released each period
Price	The first period is 1EVC=0.02USDT, and the price of the panic buying in each future period will increase by at least 1% compared with the previous period
Combustion	90% of the platform's profits are used for burning and repurchase in the secondary market, and eventually stabilized at 60 million
……	……

Strategic partner (accounting for 20%): Distribute this part among strategic partners to encourage contributions in the application development and construction of the DHC ecosystem. Give a reward for this and lock the position for 3 months. For strategic partners who purchase 100,000 DHC or above, an additional 20% will be given away.

In the DHC system, the circulation has increased in different stages, and the corresponding circulation quantity will decrease in steps. At the same time, with the continuous enrichment of application scenarios, the market demand for DHC tokens will increase. However, the number of DHCs is constantly decreasing. In addition, 90% of the profits of the platform are used to repurchase and destroy DHCs from the secondary market in circulation. The value of DHCs will be foreseeable in the future.

Token Value

In the early stage of the DHC ecosystem, through the establishment of a completely decentralized vaccine immunization medical health value system based on the token economic model, a truly subversive commercial financial practice, relying on the establishment of massive application services and user traffic advantages, its token consensus The ecological value achieved is of great significance. The following is an in-depth analysis of the economic value of the token economy, specifically divided into the following points:

Application of ecological rights: As an open blockchain vaccine immunization medical health value service platform, DHC ecosystem is a value Internet system based on blockchain, token economy and medical services. Obtaining a pass will enable payment of application scenarios in the DHC ecological application system, as well as some diversified vaccine immune medical health application ecological services, which will also be an application right.

Exchange trading rights: This will be the simplest and most direct token value model. The ecological value is circulated through the digital asset exchange in the secondary market, and the ecological construction of digital token trading on the market by investment institutions. Users hold this Token DHC is able to trade on this exchange.

Community voting rights: The DHC ecosystem will be launched and a community foundation will be established. In the later development, the more tokens there are, the more community voting rights and weights will be in the vaccine immunization medical health community.

In addition to the above token values, the token DHC will continue to expand the development of more vaccine immune medical health ecological rights and interests, based on the advantages of its own blockchain, discover more value methods, enhance capabilities, and promote a diversified vaccine economy. The healthy development of the health value ecology of immunomedicine.

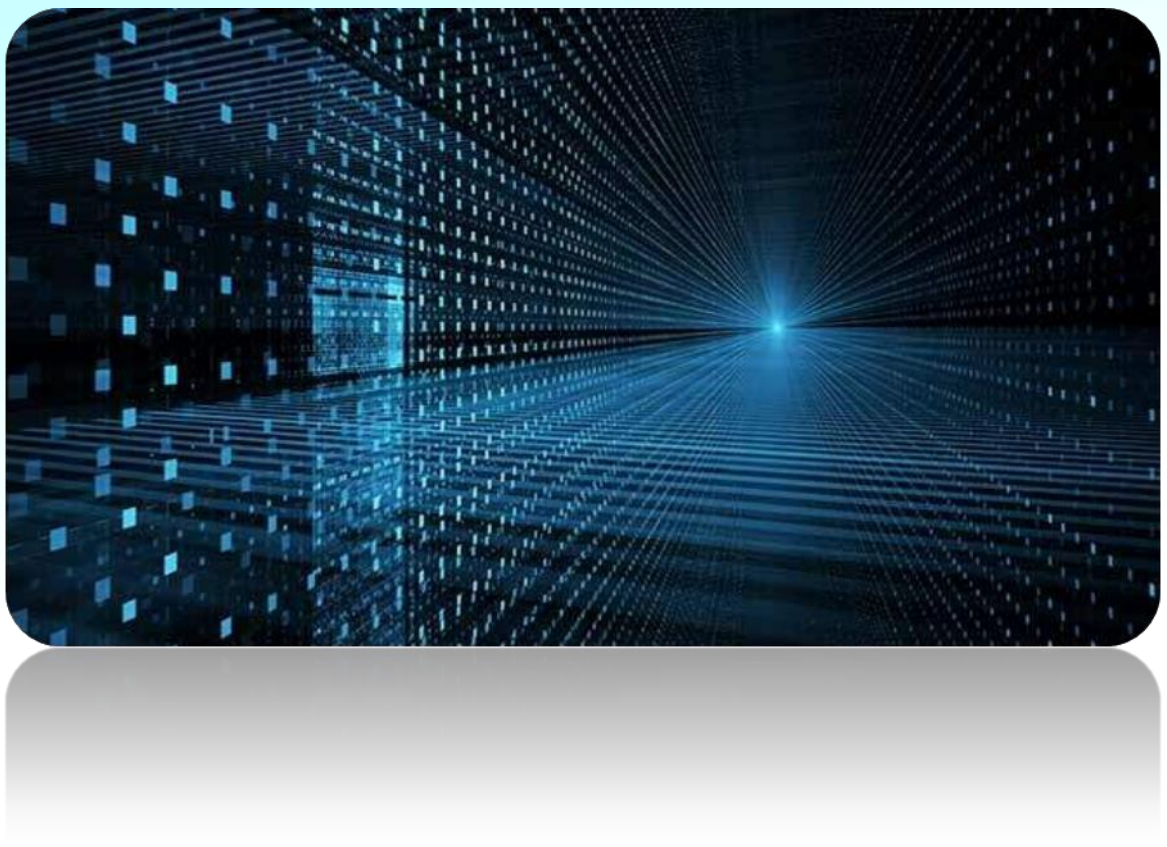
EIGHT DHC ecological application scenarios

With the continuous upgrade and development of the DHC ecosystem, more and more applications can be used, and its Token (that is, DHC) also has more application circulation, and it will also develop and build more practical applications for landing Ecology.

Medical data management applications

The use of blockchain technology in the medical industry has gradually become a trend. The medical data management application ecosystem will be the largest application of the DHC ecosystem, the latest change to the traditional medical platform, and the most valuable application of vaccine immunization medical health industry.

This vaccine immunization medical and health content system will adopt blockchain technology, adopt a peer-to-peer port system for the vaccine immunization medical health services in the blockchain application industry and service transactions in other industries, and use the basic asset DHC for the circulation of the global vaccine immunization medical health market Media, providing vaccine immunization medical health data services worldwide. Through dynamic algorithms, medical information traceability, historical records of medical records (inquiries, downloads) and medical data registration are performed on the DHC.



At the same time, it is used to strengthen the global response to epidemic diseases, virus traceability and pathological analysis, vaccine research and development, clinical trials, supply chain management in the pharmaceutical sector, security and information confidentiality, data confirmation and process management. In addition, the DHC vaccine immunization medical health ecosystem helps immunization records and manages thehealth data of vaccine users, enabling vaccine users to obtain personal financial benefits from the data.

About the medical data of the patient. For example, the current medical data of patients is difficult to obtain at

critical moments due to reasons such as moving and working. When a patient encounters a life-threatening disease and the patient is unable to inform the case, it is easy to miss treatment opportunities. The addition of blockchain technology can completely change the storage and transmission of patient data. Through data on-chain, it provides doctors with a fast information channel.

Blockchain technology can also protect the privacy of patients, not disclose patient cases, record patient information on the blockchain, use encryption technology to protect patient information, and also help doctors to better observe the patient's condition. The blockchain achieves a complete record of the entire life cycle of the asset. When the asset flows through the entire supply chain, whether it is a patient's health record or a bottle of pills, all records are clearly visible.

This vaccine immunization medical and health content process is not only safe, but also protects the rights and interests of both users and doctors of vaccine immunization medical and health services. At the same time, the DHC ecosystem can revolutionize the vaccine immunization healthcare service industry, which enhances the DHC service ecosystem.

Personal electronic medical record application

In the ecological development process of DHC, a personal electronic medical record application ecology will be built to connect hospitals or community service institutions that join the medical services of this system. This personal electronic medical record will use blockchain technology, decentralized management, and an on-chain recording system based on smart contracts.

If you have a safe and complete personal vaccination history, record changes in vital signs after each immunization, and you can efficiently and accurately capture information related to the drugs used, each doctor's diagnosis, patient's disease and surgery, and other information. The quality and coordination of medical services will be improved, and related costs and risks will be reduced accordingly.

DHC vaccine immune medical health ecosystem has data that cannot be tampered with, and any tampering will leave cryptographic evidence. As well as the ability to store complex permissions with multiple private keys, access control of cases through smart contract technology. Solve the problems of data leakage, scalability, operability and data integration faced by electronic medical records. Stakeholders, including research institutions and pharmaceutical

companies, collectively collect, manage and share medical data, while ensuring the integrity of the data and protecting the privacy of patients, and truly return the ownership of vaccine immunization medical information to the vaccine immunization itself.

The application of personal electronic medical records has greatly enriched the application of DHC pass, and is also an application that benefits every user in the world. It has extremely strong user traffic and application scenarios.

Telemedicine applications

Telemedicine is an emerging discipline that continues to develop with the development of communication technology, computer networks, and multimedia technologies, and its application in medicine. It uses multiple digital transmission methods to establish contact between medical units in different regions, between medical and health services and individuals, and complete tasks such as remote consultation, diagnosis and treatment, teaching, academic research, and information exchange. The application of this new model helps make the medical treatment process from disorder to order and time-saving, and can also solve the problem of imbalanced medical resources in underdeveloped and poor regions around the world.

In the past, centralized telemedicine platforms may have leaked sensitive information about individuals and health due to internal errors or external attacks. The DHC Vaccine Immunization Medical Health System provides a feasible solution, which is a solution that can be completely transparent but respects user privacy.

Medical big data analysis application

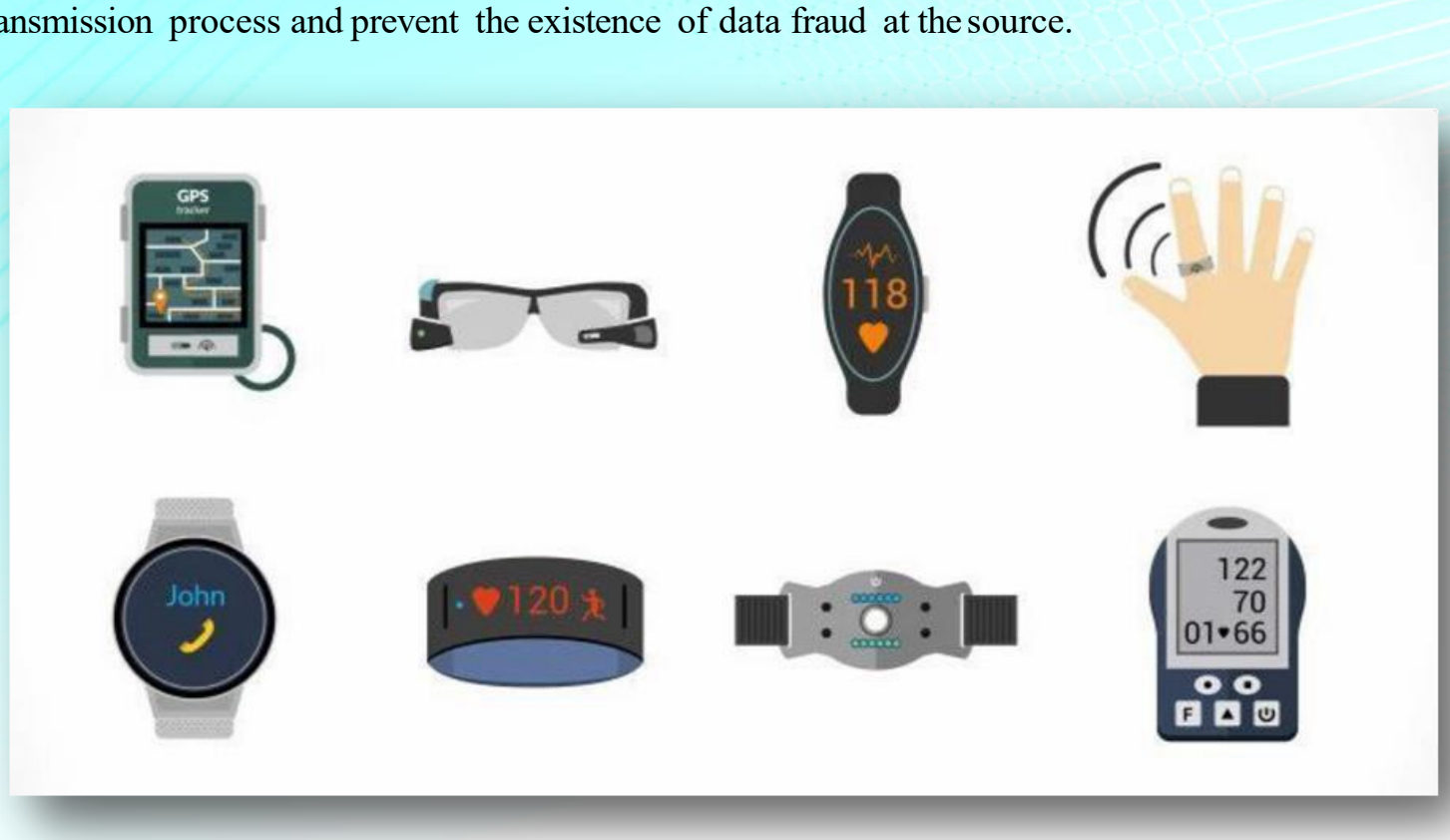
Clinical diagnosis and treatment, pharmaceutical research and development, and human genome research are all based on the support of huge personal basic health data. If there is no large data set, it is more difficult to establish the correlation between variants and traits, and it is difficult to study through machine learning to obtain truly meaningful results. However, at present, such data is far from meeting the needs of scientific research institutions. The main reasons are that clinical diagnosis and treatment data and medical response data cannot be recorded and fed back in time, and the cost of personal genetic data testing is relatively high.

The DHC vaccine immunization medical health ecosystem makes it possible to record and share such data, which can not only ensure the security and privacy of the data, but also provide the demand side with these data to obtain certain token rewards, which will inevitably be to a certain extent. Expand the supply of such data, and then promote the development of medical research through medical big data analysis.

Smart wearable device health management application

With the development of the Internet of Things and smart wearable devices, such personal dynamic continuous data data can also be sent to the DHC vaccine immune medical health system. The data on the smart wearable device has the following advantages:

Data authenticity: upload data directly through the smart wearable device to ensure the validity and safety of the data transmission process and prevent the existence of data fraud at the source.



Health management: Use AI technology to analyze user sign data from wearable devices, provide personalized lifestyle intervention and preventive health management plans, and users can understand and manage their health status at any time.

Adjuvant therapy: With the help of the DHC vaccine immune medical health system's autonomous cognitive identity consultant program management technology, based on the personal health data of the wearable device for a period of time, medical institutions can provide personalized medical care services to improve the accuracy of treatment.

Medical billing and insurance automation applications

In the field of vaccine immunomedicine, there is an interactive relationship between individuals, medical institutions, and insurance providers. Vaccine medical billing and insurance compensation have problems of low efficiency and complex services. Especially for medical insurance, insurance agencies are responsible for fund collection, investment, and claims settlement, which often have high management and operating costs. Claim payment and adjudication are to verify that all stakeholders meet and comply with the agreed conditions in the

contract, involving a lot of manual processes. Management costs. Medical institutions also spend a considerable amount of time each year in the insurance reimbursement process, collating medical records, insurance service providers and government audits, etc.

DHC Vaccine Immunization Medical and Health System distributed the relevant data records on the blockchain to achieve insurance data preservation, data cannot be tampered with, and contract disputes are avoided. In addition, medical billing and insurance processes that require professional doctors or notaries can be automated and verified through smart contracts in a completely transparent and secure manner. Smart contracts can automate most billing and payment procedures, thereby skipping intermediaries, Reduce administrative costs and save time for both patients and medical institutions.

Vaccine anti-counterfeiting traceability application

The DHC vaccine immunomedicine health ecosystem uses "time stamp" technology and a chain structure to achieve data traceability. Each event and transaction has a time stamp, which becomes part of a long chain or permanent record. Through a consensus mechanism to jointly record and maintain data, prevent a participant from unilaterally modifying or deleting data, and ensure that the vaccine information cannot be tampered with on the blockchain.

Through blockchain technology, we can query key details and related information of all links in the supply chain of vaccines and pharmaceuticals, including the production date, price, efficacy, and circulation of vaccines and pharmaceuticals, and even trace them back to the raw material procurement stage. If the vaccine drug transportation process is interrupted or the drug is missing, the data stored in the blockchain can provide parties with a fast tracking channel and determine the final activity location of the vaccine drug. In addition, once a vaccine drug with potential safety hazards is discovered on the blockchain network, the problematic links can be identified through the vaccine drug circulation information recorded on the blockchain, so that manufacturers and

regulatory authorities can quickly intervene and recall the problem vaccine drugs as soon as possible.

Vaccine medical waste tracking application

Vaccine immunization medical waste tracking application is similar to vaccine drug anti-counterfeiting traceability, DHC vaccine immunization medical health ecosystem waste tracking solution is through the Internet of Things, sensors, smart trash cans and other equipment, the production, transportation and treatment of vaccine medical waste Trace the source and keep the participants motivated.

Users can use the DHC pass to inquire about the treatment process of the vaccine-immunized medical waste they use, with detailed records, such as the treatment time, treatment location, treatment person, and whether the treatment method is effective, etc., in the DHC system It is clear at a glance and very detailed. This will be a remedy for the treatment of current vaccine-immunized medical waste.

Vaccine immunization medical waste tracking technology will greatly enrich the treatment of medical waste, avoiding the re-transmission or pollution due to improper treatment of vaccine immunization waste. This will be a major event and a measure of public health protection.

More applications……

In the development process of DHC, in addition to the above application scenarios, in the later development, there will be more applications, such as Vaccine Medical Health Forum, Vaccine Medical Health Live, Vaccine Medical Health News, Vaccine Medical Health Social chat, secondary market digital asset exchange, etc.

DHC-based vaccine immunization medical health service ecosystem, in the context of constantly enriching application scenarios, the scope of application is also getting wider and wider, and the value of use will also be extensive. It is also due to the decentralization and contract guarantee of blockchain , Asset traceability, transaction transparency mechanism, etc., can connect with the global blockchain vaccine immunization medical health business, support multiple vaccine immunization medical health ecological services, and avoid the disadvantages of traditional vaccine immunization medical health services.

In the future development process, the global vaccine immunomedicine health ecosystem (DHC) will be able to subvert more medical industry revolutions, and a truly disruptive medical commercial financial practice application will lead the vaccine immunomedicine health industry to a new ecological development direction.

NINE Blueprint

Short-term planning

The DHC ecosystem project will gradually improve the ecological construction within 1-3 years, and build a harmonious and stable market environment for vaccine immunization medical health. In three years, it has become the ecological king of the blockchain medical industry. The time is as follows:

In February 2021, successfully established the core team of operation management to complete the company's strategic planning and top-level design;

In June 2021, officially launch the market plan and complete the core teamstructure of the market;

In October 2021, DHC tokens landed on international exchanges and launched a strategic plan for the vaccine immunization medical and health market;

In December 2021, launch a blockchain + vaccine immunization medical and health technology exchange conference;

In May 2021, commend the excellent vaccine immunization medical health community conference and build a super vaccine immunization medical health service networknode;

In November 2021, landed on the international first-tier exchanges to fully realize the vaccine immunization medical health service ecology;

By the end of 2022, realize the global strategic plan;

In 2023, it will complete a variety of ecological applications, launch an ecological chain application with digital token DHC as the core, and circulate in various applications to realize the ecological application of vaccine immunization medical and health services worth US$100 billion.

Long term planning

In the long run, the DHC ecosystem adopts leading blockchain technology to bring the global vaccine immunization medical health market industry and blockchain industry dividends, open up a new global medical market, promote the innovation of the blockchain industry, and benefit the block Global vaccine immunization medical health users.

A decentralized blockchain vaccine immunization medical health service market ecosystem will revolutionize the services of this vaccine immunization medical health industry. In the future, the DHC token will provide users with a better circulation medium for vaccine immunization medical and health services, and bring new upgrades to the vaccine immunization medical and health market.

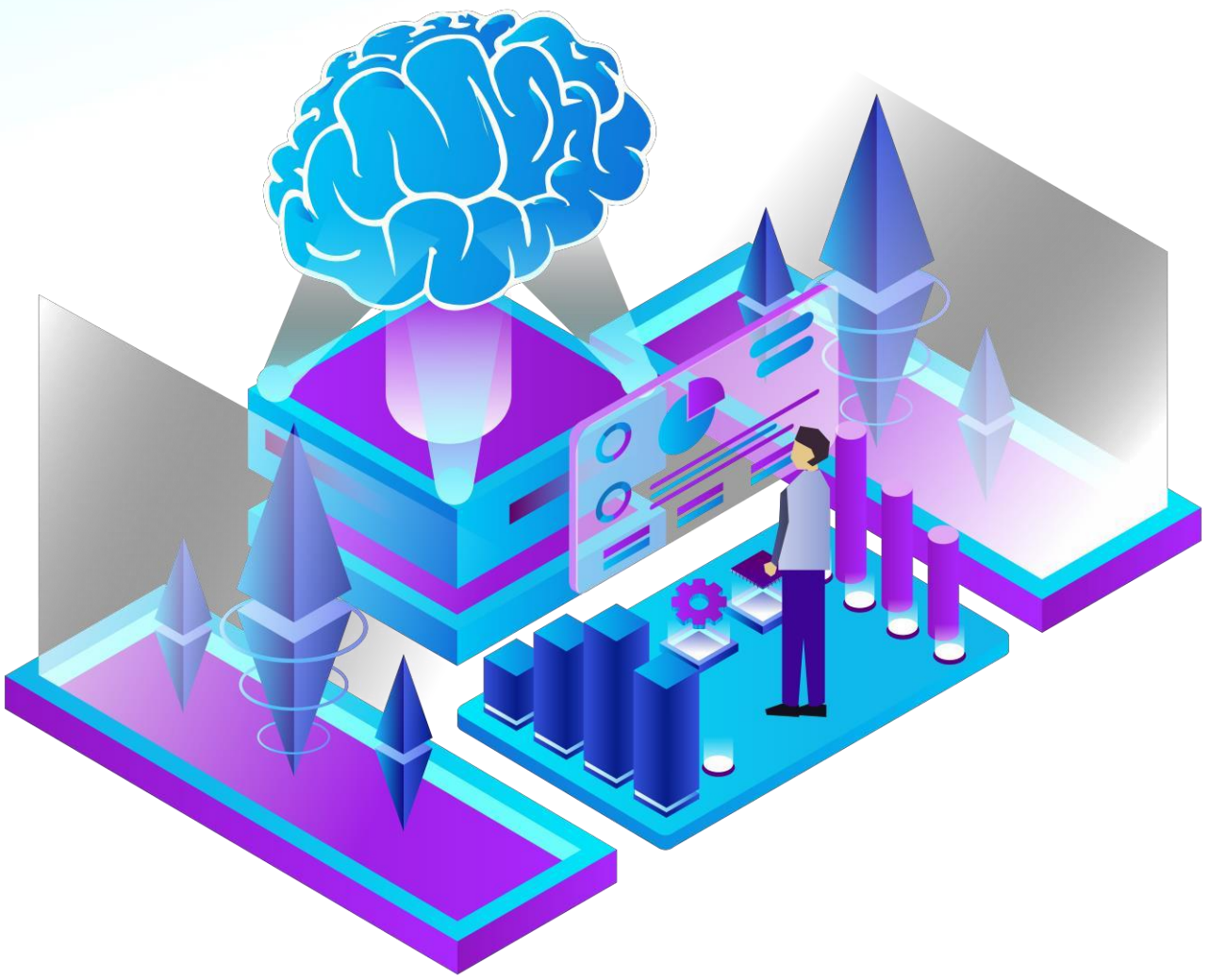
When the DHC ecosystem promotes the application of the global vaccine immunization medical health market, it will further improve the construction of the blockchain vaccine immunization medical health ecosystem, promote the implementation and operation of the blockchain ecosystem, and use the DHC certificate as an application Payment media support for value and technology development.

In the future, the application contribution of the application developers of the DHC ecosystem will be no less than 200 constructions in the future, such as vaccine immunization medical health big data, vaccine immunization medical health live broadcast, medical financial insurance, vaccine immunization medical health advertisement, vaccine Immuno-medical health doctor growth and so on.

TEN Market expectation

In the development of the global vaccine immunization medical and health industry, especially in the vaccine immunization market, the DHC ecosystem system has multiple characteristics such as high security, high stability, and high efficiency, which is unmatched by other blockchain networks. Advantages, it will also have strong market potential and development. The DHC ecosystem is based on an ecosystem developed on the blockchain network, which integrates vaccine immunization medical data management, personal electronic medical records, telemedicine, medical big data analysis, smart wearable device health management, medical billing and insurance automation, and vaccine anti-counterfeiting A variety of ecosystems such as traceability, vaccine immunization medical waste tracking, etc. are integrated into one, to build a diverse blockchain ecosystem for vaccine immunization medical health applications.

In the not-too-distant future, it is foreseeable that billions of people will obtain medical service security guarantees by immunizing medical health through blockchain vaccines, and at the same time will receive incentive rewards from various digital assets and be recognized by the market value.



In the global blockchain environment, various countries are actively developing activities related to blockchain technology. International financial institutions have always kept a close eye on digital currencies. The Bank for International Settlements has issued guidance and suggestions on the payment function of digital currency and whether the digital currency has monetary attributes. In November 2015, the Bank for International Settlements released the "DigitalCurrencies" report detailing the impact of digital currency as a retail payment method. In March 2018, the Bank for International Settlements released the "Central Bank Digital Currency for Payment, Monetary Policy and Financial Stability" The report of "Impact" analyzes the issuance of digital currency by the Central Bank. In June 2017, the International Monetary Fund (IMF) released a report "Fintech and Financial Services: Initial Considerations" on the development of the fintech industry, focusing on how to effectively regulate distributed ledger technology (DLT) and its foundation. Digital currency made recommendations. In 2018, the Organisation for Economic Co-operation and Development (OECD) and the G20 G20 jointly released an interim report "Tax Challenges Brought by Digitalization", proposing to supervise the digital asset transaction information formed by cryptocurrencies and blockchain technology. In addition to international financial organizations, national regulatory authorities are also paying attention to and actively studying digital currency regulation. Due to the different financial environments of various countries, countries have different attitudes towards the supervision of digital currencies. Some countries such as the United States, Japan and other countries hold a supportive attitude and actively deploy regulatory measures in the digital currency industry.

United States: Different states have different attitudes towards digital currencies. New York State has strict control over digital currency exchanges. Currently, only a small number of exchanges have obtained authorizations; Washington State enacted Act 5031 in April 2017, which stipulates that all currency exchanges in Washington State, including virtual currency operators, You must apply for a license to operate, and many exchanges that do business in Washington state have obtained the relevant licenses. Other states are also actively taking measures under the

regulations of the US Securities Regulatory Commission to implement licensing management of digital currency transactions.

Japan: Japan is the first country to incorporate digital currency transactions into the legal system. In 2017, Japan began to implement the "Funding Settlement Act", recognizing the legality of digital currencies as a means of payment. After that, the Japan Financial Services Agency (FSA) promulgated the "Payment Service Act" to implement a full range of supervision on digital currency exchanges. All exchanges operating in Japan must obtain license authorization from the Ministry of Finance and FSA.

Singapore: Under the guidance of the Singapore government's principle of "not seeking zero risk and stifling technological innovation", Singapore actively develops blockchain technology and actively promotes the development of digital currency. Singapore is the most supportive of digital currency development in Asia. One of the countries. Due to Singapore's positive and good institutional environment, many exchanges have chosen to conduct business in Singapore. For example, WBF EXCHANGE has worked closely with the Singapore government. In March 2020, the Monetary Authority of Singapore (MAS) officially announced the list of exempt companies for payment service operation licenses. The entities on the list have obtained the licenses and operating rights for specific payment services or digital currency related payment services during the exemption period. Singapore entities including Alibaba, Alipay, Amazon and other large institutions are on the list.

Thailand: In order to better regulate the digital currency industry, in June 2018, Thailand promulgated the "Digital Assets Law", announcing the issuance of licenses for compliant cryptocurrency exchanges and beginning to implement license management. In March this year, at the "Boao Forum for Asia Annual Conference 2019", the Governor of the Bank of Thailand stated that Bitcoin has great potential. Many countries are building cross-border payment infrastructure and hope to provide more financial products. . The digital currencies issued by large banks can be used to pay for trade financing, which is a very large potential. The central bank is also considering digital currency. The Bank of Thailand has a project called Central Bank Digital Currency, which can improve mutual settlement between banks and use blockchain technology to improve the efficiency of clearing between banks.

Russia: At the end of December 2017, the Central Bank of Russia drafted a proposal for a new multinational cryptocurrency. The proposal hopes to join the BRICS and the Eurasian Economic Union (EEU) to create a new multinational cryptocurrency that can be legally circulated among member countries.

Germany: Germany was the first country to recognize Bitcoin. In August 2013, the German government officially recognized Bitcoin as a legal currency. Cryptocurrency owners can use Bitcoin to pay taxes or for other purposes. The German Federal Financial Supervisory Authority (Bafin) said that the regulation of encrypted digital currencies should comply with the requirements of the current financial regulations. Enterprises that issue digital tokens must comply with the provisions of the Banking Law, Capital Investment Law, Insurance Supervision Law, and Payment Services Supervision Law.

Canada: Canada has always been friendly to mainstream digital currencies such as Bitcoin and Ethereum. A local Canadian company specializing in cryptocurrency investment has obtained the first Bitcoin fund license. However, regarding the crime of digital currency, the Canadian federal government proposed in 2018 to take measures against shadow payments made by terrorists and money launderers using virtual currency and prepaid credit cards.

Philippines: The Central Bank of the Philippines (BSP) has been deploying digital currency exchanges to be regulated since February 2017, hoping to regulate this emerging market and promote its orderly development. In2019, the central bank issued the first batch of exchange permits in this area.

European Central Bank: Explore the forms and possibilities of CBDC. At the recent Singapore Fintech Festival, European Central Bank President Christine Lagarde said that digital currency can be used as a backup payment method, and it can promote competition by providing a low-cost and efficient alternative. As long as they are transparent and you are a technology expert, you can trust their services. However, proper supervision in this area will remain the pillar of trust. In addition, Lagarde added that considering the possibility of issuing digital currencies, the state may provide funds for the digital economy, which should include financial inclusion, security and consumer protection, and the right to privacy in payment. Deputy Governor of the European Central Bank Jindos said in Madrid that the central bank is evaluating the value of the central bank's digital currency to European citizens and the economy. Kindos said that we are analyzing what form CBDC may take in order to achieve both the potential purpose and the potential negative impact on currency stability and financial intermediary functions. Regarding stablecoins, Kindos said that it is very uncertain whether stablecoins can deliver on their promises, and it may obviously bring risks to consumers and the financial system. It is therefore understandable that authorities around the world have called for the regulation of stablecoins.

France: The Central Bank of France hopes that the Eurozone will establish a blockchain-based settlement system that can transfer euros faster and cheaper than existing technologies. The deputy governor of the Bank of France, Denis Beau, expressed support for distributed ledger technology (DLT), which he said is likely to solve many outstanding market issues. One solution the French central bank is considering is the Central Bank Digital Currency (CBDC). Beau said the euro zone has a responsibility to consider establishing a CBDC. In December, at a meeting chaired by the French Prudential Regulation and Resolutions Agency (ACPR), François Villeroy de Galhau, governor of the French central bank, said that the central bank will soon start testing digital currencies and “will start targeting against the end of the first quarter of 2020. The appeal of the project." According to Villeroy de Galhau, France is keen to participate in digital currency innovation. However, he also warned that the country needs to try new technologies "seriously and methodically." According to previous news, the French central bank will reorganize the regulatory system and bring digital currency into regulation. In addition, at the meeting of the Monetary and Financial Institutions Forum on October 15, Denis Beau, the first deputy governor of the French central bank, talked

about the central bank digital currency (CBDC), dividing it into retail CBDC and wholesale CBDC. The "motivation" for issuing retail CBDCs may be due to the "huge demand" for digital payments to ensure that this supply will not be monopolized by "private payment structures", such as Facebook's Libra or digital RMB and other non-euro area CBDCs. It said that these two supply diversions may "get huge market power and thus pose risks to security and financial stability." However, it mentioned that from the perspective of cross-border retail payments, CBDC may be beneficial. According to previous news, Denis Beau said that the widespread use of Libra is full ofdanger. If the plan is implemented, it will cause many problems in financial stability and monetary policy, and therisks it brings must be resolved before it is officially launched.

Sweden: Create a pilot level for the digital currency e-krona. In December, the Central Bank of Sweden said it would sign an agreement with consulting firm Accenture to create a pilot platform for its digital currency e-krona. In a statement, the Swedish Central Bank said: "The main objective of the eKrona pilot project is to expand the bank's understanding of the technical possibilities of eKronor." The President of the Swedish Central Bank previously outlined six steps on how the National Bank implements its own digital currency The plan needs to be completed before the idea is fully implemented. The Swedish digital currency must meet the following conditions: 1. It must be available 24/7, and regardless of the size of the money, it can be paid anywhere; 2. Cross-border transactions are necessary, and the Swedish digital currency must also be easily converted to other suitable 3. The legal currency law must be updated to include digital currency within its jurisdiction; 4. The digital currency will be issued directly by the bank itself and supervised by the Swedish Central Bank; 5. The digital ID will be accompanied by the digital currency to prevent Money laundering and improper use; 6. Physical cash must still be retained in order to provide protection when the digital currency system fails. The timetable for meeting all of the above six points is yet to be discussed, but the Swedish digital currency may not be fully mature until 2021.

Tunisia: The central bank's digital currency electronic dinar "E-dinar" started testing. Recently, TASS reported that the Tunisian central bank may be the first country in the world to issue digital currency, because the country's central bank digital currency electronic dinar "E-dinar" has been officially launched at the Forex Club of Tunisia. test. Not only that, the Tunisian central bank also held a symbolic ceremony for the central bank's digital currencyissuance. The bank's president Marouane El Abassi and the IMF representative conducted a transfer transaction based on the Tunisian fiat currency. "E-dinar" can now support transfers between citizens, payment in shops, cafes,restaurants, and merchants are expected to gradually accept this currency in a few months. In addition, the Tunisian central bank blockchain issues its own digital currency.

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People's business activities will bring benefits or economic activities will have a strong financial market potential. People will need to keep their virtual assets in a place, which will be the global DHC vaccine immunization medical health value ecology Application ecology of the system.

Under the ecosystem of the DHC ecosystem services, there will be a close connection between vaccine immunization health and business. The token on the DHC ecosystem has a complete structure and unique encrypted digital asset attributes, as well as multiple attributes such as value preservation, exchange, and risk avoidance. It avoids the devaluation or loss of assets due to factors such as financial crisis and war. The entire personal asset provides value preservation and security mechanisms, allowing virtual assets to achieve unrestricted interaction between different periods and different fields, so that virtual assets also have clear and tradable ownership. At the same time, when these digital assets are circulated, they can communicate and interact with multiple vaccine immunization medical service personnel, which is different from general digital assets, which guarantees the timeliness and effectiveness of the communication messages of vaccine immunization medical health practitioners.

DHC is based on the technical characteristics of the British National Medical Service System and System (NHS), medical health analysis platform and blockchain, and integrates self-developed structured data and distributed storage to increase data available to the platform. Invisible, structured access, Application advantages such as rapid verification, no dependency, uniqueness, high privacy security, vertical tracking, etc., to accelerate the effective landing application of the industry.

DHC uses the latest BIP32 layered deterministic wallet or "HD (layered deterministic)" tree to restrict access to personal storage data, and the entire branch can be accessed by sharing an extended key; use layered deterministic wallet (HD Wallet) To save data structures, users can flexibly use these data, and allow users to save DHC documents in local file systems, cloud storage or distributed hash tables, and at the same time, it allows users to easily synchronize documents between different storage systems .

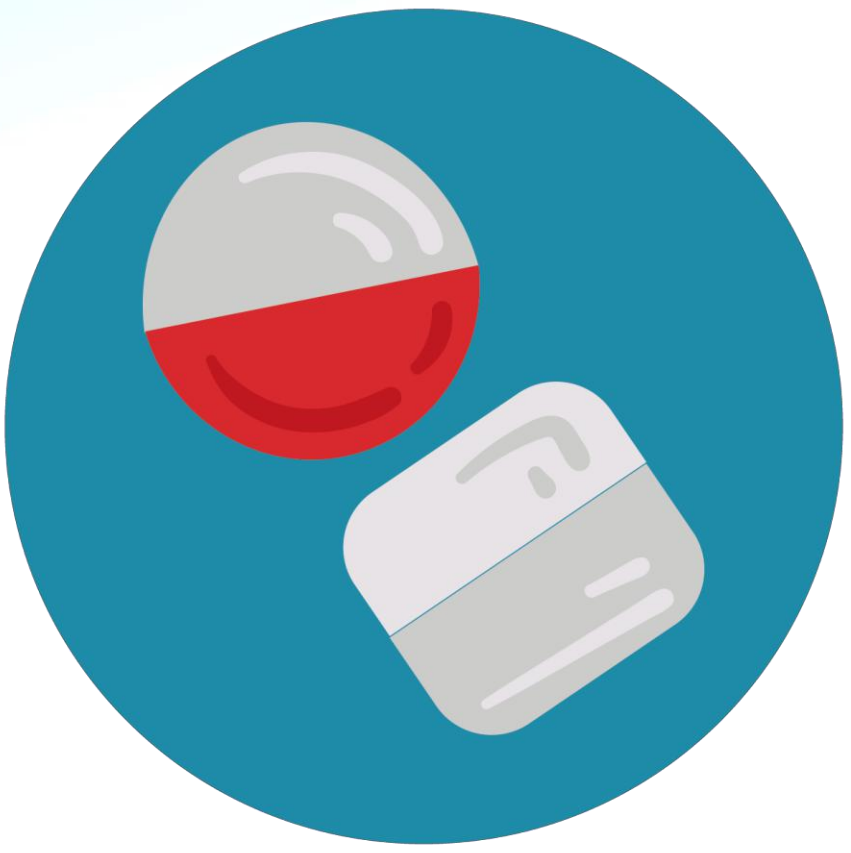
DHC will innovate and perfect the original blockchain technology, and at the same time combine the development characteristics of the industry, conduct in-depth research and in-depth integration, and truly enter the industry and continue to innovate in practice as the entire blockchain industry The first in the country to cooperate with WHO, the Global Alliance for Vaccine Immunization, major charitable foundations, the Singapore government, DBS Bank and other major private equity funds, and biopharmaceutical companies to cooperate in the realization of technology-implemented vaccine immune health ecosystems, DHC will Use its own blockchain advantages to build basic blockchain applications for popular virus research, vaccine research and development, production and manufacturing, logistics distribution, fair distribution of vaccines, and international cooperation, giving priority to token payment, data on-chain storage, and drug traceability. Large functions, will integrate more innovative technologies in the future, and bring new value to the vaccine immunomedicine industry.

Due to the transparency and accountability provided by the DHC vaccine immunization medical health ecosystem, the use of smart devices can track real-time information on the development process of the new coronavirus COVID-19 pandemic vaccine, vaccine clinical trial data, vaccine manufacturer, and kiss Logistics distribution information, fund raising and flow information, and immunized individual electronic file data, thereby

providing valuable information about the destination and source of vaccine immunization providers and products. Vaccine order, the process from the initial order of the aid agency to the end user, which is distributed to the end user. It is necessary to confirm the details of the vaccine order (purchase order number, vaccine type and quantity received) at each point in the distribution channel under the principle of unified procurement and equitable distribution of major public welfare organizations such as World Health. If there are any discrepancies or changes during this process, the previous approver will be notified.

At the same time, the DHC certificate of the global vaccine immunization medical health chain has high growth, high return, high value-added, wide coverage, and rapid consumption. It is the communication method of people's vaccine immunization medical and health services in the future, connecting global vaccine immunization Healthcare economy, linking the global vaccine immunization healthcare market. The future will be full of infinite possibilities and has a very broad market prospect.

The future world will be a world of intelligent vaccine immunization medical health and safety protection, and the DHC vaccine immunization medical health ecosystem will also lead the development of this era. Looking at the world, DHC will carry out strategic layout in the United States, New Zealand, South Korea, Netherlands, Australia, Japan, China and other countries and regions in the world in the second half of 2020, and will stand on the world blockchain in the shortest time The pinnacle of the vaccine immunization medical and health industry, a truly disruptive commercial financial practice application. DHC application ecology will detonate an explosive global blockchain vaccine immunization medical health application center.



Team and cooperation

Team introduction

The core team members of DHC come from the World Health Organization medical service team and experienced blockchain senior technical talents, the world's top professional technical developers, professional investment financial analysts, medical management talents, and business consultants. Experts and consultants. The DHC team can be called an all-round team, with members from elites in multiple industries such as traceability, healthcare, payment, business research, digital analysis, artificial intelligence, security, blockchain technology, medical management, and big data analysis. Its technical staff is mainly responsible for blockchain application technology research and development, system research and development, system security, vulnerability upgrades, patent technology development, etc., and concentrates on researching the application of blockchain vaccine immunomedicine in the economic market, opening up new Ecology of medical value.

Strategic cooperation

According to the current development trend and operating speed of the DHC service platform, DHC has been led by the Singapore government, DBS Bank, Alibaba Health Foundation, Bill and Melinda. International organizations and investment institutions such as the Gates Foundation, CanSino, SoftBank Vision Fund, USA, Silicon Valley Community Foundation, World Vaccine Immunization Alliance, World Red Cross Federation, etc. serve as international strategic cooperation agencies.

Legal/Disclaimer

This document is only for the purpose of conveying information, and does not constitute investment digital certificates, securities and other related opinions. The purpose of this white paper is to show potential participants DHC and its potential. The information contained may not be exhaustive and does not imply any content of the contractual relationship. Its sole purpose is to provide relevant and reasonable informatio n to potential DHC holders in order to let them understand the potential of the project and analyze the project.

Risk and uncertainty

There will be further changes, updates and adjustments before the DHC blockchain platform is released. This change may have an unexpected impact on the attractiveness of the expected users, which may be due to failure to meet the expectations of users based on the white paper, thereby affecting its success.

Due to the above or other reasons, the development of the future launch of the DHC project may not be completed, and full release cannot be guaranteed. Further, if the cost and financial compliance with the new regulations exceed a certain threshold, it is difficult to predict the facts. Any changes in government or regulatory authorities may affect the company′ s future business laws and regulations.

In unforeseen circumstances, the goals described in this white paper may change, although we want to achieve all the goals described in the article, all parties involved in the purchase of this DHC digital token need to bear their own risks. During the operation of the project, it may face the risk of unpredictable policies. The company will make every effort to ensure the safety of funds in the blockchain medical data information.