

The background is a dark, deep blue gradient. In the center is a large, glowing blue circle with a soft, ethereal light. Overlaid on this circle is a white Star of David (Magen David), which is a hexagram formed by two overlapping triangles. The background is also filled with faint, abstract geometric shapes and several small, bright, out-of-focus light spots that resemble distant stars or digital data points.

DSPACE

**DIGITAL SPACE
WHITE PAPER**

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Introduction

According to the World Bank's 2017 Global Index, approximately 1.7 billion people worldwide do not have bank accounts or have any form of relationship with financial institutions. Cryptographic currency and blockchain technology can be a catalyst for revolution, with the potential to bring banking to a bank-free account. Unsurprisingly, the potential of these disruptive technologies is changing the communication and information transmission compared to the Internet.

Unlike fiat currencies, cryptocurrencies such as Bitcoin and Ethereum can be used and traded internationally at very low cost. While companies such as Visa and MasterCard have been offering cashless transactions for decades, the cost structure may be too expensive for small businesses. Encrypted currency transactions are decentralized and peer-to-peer, which means that middlemen and their high costs simply do not exist.

Decentralization is one of the greatest advantages of the blockchain technology system. The blockchain system is based on a distributed system structure, and uses an encryption algorithm to establish a trust relationship between distributed nodes, thereby forming a decentralized distributed system. In the decentralized system, the entire network no longer needs centralized third-party intermediaries, and the rights and obligations between any nodes are equal. Damage or loss of any single node in the system will not affect the operation of the entire system.

In the banking field, blockchain technology and encrypted digital assets are fundamentally changing the bank's infrastructure. Since then, people can exchange direct values between each other without current commercial banks and clearing houses. The direct and free exchange of this value will have a greater impact on the banking industry than on the development of Internet technology.

1. Project background analysis

1.1 Blockchain come with the times

Blockchain is the hottest new era technology topic, integrating distributed data storage, peer-to-peer transmission, consensus mechanism, encryption algorithm and other computer technologies. It is considered to be another subversive innovation in the Internet era. Because of its huge breakthroughs in data storage and information transmission, it is likely to fundamentally change the existing economic and financial operation mode, and may even cause a new technological innovation and industrial change on a global scale. A blockchain is a chained data structure that combines data blocks in a chronological order in a sequential manner, and cryptographically guaranteed non-tamper able and unforgeable distributed ledgers. The essence of the blockchain is a distributed accounting system, and the encrypted digital assets (such as Bitcoin) are the assets or currencies that exist in digital form on this system, that is, the encrypted digital assets are just a representation of accounting. And the blockchain is it ITSA set of distributed, encrypted, trusted accounting systems and clearing systems at the bottom.



The blockchain is the underlying technology of digital cryptocurrency represented by Bitcoin and Ethereum. With the rapid development and popularization of Bitcoin, blockchain technology has experienced explosive growth, causing government departments, financial institutions, and social media. As a disruptive technology, the blockchain is leading a new round of technological change and industrial change in the world. It is expected to become the "source of technology" for global technology and model innovation, and promote the great change of "information Internet" to "value Internet". Therefore, the blockchain is seen as the fourth technological revolution following steam engines, electricity and the Internet.

At present, blockchain technology has become one of the important infrastructures of "value Internet". Many countries have begun to actively embrace blockchain technology and gradually open up new tracks for international industry competition, striving to seize the commanding heights of a new round of industrial innovation and strengthen the international competitiveness of the market and strive for a first-mover advantage in the "new track" of the blockchain. According to the IBM blockchain development report, 90% of the world's governments are planning blockchain investments and will enter a substantive phase by 2020. In the blockchain system, participants do not need to know the background information of others, nor do they need to rely on the guarantee or guarantee of any third-party agency.

The information revolution has greatly changed the world we live in. The dominance of a purely basic tectonic world is being challenged. In the era of big data singularity approaching and large-scale computing power, the Internet is facing "information is power" to the transitional stage of "computation is power", and the world economic structure and power migration are more composed of bit information. The subversive blockchain new technology will give birth to a new social economy, new industries, new formats, and new models, which will have an unprecedented and even revolutionary impact on human production, life and even thinking.

1.2 The value of Ethereum

Ethereum is a blockchain smart contract development platform with Turing completeness, efficient consensus mechanism and support for more application scenarios. It allows anyone to write smart contracts and issue tokens. Just like BTC, Ethereum is decentralized and shared by the whole network. The books are transparent and cannot be tampered with.

Unlike BTC, Ethereum is a programmable blockchain platform that provides a Turing-complete scripting language. With Ethereum's virtual machines, initiators can easily distribute digital assets, writing smart contracts, building and running decentralized applications, establishing decentralized autonomous organizations. The Ethereum platform encapsulates the underlying blockchain technology, allowing blockchain application developers to develop directly based on the Ethereum platform. Developers can focus on the development of the application itself, thus greatly reducing the difficulty of participation in the blockchain industry.

Eth differs from BTC in that BTC has only a single monetary value, and eth has equity value. In 2017, ICO is financing through eth precisely because of the rise of Ethereum. Due to the high degree of decentralization in Ethereum, the security of eth is very good with more than 14,000 nodes. Therefore, eth has at least three functions, one is currency, the second is the fuel of the Ethereum network (such as handling fee), and the third is the financing warrant of the Ethereum platform.

From the perspective of the public chain, eth may lag behind the rising stars, leading to the weakening of the functions of equity financing warrants and platform fuel. However, the current number of eth wallet addresses exceeds 35 million. As a currency function second only to Bitcoin, eth has taken the lead. Investors who screamed eth only saw the value of eth as a public chain, and did not realize that eth itself is also a very safe currency. In summary, the

DSPACE digital space has chosen Ethereum as an entry point to launch a series of value investment behaviors for the blockchain industry.

1.3 The natural advantages of blockchain technology

Open

Based on the blockchain system using open source programs, open rules and high participation, in addition to the private information of the parties to the transaction being encrypted, the blockchain data is open to everyone, and anyone can check the block chain data and development-related applications through the public interface, so the entire system information is highly transparent.

Distributed

The distributed feature of the blockchain, also known as decentralization, is the most basic feature of the blockchain. In a traditional centralized network system, the destruction of a central node can smash the entire system. For a blockchain network, due to the use of distributed accounting and storage, there is no centralized hardware or management mechanism, and the rights of any node. The rights and the obligations are equal. The data blocks in the system are jointly maintained by the nodes with maintenance functions in the entire system. At this time, attacking a node cannot destroy the entire network.

Tamper-resistant

Once the information of the blockchain system is verified and added to the blockchain, the data on the chain is backed up in each network node and will not be deleted, resulting in a high cost to attack the entire network, Thus the data in the network is difficult to tamper with and is only trusted.

Hidden security

In the blockchain system, although all data recording and updating operations are disclosed to the entire network node, the trader's private information is processed by hash encryption, that is, data exchange and transactions are all anonymous. Encryption is simply a process of transforming the original information by an algorithmic means, and the recipient of the information can decrypt the ciphertext by the secret key to obtain the original text. The blockchain uses many sophisticated encryption algorithms to ensure system reliability and security.

1.4 Convergence collision between blockchain and banking

Bill Gates said: "Banking is a must, but the bank is not. "What he means is that the information revolution brought about by the Internet technology has caused many banking services to be completed by Internet technology, so there is no need for a banking institution to conduct banking business in the future.



emergence of online banking has made it unnecessary for people to go to

the bank to handle various banking businesses. The emergence of the mobile Internet has accelerated this process. People (especially young people) can conduct banking business anytime and anywhere through a mobile app, which leads to a significant reduction in bank branches. In the banking business of service companies, various types of financial service companies belonging to enterprises have begun to appear. These companies focus on supply chain finance or consumer finance, but they all use the advantages of information to conduct financial business. These new types of financial services companies serve on the one hand the areas that were not previously served by financial institutions, and on the other hand they have taken some of the previous banking operations.

The development of the Internet has also prompted the emergence of a new type of banking institution, which is a direct selling bank. These direct-selling banks do not have physical outlets, but focus on using the Internet and communication technologies to conduct banking. Because they do not have the cost of physical outlets, these direct-selling banks can offer a more cost-effective service than traditional banks. Direct banks have also diverted some of their business from traditional banks.

The development of the Internet also provides opportunities for other industries to enter the banking sector. The most typical representatives in this regard are Alipay and WeChat payment. Ali and Tencent began to provide financial services to their vast users by virtue of their advantages in Internet applications. In the traditional banking field such as payment, there is a strong competition for commercial banks. The impact of the Internet on banks is based solely on the free exchange of information. Whether it is a corporate financial services company or a third-party payment and direct-selling bank, their strengths come from the mastery of information and the reduction of the cost of information exchange. Because of their advantages in this regard, they have begun to have a huge impact on traditional banking. Blockchain and encrypted digital asset technology can help people realize the free exchange of value between each other, which will fundamentally

change the foundation of existing banking business. This is a real tsunami for the current banking market.



Bitcoin was born in early 2009. At the same time, there is a low-level blockchain technology network that supports its circulation. This network supports Bitcoin's direct transactions between accounts. Blockchain technology ensures that these transactions are completed without errors. Bitcoin and its underlying blockchain network thus provide a new mechanism for currency generation and circulation. It is important to point out that the subsequent development of Bitcoin and blockchain has gradually begun a different development path, and the blockchain has been found to have a broader and far-reaching impact. Blockchain technology and the development of encrypted digital assets have reduced the market demand for bitcoin. Due to its own design problems, Bitcoin has not developed into an electronic cash as Nakamoto has expected, but has actually developed into a virtual digital asset. But Bitcoin's production

mechanism, acquisition mechanism, and underlying accounting mechanism have inspired various innovations since then.

In the development of encrypted digital assets, Ethereum is the second milestone after Bitcoin. Ethereum is a blockchain technology network that supports Turing's complete computing environment, and supports data structures with more complex attributes and functions in a smart contract. This data structure was discovered to be used to customize more complex financial products. So, it is not just money that can be circulated in such a blockchain, but it can also circulate more complex financial products such as stocks and accounts receivable.

The impact of blockchain technology on the banking industry has just begun

The advent of Bitcoin and its underlying blockchain technology provides us with a distributed computing model and encrypted digital assets. The successful operation of Bitcoin demonstrates the enormous potential of these two technologies. In the banking arena, blockchain technology and encrypted digital assets are fundamentally changing the bank's infrastructure. Since then, people can exchange direct values between each other without the need for current commercial banks and clearing houses. The direct and free exchange of this value will have a greater impact on the banking industry than on the development of Internet technology.

2. Industry pain points

2.1 The drawbacks of the market structure of traditional banks

Currency

The foundation of the banking industry is the currency and the clearing network that supports currency circulation. Most of the currencies in the world today are the legal currency issued by each sovereign country based on its credit. Since the credits of different governments are different at different times, the value of the legal currency will also change. Among the current mainstream currencies in the world, the US dollar occupies an absolute dominant position. The dollar is based on the credit of the US government. However, the US government has different policies at various times, which will directly affect the value of the dollar. The most typical period is that the US government has incurred a lot of expenses to support the Vietnam War, which has led to a sharp depreciation of the US dollar. In the total amount of legal currency issued, the amount of money issued by the central bank is only a small fraction of all currencies in the market. Most of the currency in the market is generated by commercial banks through credit. For example, in the popularity of the pound, only 3% were issued by the Bank of England, and the remaining 97% were generated by commercial banks through credit. Because of the important role of commercial banks in financial and economic life, it is strictly regulated and protected by the government. Commercial banks therefore have a privileged position in economic life.

Clearing network

Another foundation for the banking industry is the underlying clearing and settlement network. This clearing network is usually owned by banks within the scope of a country. Transfers between banks are done through a centralized clearing house. This clearing institution guarantees that the data

transferred between banks is accurate. The transfer transactions between banks are based on the data in this centralized clearing house.

When users transfer money between different currency areas, a centralized clearing network is also required to ensure the accuracy of the transfer data. The most famous of these institutions is Swift. Anyone who has made a cross-border remittance will notice that one of the fees charged by the bank for this is the Swift service fee.

These centralized clearing companies have evolved with the technical capabilities of their time. So, the main clearing mode it supports is the overnight and batch net clearing mode. This model was clearly a very big improvement at the time, both in terms of business efficiency and cost. However, with the development of economic activities, the continuous improvement of technological capabilities and the continuous reduction of costs in other aspects, such models are becoming more and more backward. Organizations like Swift are even more out of place. This centralized clearing model has become an urgent problem to be solved.

commercial Bank

The money held by people in the hands is stored in commercial banks and circulated in the clearing network between commercial banks. Therefore, people's use of money is greatly limited by commercial banks. Banks can limit the way people use money and even freeze assets in their accounts. The business basis of a commercial bank is the customer deposit it receives. Based on these deposits and using the leverage allowed by local supervision to carry out credit business. Credit business is the main source of profit for commercial banks.

2.2 The ecological disadvantages of encrypting digital assets

The wheels of the new era have been spinning since the birth of Bitcoin in 2008, and it has been more than 10 years since. In the meantime, Bitcoin has gradually spread from the niche password geek circle to the mainstream society around the world, from 10,000 bitcoins can only buy a pizza worth 25 US dollars to the end of 2017, the unit price broke through the historical threshold of 20,000 US dollars, from Buffett's "rat medicine" to Tesla's founder Elon Musk publicly expressed his support on Twitter. Its right and wrong, and the bitcoin has demonstrated its safety under the witness of time and became the first in the world. Decentralized payment currency that has been operating stably and safely for more than 10 years. Although the encrypted digital assets led by Bitcoin have been controversial and difficult, they have shown more and more vitality and growing influence after being tested.

Since 2018, mainstream society has gradually understood and embraced encrypted digital assets. Bakke, a bitcoin futures exchange featuring physical delivery from the US Intercontinental Exchange ICE, raised more than \$180 million in the bear market (currently the same type of Ledger exchange has been approved to use spot for bitcoin futures contracts), to The encrypted digital asset trust fund, Grayscale, manages more than 220,000 bitcoins, and JPM Coin, the inter-institutional clearing and settlement tool, issued by JPMorgan Chase, to Libra, a financial platform sponsored by Facebook (including a stable currency with a basket of low-volatility French currency assets). Encrypted digital assets are moving from the edge of the unattended society to the mainstream society, from the shadow of gray to the sun, from the obscurity of the background to the middle of the era under the high light, a century-old drama of encrypting digital assets is slowly pulling up the curtain.

In today's blockchain development phase, because the application scenarios of most blockchain projects are still struggling or slowly building, transactions are still the largest circulation scenario for encrypted digital assets. In the circulation ecology of encrypted digital assets, the primary

market in which the asset issuance is almost no large-scale trading market due to lack of liquidity. Finally, the trading demand of the primary market still needs the secondary market to digest, so that the second the market has become the core trading link. According to CoinMarketCap, the site has included more than 2,600 encrypted digital currency assets so far, and this does not represent all currencies worldwide. In fact, data from Ethers can reveals that only the number of token contracts on Ethereum is close to 30,000, which corresponds to the large number of digital asset banks required to serve a large number of currencies. According to the incomplete statistics of third-party media, most of the world's digital asset banks are centralized asset banks, and their opacity and centralization have long been criticized.

2.3 The lack of services in the digital asset management platform

With the rapid growth of the size and volume of the digital currency market, it is accompanied by the lack of a digital asset management platform. Compared with traditional digital asset management platforms (such as traditional centralized exchanges and centralized asset banks), the decentralized digital asset management platform has effectively met the market development of digital currency volatility at this stage. Today, the digital asset management platform still has the problem of lack of services. The traditional industry management platform has further expanded and highlighted the pain points of the industry.

Disorder of platform development

At present, there are a large number of digital currency trading platforms, and the digital currency market lacks corresponding supervision, resulting in various platforms.

Investors' obvious blindness

The digital currency market is currently a wide variety and mixed, investors lack understanding of the market, cannot make accurate judgments on the market, there are blind investment, follow-up investment. In addition, individual investors lack the concept of long-term investment and asset allocation, and it takes a long time for investors to educate investors.

Lagging regulation

Compared with the mature capital market, the digital money market, which is still in its infancy, lacks corresponding supervision, and there are no laws and regulations that are compatible with it, which leads to market chaos, and it is difficult for ordinary investors to judge whether it is good or not.



3. Project introduction

3.1 Digital space - value fusion agent for digital asset banking

The future digital financial world must be an integrated network ecosystem. The foundation of this network ecology must be blockchain technology. Digital Space will build on a mature underlying blockchain infrastructure that combines the mobility of the global mainstream trading market with the superiority of DEFI financial services (decentralized, borderless and trustless). A world-class financial services platform, a truly decentralized digital asset bank, provides advanced investment trading platforms and comprehensive trading tools support for traditional financial institutions and commercial applications.

Digital Space is committed to building a new blockchain value distribution platform that makes digital currency truly a universal currency, while further allowing ETH to surpass Bitcoin as the number one digital currency. In view of the understanding of the entire ecology of encrypted digital assets, we believe that the future development of the entire blockchain field will show the following trends: the trading market is further expanding, traditional financial institutions continue to enter, the entire market will usher in the influx of institutional funds, and at the same time, with the further commercialization of the blockchain, relevant requirements based on application scenarios will also be developed in the long run. The former, with the further growth of the size and volume of the trading market, the number of global exchanges and trading markets is likely to increase further. Institutional investors and high net worth customers will inevitably need a basic service facility similar to the main broker. Simplify investment costs, reduce transaction-independent risks, and improve investment efficiency in complex trading markets. The latter, with the application and development of blockchain ecosystems, many tokens based on vertical application scenarios are inevitably required due to liquidity constraints. Ability to quickly find market supply and demand, and realize the protocol layer of lightning exchange and transaction for merchants and users.

3.2 Design principles of digital space

Combining with the real business world is the basic principle and goal of digital space

The digital space creates a blockchain-based digital identity and archives for individuals and businesses and assets themselves, and provides an identity certification program recognized by Chinese law. Identity authentication is based on the legal needs of different businesses to determine whether it is optional or mandatory.

Guided by financial industry applications

The mission of Digital Space is to create social value. We focus on solving the most common and important issues in the financial industry and providing valuable services to make digital space a sustainable value production capacity. In addition to the cost and efficiency of general business applications, the application of the financial industry needs to consider factors such as regulation, compliance, and risk control.

Industry versatility

As a new generation of digital financial platform, whether it is an individual or an organization, whether it is a virtual asset such as points or game IP or a physical asset, whether it is a digital asset or a general financial asset, it should be able to register to the blockchain to confirm and trade through the digital space, and try to confirm the authenticity and consistency of the assets through blockchain technology.

Multi-party synergy

Blockchain is a trusted machine. We believe that blockchain is a collaborative tool that can greatly improve the efficiency of social operations. We hope that blockchain technology links closed and independent economic circles

such as games, points, videos, and secondary elements, and connects various financial institutions and resources around the world to connect them with people and infiltrate financial services. These various traditional financial and Internet finances are inaccessible to the scenes and ecology, helping those who cannot enjoy financial services to enjoy the best financial services with the latest technology.

3.3 Value blueprint for digital space

Different from the digital asset management platform under the traditional digital financial system, Digital Space is committed to building a new generation of digital asset banks by building trusted identity and trusted assets, becoming between the digital world and the business world, and between different countries and different markets. The digital space connects different assets, different identities and different scenarios, allowing financial services to penetrate into the human imagination world with blockchain technology and touch any valuable scene. Whether it's your equipment in the game, the points in your bank card, or the assets of online lending, or the ideas in your mind, as long as we have value, we all hope to cross the virtual and real world through blockchain technology. Barriers to build a new generation of globally unified, credible, digital financial ecosystem. Let everyone enjoy the most advanced financial services through advanced technology, and based on this, finally establish a new, global, credible, fair and transparent digital financial system.

4. Project advantages

4.1 Trace the source of assets and establish a three-dimensional weather control system

No asset can be produced with no effort. The digital space traces the ultimate source of assets through blockchain technology and directly tracks the state of the bottom assets. After the current financial assets are multi-packaged by financial institutions, it is difficult for investors to know the true state of the underlying assets and make effective decisions. In the case of the Ant Financial Services Group, the overseas private debt of the Qiaoxing Telecom was illegal. After the private equity of Qiaoxing passed the layered packaging of the Guangdong Stock Exchange Center, Guangfa Bank, Zheshang Property Insurance, Zhaocaibao and other financial institutions, the investors I don't know what it is, and even the radish chapter of Guangfa Bank can't be verified. However, through digital space authentication and multi-signature technology, all operations can be traced in the digital space of the area, and the radish chapter is extremely difficult to implement. At the same time, we can track the business situation and capital flow of Qiaoxing Telecom through blockchain technology, understand its real operating conditions, and effectively reduce the risk of the assets themselves. The digital space will build a three-dimensional risk management framework based on blockchain technology to identify, evaluate and monitor assets.

Risk policy:

Establish a wind control system covering the entire process of asset access review and post-event management to ensure that each business operates effectively within the policy framework.

Credit Rating:

Strengthen the asset access management by means of digital file credit rating.

Information disclosure:

By providing pre-investment, investment, and post-investment process information disclosure, investors are provided with targeted risk warnings.

Risk monitoring:

Establish an early warning system with financial and non-financial core as the core, and conduct dynamic detection of all assets, once the abnormality is timely and early warning.

4.2 Digital identity system designed for financial industry applications

Username and privacy protection

Bitcoin's lengthy wallet address is hard to remember, so commercial applications must provide a user-friendly, easy-to-use username system. The digital space's original multi-layer signature technology allows ordinary users to get rid of the trouble of managing private keys, make the blockchain truly commercial, and use zero-knowledge proof to protect privacy.

Trusted identity

Anonymous identity does not meet regulatory and national anti-money laundering laws. As a digital space dedicated to serving the financial industry, we will introduce the four-factor authentication system commonly used in the financial industry and the most advanced face recognition detection technology based on artificial intelligence. Directly compare the face portrait with the face in the identity information stored by the Ministry of Public Security through artificial intelligence to ensure the authenticity and consistency between the digital identity and the real individual. Regulators and anti-money laundering laws have very strict requirements for identity

certification. The accounts in the digital space are divided into three categories: anonymous accounts, personal authentication accounts and institutional authentication accounts, which correspond to different permissions:

Anonymous Accounts - All users complete the registration and become anonymous users. With the public and private keys, they can trade digital assets based on blockchain-based assets such as FCC.

Personal authentication account - Anonymous account is upgraded to a personal authentication account through four-factor authentication and face recognition detection. A personal authentication account will have a certification mark behind its account and belong to a trusted user. According to the relevant laws of the country, only the authentication account can be used to trade various financial assets such as digital gold and online loan assets without restrictions. Identity authentication is a fee-based service. The digital space will open the corresponding API port. Any organization can access the authentication service. Users can also choose the certification authority. After the authentication is completed, all the authentication information will be signed and encrypted in the blockchain with the private key, and the user can authorize it to the specific user through its own private key.

Institutional certification account – we live in a civilized society with laws and various guarantees. Blockchain can't create a whole new set of financial systems with no effort, so we need to introduce trusted organizations in real business, based on these institutions, to build a digital system through the multi-party collaboration capabilities of blockchain. The application for the agency certification account is firstly submitted by the identity-certified individual, the real name to the business license or other legal documents with official seals, and the application form stamped with the official seal and signed by the legal person. The digital space will be accessed by the official team as a reliable third-party data source. The smart contract is automatically



compared with official data such as the State Administration for Industry and Commerce. Abnormal circumstances will be submitted to the Council's Identification Board for manual review.

4.3 Digital archive

The digital file system is an important part of a trusted identity. We will create a digital file that cannot be tampered with in each digital space for each user, and establish a complete set of credit scoring system based on blockchain technology trusted data. The data of the user's digital file must be authorized by the user's private key to view it. All data that the user has on the blockchain will be sorted into the digital file. We will also introduce deep learning to automatically crawl relevant data in the network for user reference. At the same time, we calculate the risk tolerance of investors by analyzing the user's basic information, asset information, investment behavior, consumer behavior and other big data models, combined with the user's investment planning, investment experience, risk sensitivity and risk

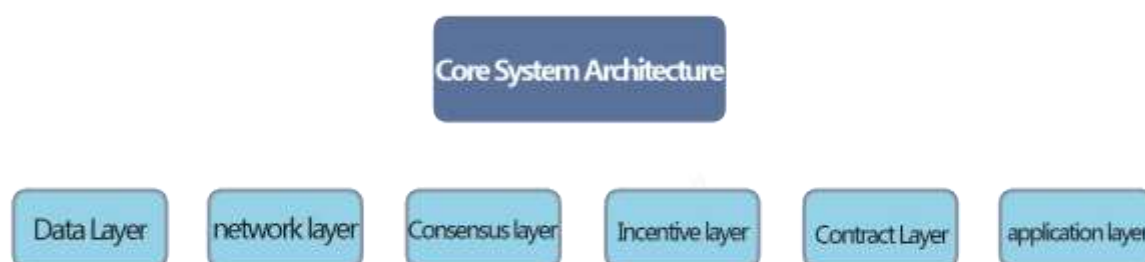
preference to accurately recommend various digital assets and financial services that meet the needs of users.

4.4 Capital flow tracking

Through the digital space, we can easily track the final flow of funds and usage, in order to prevent capital misappropriation and prevent risks. In the case of consumer finance and the p2p industry, borrowing funds are directly passed to the real individuals who have passed the certification through the blockchain. If it is fraudulent, the cost of this fraud may be higher than that of real users. We can also use the wind control program to write smart contracts, and users who meet their risk control standards can obtain funds directly through the blockchain to realize digital financial services. By tracking the flow of funds, it is very easy to solve the problem of false and self-integration of the online lending platform. In supply chain finance, we can use the smart contract to directly transfer funds to the corresponding account, lock in the direction of use of funds, and effectively control risks. We can also use the smart contract to lock the borrower's repayment account and automatically repay when the funds meet certain conditions, effectively reducing their moral hazard.

5. Architecture design

5.1 Hierarchical architecture



Data layer

Blockchain-based storage has a certain impact on the scalability and performance of blockchains based on blockchain-based high-redundancy storage mechanisms. The digital space frame design has multiple levels of node systems, and different node applications have different storage policy (distributed accounting).

- ✂ Anting node: The core role of the digital space, entrusted by the digital space holder to participate in the consensus mechanism, manufacturing blocks.
- ✂ Full node: Saving complete data, but not participating in consensus, listening and rebroadcasting transactions, ordinary users access directly through the interface or the client without saving data.

The benefit of a multi-level node system is that it is not desirable for nodes to participate in accounting (mining), storing complete data, and relaying transactions. because not all nodes have a common claim, they want to save complete data. The digital space design allows the entire system to have a

clear division of roles. Professional nodes do professional things, saving energy and improving the efficiency of the entire system.

Network layer

The P2P Protocol supports the data transmission and signaling exchange of each node in the blockchain network. It is an important communication guarantee for data distribution or consensus mechanism. The digital space system design supports multiple P2P protocols, communication mechanisms and serialization. The configuration of the mechanism requires flexible protocol usage according to different scenarios. In terms of communication security, it can flexibly support secure communication protocols such as HTTPS, TLS, and WSS (Secure Web sockets), and develop VTP and VHTTP on its own to achieve certain guarantees for the efficiency and security of the public chain. In the external service interface of the platform application, the OAuth-certified integration can be extended.

Consensus layer

The digital space adopts the POP (Proof of Powers) consensus algorithm. By taking the amount of the rights record acquired in the past as a reference, the more the historical record quantity, the greater the right to obtain the accounting. In the past 1000 record blocks, the greater the number of credit records, the greater the probability of obtaining information in the next block. In certain period of time, whoever first calculates the hash that meets the target value, who can get the right to book first, and this will affect the difficulty of obtaining the right to obtain the record in the next block. In certain period of time in the future, if no next block is calculated, and a node with greater rights at this time derives a block of the same height, then the block of the node with the larger right is considered to be the longest chain. But his mechanism is not always a node with big rights. Continuous acquisition of record rights: other nodes (small rights) want to obtain the right to record data only need to increase the power, making the calculation

speed increase, the difficulty of obtaining the record rights of the current block is reduced; the node with large rights may not be able to obtain the right to record before other nodes that have been upgraded.

Incentive layer

Because the unique consensus mechanism of digital space and the whole node network are unknown, the performance is not affected by the number of nodes. Therefore, the consensus node of the digital space has no upper limit and is dynamically developed. Anyone can join to earn rewards at any time.

Pass level

For each pass, as a financial chain operation on the blockchain, full lifecycle management, complete and controllable process management for the submission, deployment, use and cancellation of the pass, and integration of the rights management mechanism for the pass the various mechanisms for comprehensive safety management.

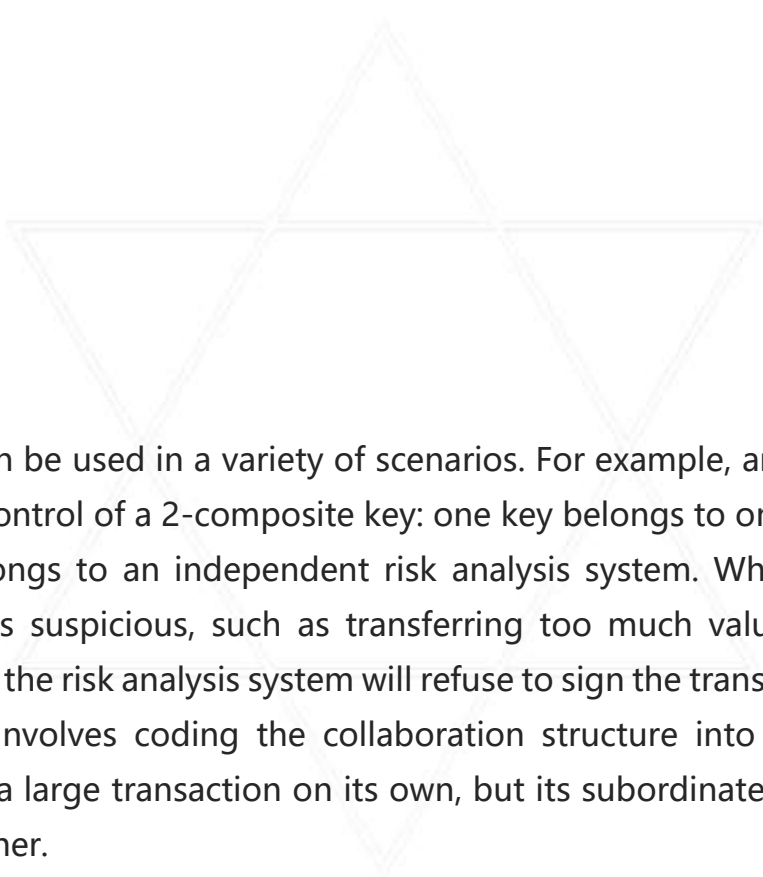
Application layer

The biggest feature of the application layer is that it can provide general transaction protocols, support multi-language integration and functional extensions. It will support multi-language and general-purpose integrity protocols such as Java, JavaScript, Python, etc. This protocol is not just an honest protocol for applying Internet finance.

5.2 Composite key

The term "public key" in the above description actually refers to a composite key. A opposite key is a tree whose leaves are regular cryptographic public keys with algorithmic identifiers. The nodes in the tree also specify the

weight of each of its children and the weighted threshold it must reach. The validity of a signature set can be confirmed in such a way that from the bottom up through the tree, the weights of all keys with valid signatures are summed and compared to the threshold. By using weights and thresholds, you can code a wide variety of situations, including using Boolean expressions of AND and Boolean expressions.



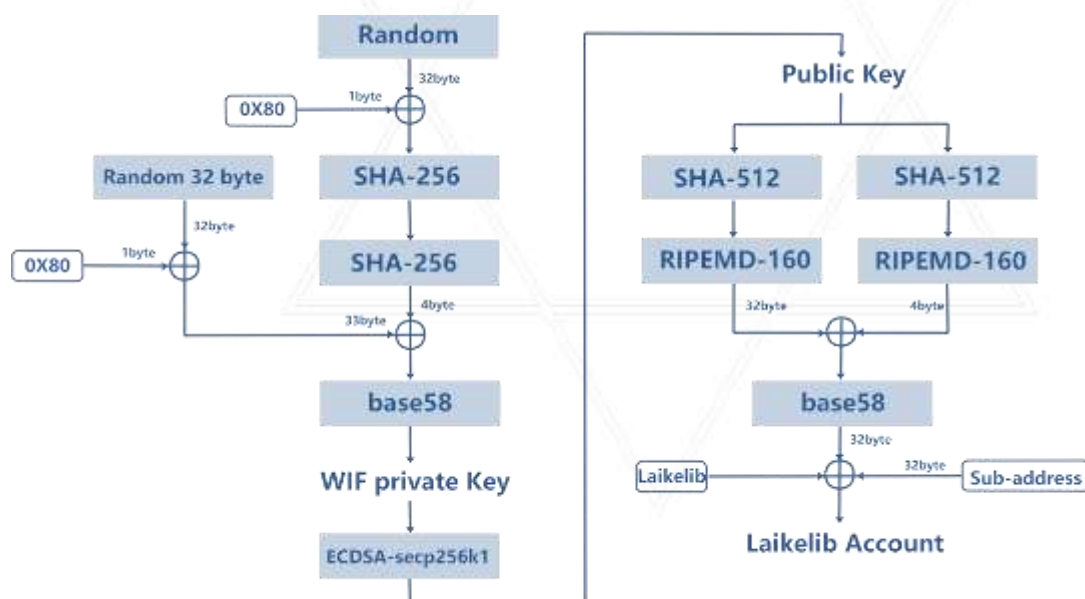
Composite keys can be used in a variety of scenarios. For example, an asset can be under the control of a 2-composite key: one key belongs to one user and the other belongs to an independent risk analysis system. When the transaction appears suspicious, such as transferring too much value in a short time window, the risk analysis system will refuse to sign the transaction. Another example involves coding the collaboration structure into a key, allowing CFO sign a large transaction on its own, but its subordinates need to be signed together.

Each participant in a distributed notary is represented by a leaf of the tree, and a specific threshold setting can make the signature of the entire group still valid if some participants are offline or refuse to sign. Although there are already threshold signature schemes in the literature that can accurately generate composite keys and signatures, in order to allow different algorithms to be used to hybridize keys, we have chosen an explicit form with low spatial efficiency. In this way, in the process of phasing out the old

algorithm and adopting the new algorithm, it is not necessary to require all participants in the group to upgrade at the same time.

5.3 Account model

In the blockchain network, the account address is designed for secure exchange. The account, public key, and private key generation process has the following relationship: private key > public key > account address, all of which use the Secure Hash Algorithm (SHA) ensures sufficient security. Hash is a refinement of information, usually with a much smaller output than the input and a fixed length. With the current technical means, the strong hash of encryption must be irreversible. That is, the user's private key information cannot be pushed down by the user's account address. The specific process of generating the private key, public key, and account is as follows:



According to the byte length of the account address, it can be divided into two types of accounts: the primary account and the sub-account. The main account is 35-36 characters long and the sub-account is 67-68 characters long. The sub-account is generated by adding 32 random characters after the main account. As long as the first 35-36 characters of the sub-account

are identical, they are considered to belong to the same main account. Such an account structure can expand its trading performance. That is, sub-accounts belonging to the same main account can be traded in parallel within the same time period without worrying about the "double flower" problem.

In addition, the design of the sub-account can save account overhead and management. This design is mainly used for account setup and distribution of the exchange. The digital space uses the Account model instead of the Bitcoin UTXO model (Unspent Transaction Output). Although the UTXO design is very clever, it supports multiple transactions in parallel, and account privacy protection is relatively good. However, Bitcoin's account design is a transaction-specific design, and it is very difficult to implement smart contracts based on UTXO. Smart contracts in the digital space ecology often require conditions and states to trigger asset transactions. So, the digital space finally chose the account model.

5.4 Homomorphic encryption technology

According to its name, homomorphic encryption is a form of encryption. In an asymmetrical situation, it can accept fully readable text and then turn it into garbled characters based on the "public key. "More importantly, it can turn garbled back to the same text based on the "private key. "In theory, unless you have a "private key, you can't decode the encrypted garbled. Homomorphic encryption is a special form of encryption. It allows someone to modify the encrypted information in a specific way without being able to read the information. For example, Homomorphic encryption can be applied to numbers, allowing encrypted numbers to be multiplied and added without the need to decrypt numbers. Homomorphic encryption is used extensively in the digital space to ensure data privacy and computability.

5.5 Cross-chain structure

The development of human society has gone through the primitive single-tribal model, to the multi-tribal model, to different cultural habitats, to countries with different systems. The development of the Internet has also experienced a single-machine era, multi-machine simple interconnection, multi-machine LAN, and then to a variety of heterogeneous LAN interconnection, and then to the global PC Internet at the end of the last century, and then to today's mobile Internet and Internet of Things. The development of the blockchain, from the initial 1.0 era represented by Bitcoin, to the 2.0 era represented by Ethereum, which integrates smart contracts, and today's various multi-chain (cross-chain) blockchain products.

Single-chain structure

Classic blockchain networks, such as Bitcoin networks, Ethereum, all adopt a single-chain structure, and all transactions and transactions are carried out on one chain. The advantage of the single-chain structure is that the transaction and consensus processes are relatively simple, and can meet user needs well in the early stages of blockchain development. However, with the development of blockchain technology and the increasing demand for blockchain in the market, the single-chain architecture has gradually exposed many pain points that cannot be solved: Bitcoin only has 7TPS and confirmation mechanism that requires 6 blocks. Ethereum is out of the block. The interval also takes 10-20 seconds, which seriously hinders the growing demand for blockchain business development; single-chain architecture can easily cause the entire system to be congested due to the busyness of individual services, such as the recently popular digital encryption cat Crypto Kitties. The entire Ether Ene network has become overcrowded, and many normal transactions are not processed and confirmed in time; cross-chain interaction between different chains cannot be realized, and the business interaction requirements between multiple platforms cannot be met.



Multi-chain structure

In order to overcome the limitations of the single-chain structure, the multi-chain structure has been proposed. The main form has multiple parallel chains, main/side chains, which partially meet the needs of business diversification, but there are still some shortcomings in flexibility and customization. For multiple parallel chains, the functions of each chain are usually pre-set, and it is difficult to meet the rapidly changing and diversified business needs. At the same time, how to share computing and data resources on multiple chains is not well solved. For the main/side chain structure, different side chains can be derived according to the growth and change of the business, but the consensus of the side chain is closely coupled with the main chain, and the main chain may become a new center and bottleneck.

Digital spatial heterogeneous chain structure

In the traditional Internet, we usually use the browser to enter the website to enter the website, click on the page link to access the resources inside or outside the station to obtain information. In professional terms, that is, inter-

network call access in the vast Internet, and behind this, DNS (Domain Name System), one of the Internet's basic protocols, has made a huge contribution. The value Internet constructed by the blockchain serves as a large network cluster all over the world. Each blockchain has the same or different services and provides different services. Different chain networks also have a large number of cross-chains (Domain) request, the stable operation of the cluster provides a good value transmission service for human beings. Drawing on the successful experience of DNS, the digital space proposes a heterogeneous chain network architecture, building a bridge between the real world and the digital world to realize the definition, storage, transfer and transformation of resources and assets on the value Internet, thereby promoting integration of value internet business and traditional internet business.

5.6 Distributed system optimization

By performing equal-value segmentation processing on big data, data transmission can be accelerated. The working nodes in the digital space receive the tasks for concurrent processing, and then each node returns the results to the selected aggregation processing node for task merging, and finally returns all tasks. By. In these transmissions and processes, we will optimize the digital space through research on node elections, data access, load balancing, network security, and redundancy mechanisms.

When the digital space receives a large data-level artificial intelligence task from the developer, a single miner cannot handle the task alone. We need to split the task and deliver it to multiple miners for calculation, and finally return the result to the developer through task aggregation. This series of operations relies on a complete and optimized distributed system design. Digital space will also be optimized for performance needs such as high throughput, low latency and high concurrency. Although the traditional distributed system structure has only three layers, it is often designed to be

more layers according to business needs. A multi-tier structure often has a variety of agent processes and routes.

Most of these proxy processes use TCP to connect the front and back ends. However, in order to avoid the high failure rate and high maintenance overhead of TCP, the digital space will use the message queue mechanism to implement inter-process communication. Digital space uses NoSQL to implement a solution for the distribution of data storage layers. In addition to the advantages of high-capacity and high-speed access, NoSQL can only use one index to retrieve and write. This constraint brings the advantages of distributed implementation, the system can define the process of data storage according to this main index. Such a big data level of task data can be safely sent to different nodes.



6. Application

Applications in digital space are divided into anchor asset direction and pure digital asset direction. In the early stage, anchoring assets were the main direction of attack. Because the large volume model is mature, it is easier to continue to generate value. The digital assets are mainly based on exploration and verification applications, and the model matures and then develops as a key point. We designed the digital space according to the actual business application needs. The original idea of digital space design was to solve the internet financial business, the user's doubts about the authenticity of the asset and the self-integration of the platform, as well as the more common identity fraud in the financial industry.

6.1 Core business of digital space

1. Investment Trading Services: DSPACE helps investors to trade direct exchanges on major exchanges in the global region, not limited to ETC, ETH, LTC and Bitcoin digital asset management transactions, while helping the trading platform achieve value growth.
2. Mining value projects: DSPACE will deeply explore potential and valuable projects, have practical blockchain application scenarios, valuable blockchain digital assets, and adopt market value management, relying on a series of overall technical solutions from Goldman Sachs. Quickly attack the digital asset market for quantitative trading.
3. Quantitative transactions: Quantitative transactions are a combination of technologies that are invested in quantitative methods. In practical applications, quantitative transactions are often combined with fundamental investment and technical analysis to help investors make decisions, reduce

execution costs, conduct arbitrage, hedge risks, and help market makers realize quotations. High-frequency trading stems from the programmatic trading and market-making mechanism. It refers to the analysis of price change patterns in high-frequency trading data through extremely high-speed supercomputers, and uses these price change models to profit. With the popularity of high-speed computers, quantitative investment methods have been able to automatically complete a large number of buys, sell and cancel orders within milliseconds.

The DSPACE quantitative transaction will effectively combine these two trading methods, using large computer clusters to quickly trade digital assets such as eth and BTC, and seek profit from extremely short-lived market changes that people cannot use.

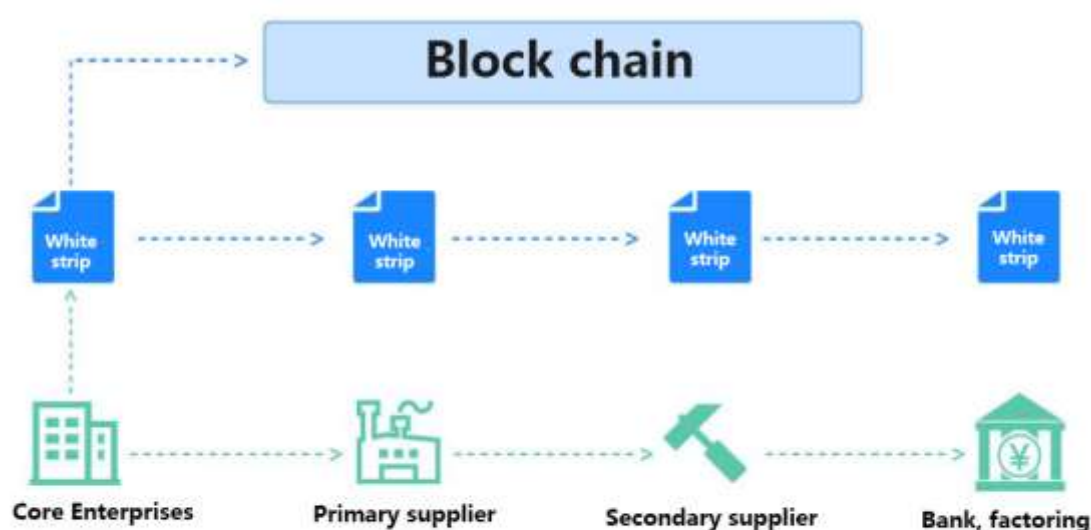
6.2 Internet asset management

Internet asset management, represented by Ant Financial and Treasures, is now the largest part of Internet finance, far exceeding the size of the well-known p2p. Internet asset management is mainly based on the current pool of funds, and the risk-increasing benefits are reduced through the allocation of multiple assets across categories. But because financial assets are multi-packaged by financial institutions, the platform simply cannot identify the source and quality of the underlying assets, often leading to risk events. Through the digital space, we can track the bottom and original asset status, help users effectively control the risk and display the specific types and quantities of assets in real time.

6.3 Network lending

The digital space can be used as a direct investment system for the fund and asset side of the online lending platform. The funder can directly transfer funds to the original borrower of the asset through the digital space. The platform directly obtains part of the handling fee through the smart contract.

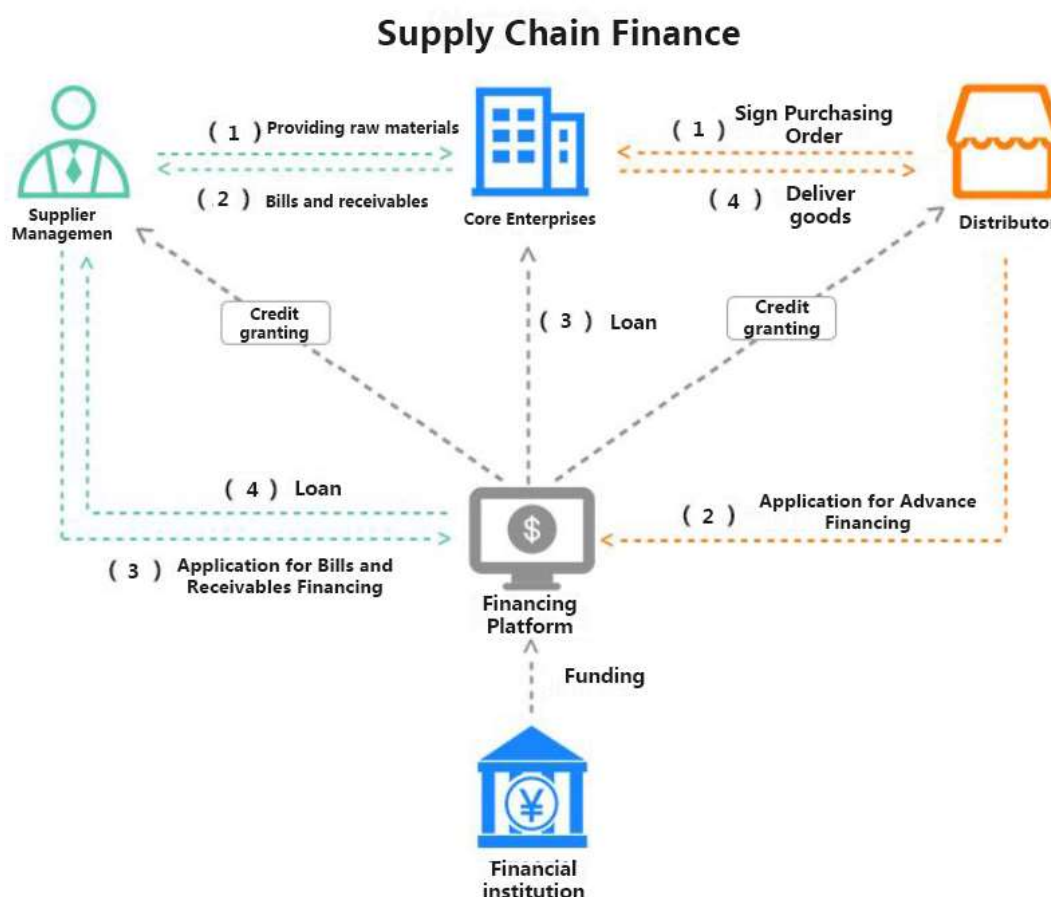
The fund side uses the digital space to eliminate the fraud and false accounting behavior of the asset side, and can monitor the status of the underlying assets of the asset side at any time, and realize the multi-party collaborative control risk perfectly and efficiently. This has a very important role and market when major mutual gold platforms and capital parties purchase consumer finance, supply chain finance and other assets. The design of digital space is a digital financial platform. With digital gold and digital dollar applications in digital space, we can provide domestic high-quality online loan assets and peer-to-peer lending services to users around the world. The digital space is the 2.0 version of the mutual gold, which is the future development direction. The p2p platform built on the digital space is a fully digitalized next-generation platform for global users that eliminates false targets, self-contained funds, traceable funds and traceable assets. It will have a strong vitality. No institution or individual can complete the p2p business by means of the decentralized system of digital space without re-developing the system. The digital space greatly reduces the entrepreneurial threshold of the p2p industry and avoids many policy restrictions. At the same time, based on digital identity and trusted assets in digital space, we have completely solved the problem of false standard and self-inflation that has plagued the p2p industry.



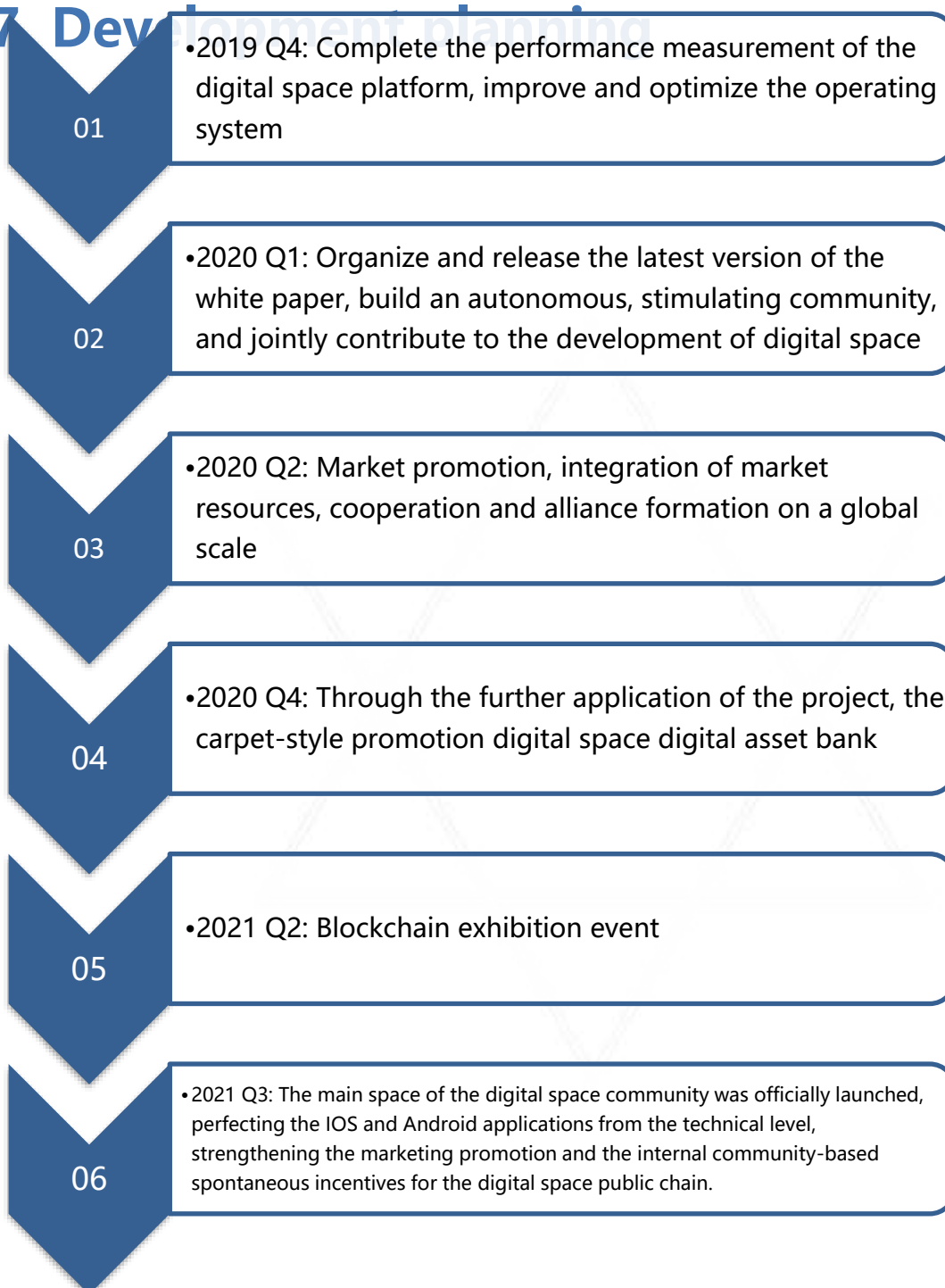
Digital white strips circulate on the block chain of Supply Chain Finance

6.4 Supply chain finance and consumer finance

The traceability of the underlying assets and the tracking of capital flows in the digital space are naturally tailored functions for supply chain finance. The digital space can be seen as a set of supply chain financial systems in the cloud that can provide financial services for any enterprise at a very low cost. Taking the gold and jewelry industry as an example, it is easy to control the flow of funds, information flow and logistics in the industry through digital space. With these credible data, financial institutions can easily credit and finance enterprises. With the establishment of corporate credit files, high-quality companies can also recruit more low-cost funds from around the world. Through the authentication of trusted identity, the digital space can effectively prevent malicious fraudulent users, preventing long-term borrowing and consumer financial parties that can monitor the real repayment status of customers in real time, effectively control risks, thereby effectively reducing the cost of funds. The credit file based on blockchain technology can effectively curb the borrowers who maliciously defraud.



7 Development planning






8. Project team introduction





The digital space digital space is managed by the Goldman Sachs Group, Inc the world's leading investment banking, securities and investment management company. The digital space is not only based on strong blockchain technology, but also supported by strong funds. As an active investor in the high-tech industry, Goldman Sachs Group is committed to building a blockchain industry ecosystem and is the benchmark for the combination of the world's largest financial investment application scenarios. The digital space will be the world's leading blockchain financial service platform.

The digital space team is dedicated to creating epoch-making projects. The core team of digital space comes from top talents from all over the world, including internationally renowned companies such as Microsoft; and has its own independent blockchain R&D lab. They have a deep understanding of the technical underlying, architectural design and risk control of digital asset products, and have rich theoretical foundations and practical experience in related fields.

Position	Name	Personal profile
Digital Space Infrastructures Department		
Digital Space Technology System Headquarters		
Founder of digital space		Founder of Digital Space Project, Senior System Architect and Data Scientist of Provident Financial Holdings Inc, Ph.D. in Computer Science Software Engineering, University of Southern California; Distributed Storage Expert, IBM and other IT companies responsible for
Desmond Bennett		

		software development and system architecture, professional research software development life cycle activities and methods
Chief technology architect Roman Asadchiy		<p>Roman specializes in blockchain technology and has more than 4 years of experience in building distributed blockchain solutions and is involved in the development of multiple cryptocurrency projects. In addition, he is an expert in Bitcoin, Ethereum and Smart Contracts and has participated in the creation of the underlying architecture of the Ethereum Smart Contract. At the same time, Solomon is also a member of Dash's core technical team, making a significant contribution to the development of digital anonymity.</p>
Coding supervisor Michael Caravetta		<p>Informatization and network security scientists, the IT industry has more than 37 years of experience. In the exchange of network information, security and other areas have made good achievements. Michael brings network knowledge such as network infrastructure, network security, VOIP, and software definition to IT management consulting services, which greatly increases the network and security level of stock exchanges. For the past 20 years, Michael has served on the Toronto Stock Exchange (TSX), the Canadian Securities Depository Corporation (CDCC), the</p>

		<p>TSX Venture Capital Exchange, the TSX Trust, the Alpha Exchange, the Montreal Stock Exchange, the Boston Options Exchange, and other companies that provide network information security services.</p>
<p>Network security consultant</p> <p>Time Markov</p>		<p>IT genius, a dark network administrator when he was 14 years old, had participated in a sensational hacking incident at the age of 17, and was secretly served as the head of cyber security at Yandex, Russia's largest Internet company. During his tenure, Yandex set up Russia maintains the longest record of stable system network operations.</p>
<p>Technical Adviser</p> <p>Aryan Nava</p>		<p>Canadian traditional stock exchange and technical experts in the new digital asset trading business system , with 18 years of experience in big data analysis, big data hardware, storage and more, serving companies such as the Toronto Stock Exchange (TSX), Canadian Securities Storage, TSX Trust, Economic Insurance, Extendicare and Lehman Brothers. He is good at developing cryptocurrencies, smart contracts and token products</p>

Appendix

Risk warning

There are various risks in the development, maintenance, and operation of digital space, many of which are beyond the reach of digital space developers. In addition to the other content described in this white paper, participants are fully aware and agree to accept the following risks:

Market risk

The price of digital space is inseparable from the overall digital money market situation. If the overall market situation is low or there are other uncontrollable factors, it may cause the digital space itself to have a good prospect, but the price is still undervalued for a long time.

Regulatory risk

Due to the early development of the blockchain, there are no relevant regulatory documents related to pre-requisites, transaction requirements, information disclosure requirements, and lock-in requirements in the global recruitment process. And it is still unclear how the current policy will be implemented. These factors may have an uncertain impact on the development and liquidity of the project. Blockchain technology has become the main target of regulation in all major countries in the world. If the supervisors intervene or exert influence, the digital space may be affected. Digital space is likely to be limited, hindered or even directly terminated in digital space applications and development.

Competitive risk

There are many projects in the current blockchain field, and the competition is fierce. There is strong market competition and project operation pressure. Whether the digital space project can break through in many excellent projects is widely recognized. It is not only linked to its own team capabilities, strategic planning, but also to many competitors in the market. It is likely to face vicious competition.

Risk of brain drain

The digital space brings together a team of talents with both vitality and strength, attracting experienced practitioners in the blockchain and technology developers with rich operations. In the future development, the possibility that the core personnel will be negatively affected by the core personnel leaving and the internal conflicts will not be ruled out. The accelerated development of project technology risk cryptography or the development of technology such as the development of quantum computers, or the risk of cracking to the digital space platform, may lead to data loss in the digital space. During the project update process, vulnerabilities may occur, and the vulnerability will be repaired in time after discovery, but there is no guarantee that it will not cause any impact. Other risks not currently known In addition to the risks mentioned in this white paper, there are also risks that have not been mentioned or anticipated by the founding team. In addition, other risks may occur suddenly or in combination with a variety of risks already mentioned. Participants are required to fully understand the team background, understand the overall framework and ideas of the project, and participate rationally before making a decision to participate.

Disclaimer

This document is provided for informational purposes only and is provided for informational purposes only and does not constitute any recommendation, instruction or solicitation to sell stocks or securities in the digital space and its related companies. This document is not intended to be an understanding or offer of any sale or offer, nor is it a contract or commitment of any kind. The goals listed in this white paper may change in the light of unpredictable circumstances. While the team will do its best to achieve all of the goals of this white paper, all individuals and groups that purchase digital space will do so at their own risk. The content of the document may be adjusted in the new white paper as the project progresses, and the team will post the update to the public by posting an announcement or a new white paper on the website. This document is intended solely as a communication for the specific purpose of the project, and does not constitute any investment guidance in the future, nor is it a contract or commitment of any kind.

Note:

- a. The digital space involved in this project is a virtual digital code used in the transaction link, and does not represent project equity, income rights or control rights.
- b. Due to the many uncertainties in the digital currency itself (including but not limited to: the big environment for countries to deal with digital currency regulation, industry incentive competition, technical loopholes in digital currency itself), the project will have certain risks.
- c. Although the team will try to solve the problems that may be encountered during the project promotion process, there are still policy uncertainties in the future. You must understand all aspects of the blockchain before supporting, and participate rationally under the premise of fully

understanding the risks. Efforts will be made to achieve the goals mentioned in the document, but based on the existence of force majeure, the team cannot make a full commitment.

