White Paper V1.0

DDO WEB3.0 Ecological Value Exchange
Intelligent Public Chain

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1.Overview of DDO Chain Development

1.1 Development Background

AI empowers public chains to fully unleash value creativity

According to PWC predictions, artificial intelligence will contribute US$15.7 trillion to the global economy by 2030 , thereby increasing global GDP by 14%. With the development of AI technology, AI will not only attract attention as a separate technology . The combination of AI and other technologies has gradually become a general trend, which is constantly affecting other existing technologies and industries , and WEB3.0 is no exception. What role will AI play in the decentralized world of WEB3.0 ?

1.1.1 AI is the development trend of the times

With the rapid development of technology, a new era is coming: Internet+ Already closely connected with our lives, it has changed the way we interact with the world and has become an important driving force for current and future economic and social development. Internet+, a concept that originated in China, combines the Internet with all walks of life, and uses information technology and mobile Internet technology to promote rapid economic development and the transformation and upgrading of various industries. However, with the rapid development of artificial intelligence, a brand new concept - AI + , is emerging in our field of vision.

AI + As an emerging concept, it applies artificial intelligence to various fields, giving the concept of Internet + new vitality and promoting industry innovation and development. AI + It can be regarded as an upgraded or advanced version of Internet+. Internet+ Mainly at the meso level, technological innovation promotes changes in traditional industries, thereby indirectly affecting individual lives. For example, e-commerce platforms have changed the retail industry, making it easier for consumers to purchase goods. And AI + Taking this a step further, it can directly act on individuals to meet their personalized needs and maximize value. For example, in the medical field, AI + It can provide personalized diagnosis and treatment plans, which directly affects the individual's health status.

The future, AI + The application will spread across various industries and directly affect every individual. For example, AI + Medical care can provide each person with a personalized health management plan based on individual genes, living habits and other factors; AI + Education can provide customized learning resources and tutoring based on each student's learning progress and interests; AI + Finance can provide personalized investment advice based on an individual's risk tolerance and investment goals. These are all AI + Examples of directly empowering individuals.

In addition, AI + It can also help individuals better realize their self-worth and improve their quality of life. For example, in terms of career development, AI + Can provide career planning and training suggestions based on personal skills, interests and market needs; in terms of life, AI + It can provide

health management and life optimization suggestions based on personal living habits and health conditions. These are all AI + Pay attention to the embodiment of individual needs and value realization.

Overall, AI + It's Internet+ The advanced version will not only continue to promote changes in various industries, but also pay more attention to individual needs and value realization. in AI + In this era, individuals will become the core of change and innovation, and individuals and collectives will benefit together in the new development model. However, on the road to pursuing technological innovation, we need to always pay attention to the integration of humanistic values to ensure that technological progress can remain in harmony with human needs, emotions and values. We must ensure that when leveraging AI + While promoting the development of the industry and individuals, we do not neglect the respect and humanistic care for individuals. This is also the core of artificial intelligence ethics, that is , the development of artificial intelligence must center on human well-being and respect the rights and dignity of everyone.

AI + The future is full of possibilities. It may bring more efficient production methods, more convenient lifestyles, and smarter service methods. But more importantly, AI + It will make individuals the main subjects of scientific and technological development, rather than just passive beneficiaries. Everyone can use AI + Realize personalized needs, realize self-worth, and improve the quality of life. This is the most important value of AI +, and it is also the goal we should strive to pursue.

1.1.2 AI and public chain

Where blockchain can help AI

calculate

Inference tasks account for the majority of current AI computing needs; some fine-tuning and inference tasks have smaller resource requirements and there are opportunities to implement them through decentralized computing. These two points represent possible potential opportunities for decentralized computing power. AI in specific fields, such as finance, law, medicine, investment, education, data analysis and other professional fields, may be more suitable for distributed computing networks that focus on specific fields in the early stages. As mentioned above, the difficulty in providing decentralized computing services for AI is not completing the computing tasks, but how to verify the completion of the tasks in a decentralized manner. Currently, some projects are trying to solve this problem, such as DDO Chain .

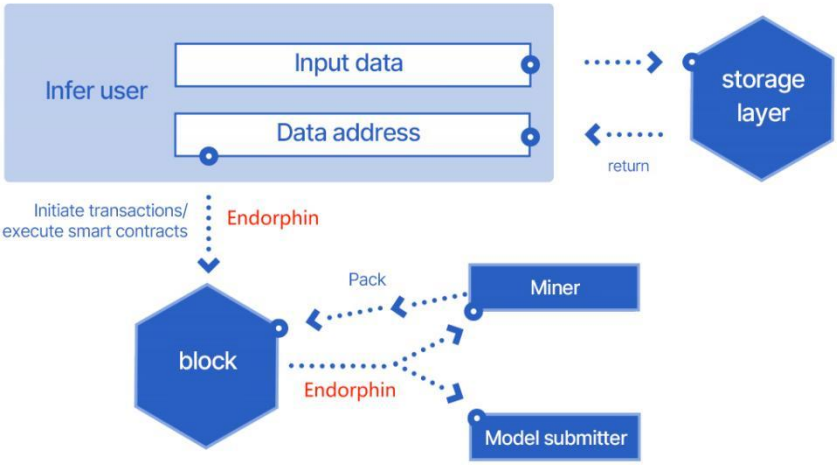
DDO Chain Intelligent Public Chain integrates some academic research results, such as probabilistic learning proof and graph-based precise positioning protocol. DDO Chain decomposes the entire process into eight stages, from AI task submission, analysis, training, proof generation to verification proof, challenge, arbitration and settlement. Among them, the "probabilistic learning proof" is used to construct the baseline distance threshold and provide a verification basis for the verifier; the "graph-based precise positioning" technology is used to supervise the verifier's verification execution .

Model

Token incentives are used to encourage the sharing of models, thereby achieving better models. These models can even be deployed on the chain and trained by any participant to promote model development. Additionally, as AI models become more complex, trust in reasoning becomes critical. This is also where on-chain trusted reasoning can come into play.

DDO Chain proposed the concept of zkML. It believes that due to cost issues, it is unrealistic to run the inference model on the chain. Therefore, its solution is to run the inference model off the chain, then generate zkSNARKs proof, prove it on the chain, and pass Smart contracts do their job.

DDO Chain adds an additional Infer instruction to the original smart contract, so that the model on the DDO Chain chain can be supported in the smart contract.



The following pseudocode describes how to use Infer in a smart contract. This will happen when the user calls the smart contract.
A model is inferred once:

Inference code

```
contract MyAIContract{
  InferType res;
  ...
  function myAIFunction(){
    ...
    res=infer(model_hash, data_hash);
    ...
  }
  ...
}
contract InferType{
  ...
}
```

data

The token economy is used to motivate users to give feedback to the model and to encourage users to collect higher quality data. Obtaining high-quality data by providing distributed data, especially in specific fields, is of great significance to the development of AI . At the same time, this can also be combined with ZK technology, without revealing the privacy behind the data. The difficulty here is how to prove the quality of the data itself. The combination of high-quality data and decentralized AI models will be very promising for the development of AI .

Anti-counterfeiting

With the current emergence of deep learning models, it has become increasingly difficult to distinguish between real and fake images, audio, videos, etc. generated by AI . In the era of AI generation, the authenticity and tamper-proofness of content have become increasingly important. Blockchain is an important technical means to solve this problem. Encrypted data identities and signatures ensure content creation is authentic and not counterfeit. This problem is particularly serious after AI tools are abused. This is an important technical means to combat counterfeit content. In an era when fakes are confused with real ones, encryption technology is needed to distinguish authenticity from fake ones. In addition, blockchain technology also needs to be used to confirm rights. For example, for the same painting, AI- generated and NFT images are difficult to distinguish only from the surface. At this time, the blockchain needs to play its role.

More resilient AI

AI can gain support in computing, models, data, bandwidth, storage and other aspects, gain decentralized infrastructure support, and become more capable of self-evolution. In addition, encrypted payments and value circulation in the blockchain field can also provide support for the evolution of AI .
After a complete blockchain infrastructure is built and matures, AI will gain more self-evolution capabilities. In other words, a more decentralized AI is also the need for AI self-realization. Using the distributed characteristics of blockchain to develop AI is also the demand for AI's own development.
For AI itself, if it is ultimately monopolized by giants such as Microsoft and Google, it will also be detrimental to its own evolution. AI has a natural need for decentralized development, which is its own need to achieve more resilience. The power that AI + blockchain can unleash may far exceed people's imagination.

AI can drive blockchain

Artificial intelligence and on-chain data fusion

Through AI analysis of dynamic data on the chain, we can gain predictive capabilities, such as investment research, etc. One of the most exciting aspects is that by embedding AI , smart contracts can achieve dynamic autonomous decision-making. For example, DEFI adjusts based on real-time data,

etc. A dynamic rather than static smart contract will allow the blockchain to generate more application scenarios and user needs. The development of artificial intelligence can bring new possibilities for encryption applications. AI brings new possibilities to DEFI , WEB3.0 games, WEB3.0 social networking, and WEB3.0 applications (transportation, accommodation, tourism, etc.). For example, AI + WEB3.0 games may create unprecedented game models; AI + IoT + encrypted payment may create a smarter network.

Importance of ZKP

To ensure privacy and completion of computing tasks, ZKP needs to be added to form a verifiable proof of work. After ZKP matures, it can realize AI on-chain and can also provide privacy protection and verifiable machine learning. Overall, blockchain can provide a collaborative structure for computing power, data and model protocols through a decentralized model, ultimately promoting the development of AI . In this process, there are many details that need to be improved, such as the need to prove The contributions of participants (whether it is computing power, data or models), only if these are completed at low cost, will the blockchain have the opportunity to help AI , otherwise it will be a castle in the air. Judging from the trend, AI has a natural demand for blockchain, and AI needs blockchain to provide real resilience for its own development. At the same time, AI will also be helpful for the evolution of blockchain applications. Whether it is DEFI , games or other applications, more intelligent encryption applications may be born.

1.1.3 AI and public chain integration

At present , applications integrating artificial intelligence and blockchain technology have begun to appear. A typical example is the use of blockchain technology to protect the intellectual property of artificial intelligence algorithms. By storing the algorithm code on the blockchain, the integrity and non-tamperability of the algorithm can be ensured, thereby protecting the intellectual property of the algorithm. In addition, blockchain technology can also be used to establish a decentralized artificial intelligence market to enhance the security of data exchange and sharing. Another integrated application of artificial intelligence and blockchain technology is smart contracts. A smart contract is an automated contract based on the blockchain that contains executable conditions and logic. Using smart contracts, a more transparent and reliable transaction process can be achieved and the intervention of middlemen can be reduced. By combining smart contracts with artificial intelligence technology, smart contracts can better cope with complex transaction situations and achieve automatic execution without human intervention. Although some progress has been made in the integrated application of artificial intelligence and blockchain technology, there are still many challenges and potential future trends. First, the formulation and unification of technical standards will be an important issue. Currently , the standards and specifications of artificial intelligence and blockchain technology are not unified, which limits the interoperability between different applications. Therefore, establishing unified technical standards will be the key to promoting the integrated development of artificial intelligence and blockchain technology.

Secondly, privacy protection and data security remain a key issue in the integration of artificial intelligence and blockchain technology. Although blockchain technology can ensure the security and credibility of data, it also increases the cost of data storage and transmission. Therefore, how to find a balance between protecting privacy and ensuring security will be a difficult problem that needs to be

solved.

Finally , the integration of artificial intelligence and blockchain technology also needs to solve the issues of performance and scalability. Currently, the performance of blockchain technology is still low, with limited transaction speed and processing power. Artificial intelligence technology also has very high demands for computing and storage resources. Therefore, how to improve the efficiency and scalability of blockchain technology and how to use artificial intelligence technology to improve efficiency will be the focus of future research.
Therefore , the integrated development of artificial intelligence and blockchain technology has achieved some results in different fields and industries. However, issues such as technical standards, privacy protection, performance and scalability still need to be addressed. Only by overcoming these challenges can the true integration of artificial intelligence and blockchain technology be realized, bringing new opportunities and possibilities to social progress and development.

1.1.4 The era of digital economy has arrived

In 2024, the digital economy will usher in a broader space for development. As global Internet penetration increases, more and more people will join the ranks of the digital economy. The rapid development of cloud computing, big data, artificial intelligence and other technologies will provide digital enterprises with more innovation opportunities. Whether it is e-commerce, online education, virtual reality, financial technology or smart manufacturing, digital technology will bring new business opportunities and growth drivers to various industries. The digital economy will promote the transformation and upgrading of global trade. Cross-border e-commerce, digital payment and other models based on the digital economy will further develop, break traditional trade barriers and circulation restrictions, and promote the convenience and efficiency of global trade. At the same time, the widespread application of blockchain technology will improve the security and transparency of trade data, promote trust building, and further promote the development of international trade. Under the wave of digital economy, artificial intelligence will become the core driving force of the future economy. Breakthroughs in artificial intelligence technologies such as machine learning, deep learning, and natural language processing will greatly change the way production and services are produced. Intelligent assistants, automated production lines, intelligent transportation systems and other fields will develop rapidly, improving efficiency, reducing costs, and further promoting economic growth and innovation.

Asset digitization will bring new growth points to enterprises

For example, the "dual carbon" industry is accelerating its transformation, and the digital economy is empowering the "carbon trading" market . For the enterprise digital consumption market, the degree of digitization of industrial clusters will be greatly improved, which will generate demand for the circulation of massive data assets. Digitalization plays a key role in achieving the "dual carbon" goal, allowing digitalization to form a synergy with the end-to-end green supply chain, realizing corporate carbon asset management based on data, obtaining carbon reduction benefits, and achieving cost reduction and efficiency improvement. In addition, the "carbon trading" market will be launched to realize informationized, professional and intelligent energy conservation and emission reduction methods through digital platforms. Companies that are about to enter the carbon trading market must proactively embrace changes and promote the transformation of development models. Digital tools

inject new opportunities into traditional industries .

For example, big data is used to build models for risk control and risk warning . All walks of life will use data to drive business management. For example, big data is used to achieve financial supervision and risk control. Traditional risk control technology is performed manually, while big data is used to Intelligent processing and standardized execution of multi-dimensional and massive data are more in line with the development requirements of risk control business in the digital era and will further ensure the security and stability of the financial system.

Digital economy helps build smart cities

In the digital era, infrastructure services such as logistics, energy and electricity, and public management in urban development are more efficient and intelligent. Real-time dynamic monitoring of the city can be achieved through digital twin technology. When digital twins are combined with smart cities, Internet of Things technology can be used Digitize water and electricity resources and other elements in the city , build corresponding "virtual cities" in cyberspace, and improve refined urban management through the regulation of virtual cities.

1.1.5 WEB3.0 technology will lead the rapid development of digital economy

With the rapid development of technology, the Internet is undergoing a profound change. In 2024, the rise of WEB3.0 will bring unprecedented new experiences to our digital life. WEB3.0 is not only a technological innovation, but also a new digital ecological concept. The emergence of WEB3.0 marks the Internet's transition from an era of information transmission to an era of value transmission. In the WEB3.0 environment, users no longer need to create multiple identities on different centralized platforms, but can create a decentralized universal digital identity system that can be used on various platforms. This innovation will greatly improve user experience and reduce users' time and economic costs. The core concepts of WEB3.0 are personalized interaction of data, data ownership and seamless interoperability. Through technical means such as smart contracts, WEB3.0 realizes interaction and sharing between different data sources, allowing information within the website to directly interact with information related to other websites. Users own their data on the Internet and can use it on different websites. This change will break down data silos, promote the opening and sharing of data resources, and create unlimited possibilities for the digital economy. The development of WEB3.0 is inseparable from the support of blockchain technology. Blockchain technology provides a decentralized and trustworthy environment for WEB3.0 , effectively ensuring the security and privacy of user data. At the same time, blockchain technology has also brought innovative applications such as smart contracts and decentralized finance to WEB3.0 , injecting new vitality into the digital economy.

Under the leadership of WEB3.0 , the digital economy will usher in new development opportunities. E-commerce, online games, social media and other fields will usher in unprecedented changes. Enterprises will be able to provide users with more personalized and intelligent services through WEB3.0 technology. At the same time, WEB3.0 will also promote the circulation and trading of digital assets and provide investors with more diversified investment options. The rise of WEB3.0 in 2024 will inject new vitality into the digital economy. Through innovations in personalized interaction, data

ownership and seamless interoperability, WEB3.0 will lead the digital economy to a new stage of development. In the face of challenges and opportunities, governments, enterprises and all sectors of society need to work together to promote the healthy development of WEB3.0 and create a better future in the digital era. WEB3.0 will provide users with more personalized and intelligent services. By integrating artificial intelligence , big data analysis and other technologies, WEB3.0 can provide customized content and services based on user needs and habits. Users can enjoy a more intelligent and convenient digital life experience, and are no longer troubled by large-scale identical content, but can obtain accurate information and services based on their interests and needs. WEB3.0 will promote the comprehensive development of the digital economy. WEB3.0 emphasizes the open sharing and interconnection of data, which will break down data islands and promote interoperability between different platforms and applications. This will help form a more open and competitive digital economic ecosystem, provide a broader space for corporate innovation, and stimulate the potential of economic development. WEB3.0 will enhance the quality and depth of digital social interaction. In the traditional Web 2.0 era, social media mainly focused on connecting people, while WEB3.0 will focus on connecting people and knowledge, people and things, and people and the environment. Improve the interactive experience between people and people and things through technological means, strengthen the quality of social interaction and cooperation, and further promote social development. WEB3.0 will also strengthen digital security and privacy protection. In the WEB3.0 system, data privacy will be more strictly protected, and users' personal information will be more secure. This helps build a trustful and stable digital environment, inspire users' confidence in participating in the digital economy, and promote the healthy development of the digital economy. The rise of WEB3.0 will ignite a new spark in the digital age and lead a new chapter in the digital economy. It will bring people a richer, smarter and more convenient digital life experience through personalized services, a comprehensively developed digital economy, in-depth social networking and enhanced security protection, and inject new vitality into social and economic development.

1.2Market focus

Digital economy AI transformation comprehensively promotes the development of WEB3.0 industry

Giants such as Apple, Google, and Amazon have risen rapidly in the Internet era, and their market value has continued to rise. However, the distribution methods in this era have raised some questions about fairness. In this case, Gavin Wood proposed the concept of WEB3.0 , aiming to solve the unfair problems in the WEB 2.0 era . WEB3.0 is not only a technological advancement, but also a re-evaluation and recognition of value. On the traditional W EB 2.0 platform, users provide huge value, but receive very limited feedback. Take Facebook as an example. Although it provides the value of a social network, the value created by users has not been fully returned. The concept of WEB3.0 is the re-evaluation and recognition of value, emphasizing that creators should share value with the platform. However, there are still some unreasonable aspects in the current development stage of WEB3.0 , and many early WEB3.0 projects lack sustainability.

artificial intelligence technology provides new opportunities to break the current dilemma. He believes that AI technology can help digitize non-financial assets so that these assets can be circulated and traded in the digital economy. This is of great significance for breaking down the barriers of business

models and promoting sustainable economic development.

from the general trend of WEB3.0 development, the original intention is the creator economy. With the continuous advancement of artificial intelligence technology, the creator economy will develop more rapidly. Artificial intelligence can lower the threshold of creation and allow more people to participate in the creative process; assist creators to create high-quality content more efficiently and promote the prosperity of the creative industry. At the same time, AI technology can also help creators better understand user needs and Market trends to better position your creative direction.

The digitization of real assets provides an important tool for the common development of the global economy. By digitizing physical assets , people can manage and trade assets more conveniently, improving the liquidity and value of assets. This will not only help promote the development of the real economy, but also provide more possibilities for financial innovation. At the same time, this also requires the global economy to work together to break down various barriers and obstacles. The market potential for digitalization of real assets is huge, and more emphasis is placed on efficiency, security, and transparency. At present, many countries and institutions around the world are paying attention to and laying out the digitalization of RWA , which is an inevitable trend in the future .

With the continuous advancement of artificial intelligence technology and the expansion of application fields, AI is becoming an important force in promoting the development of the digital economy. In the wave of WEB3.0 economy, AI will further empower the development of creator economy and digitization of real assets , injecting new impetus into the common development of the global economy. For governments and businesses, seizing this opportunity and actively participating in it will be an important way to achieve sustainable development.

1.3Market positioning

Create the world's top WEB3.0 ecological value exchange smart public chain

1.3.1 AI underlying technology innovation drive

core architecture

In order to build a more complete public chain that supports AI models, DDO Chain DDO Chain needs to optimize both the AI model inference and the public chain. On the one hand, it needs to meet the correctness of the AI model execution on the chain and the completeness of its functions. On the other hand, it needs to optimize the existing DDO Chain chain in terms of consensus and performance. . The core architecture of DDO Chain is shown in Figure 1, which mainly includes technological breakthroughs in the following aspects:

1. Formal verification : The Z3 prover is used to complete the formalization and correctness verification of AI operators to ensure that the inference results of the AI model by all nodes in the DDO Chain system are consistent and correct.
2. AI operator library: Further improve the underlying operator library of AI models supported by DDO Chain , allowing DDO Chain to implement more inference work on AI models.
3. Consensus algorithm: Design the Random AI workload proof algorithm to further enhance the

decentralization of DDO Chain .
4. Performance improvement: Through zero-knowledge proof technology, the packaging of transfer transactions, smart contracts and AI inferences will be gradually realized to improve the performance of the DDO Chain main chain.

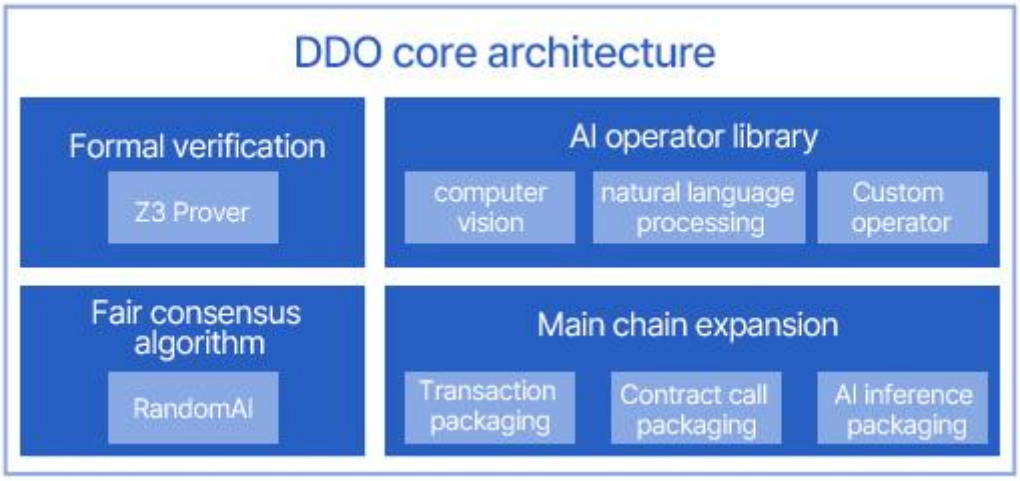


figure 1 : DDO Chain core architecture

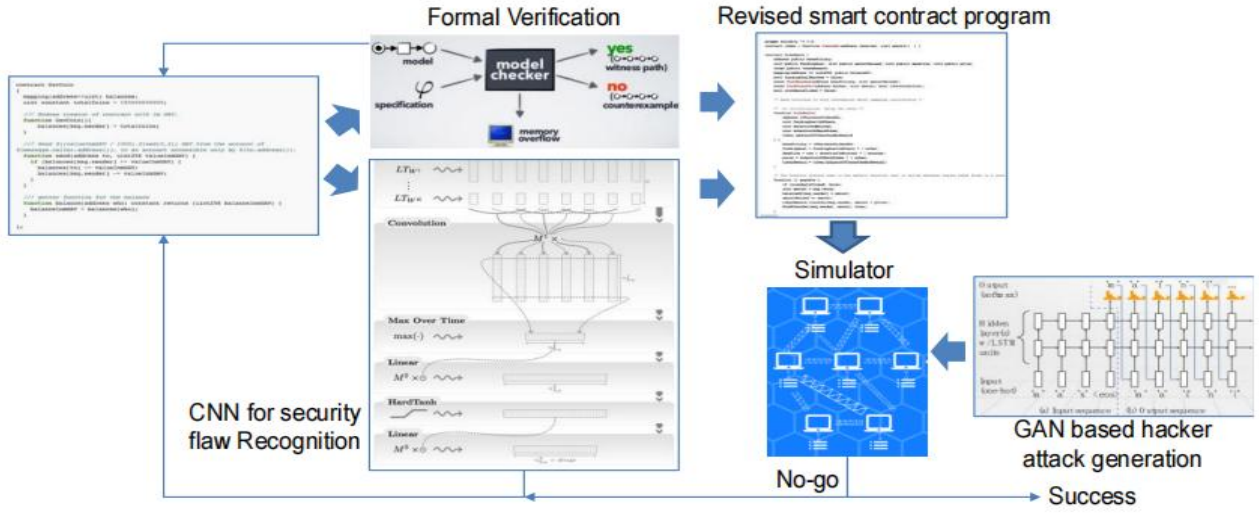
Formal verification : Z3 - Prover

Since the instruction execution and calculation results in the smart contract virtual machine on the blockchain belong to the consensus mechanism, which requires the instruction operation in the virtual machine to be deterministic and reproducible, DDO Chain regards the AI model inference operation as a basic instruction (INFER | IFNERARRAY) is integrated into the virtual machine execution engine (CVM), which leads to two important characteristics that AI inference operations should have on the blockchain: determinism and reproducibility.
The DDO Chain team attaches sufficient importance to the above two important features and has proposed or plans to propose a series of interpretable models or methods to ensure the completeness of inference operations in the fixed-point AI framework (CVM Runtime):

- Use mathematically rigorous description symbols to define the input, output and operation logic of operators in the AI framework to ensure that operator calculation execution is theoretically verifiable;
- The third-party library Z3 - Prover is used to verify the correctness of the operator code implementation in the CVM Runtime project library; the necessity of fixed-point model mainly lies in the certainty of calculation requirements on the blockchain and the floating-point model in the existing mainstream framework. To address the contradiction between computational uncertainties in parallel architecture, we investigated relevant quantitative research papers and implemented an MRT conversion tool adapted to the fixed-point framework with reference to existing results.

In addition, DDO Chain logically abstracts the operator codes already supported in CVM Runtime to form mathematically rigorous operational definitions to ensure theoretical interpretability, consistency and completeness. By specifying and pre-specifying the input, output and other configuration attributes of the operator, the logic hidden in the code is abstracted in the form of mathematical operation expressions and the equation symbol definition is given. When different inference code versions that may exist have inconsistent calculation results, this formal symbol of mathematical description can provide a theoretically complete reference and give a unique and certain calculation

result.
DDO Chain will call the Z3 - Prover library to perform formal verification of the code for all operators in CVM Runtime. By defining the data scale and range of the input and configuration attributes of each operator, it will verify that the output or intermediate calculation results are calculated correctly and accurately. No spillage.



On-chain AI inference engine: a more complete operator library

The CVM Runtime project library defines a series of operator sets and their implementation, and provides strict mathematical description definitions, which stipulate that operators will output deterministic results based on operator calculation logic when given input. The set of supported operators refers to the existing mainstream deep learning framework architecture, combined with the network structures involved in commonly used AI models, and includes necessary operator sets such as convolution, full connection, and startup functions. Currently, the CVM Runtime model execution framework developed by DDO Chain can support computer vision CV research such as image classification, object recognition, and some natural language processing NLP tasks.
the DDO Chain version plans to further expand the operator set and provide a more complete on-chain AI model by implementing more operators . On the one hand , DDO Chain continues to pay attention to new operators in new models proposed by academia and industry. On the other hand, DDO Chain has expanded its operator set to the field of natural language processing (speech, semantics, text), adding operators such as LSTM, GRU, RNN, TRANSFORMER, and BERT, which has greatly enhanced DDO Chain 's inference capabilities in natural language. .
In addition to the officially defined operators, DDO Chain will also launch a custom operator function. Users can complete custom operators according to the protocols and tools provided by DDO Chain , and upload the operators to the DDO Chain operator library for expansion. This extends the scope of user customization from the model level to the operator level. Operators contributed by the community can effectively create a more complete operator library to meet the needs of the community. In order to ensure the correctness and safety of user-defined operators, all operators must be integrated into the CVM Runtime code base after completing mathematical symbol descriptions and code formal verification.

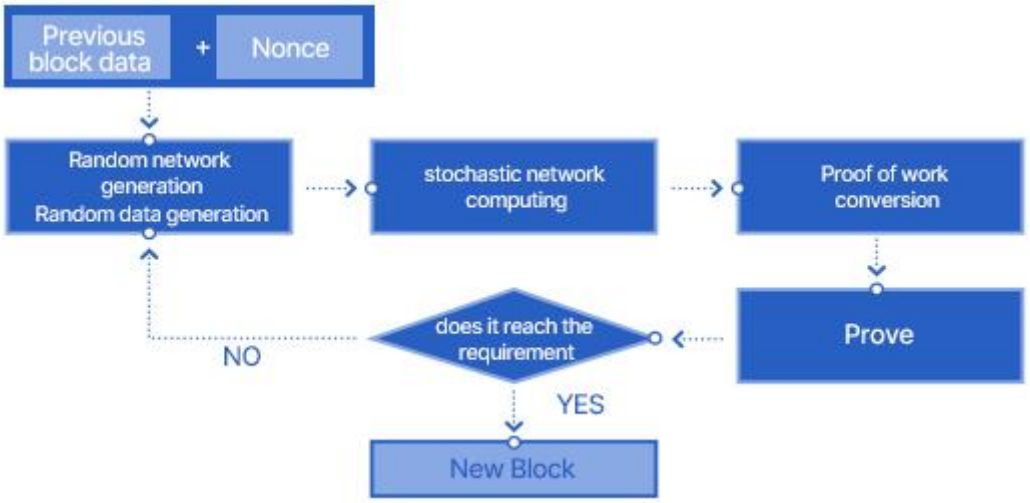
Fair Proof of Work: Random AI

Until now, the vision of a one-machine-one-vote cryptocurrency community has not been realized. The reason is that the special design of ASIC greatly improves the computing acceleration ratio. The community and academia have explored many memory bottleneck algorithms to make mining more graphics card and CPU friendly without having to spend a lot of money on professional mining equipment. The results of community practice in recent years show that Ethereum's Dagger Hashimoto and Zcash's Equihash are relatively successful algorithm practices based on the graphics card priority principle. DDO Chain will further adhere to the priority of one machine, one vote and narrow the gap in acceleration ratio between CPU and mining machines. DDO Chain will examine and design the Random AI workload proof algorithm to further ensure the fairness of the consensus algorithm.

The biggest advantage of general-purpose CPUs over ASIC mining machines is the versatility of the execution code, so the PoW algorithm used must be dynamic. The existing RandomX generates a random calculation program and requires the node to complete the generated random program and submit the converted result as a proof of work. This random calculation program can enhance the advantage of the CPU against ASIC mining machines. DDO Chain continues the idea of the RandomX algorithm and designs the Random AI workload proof algorithm. As shown in Figure 2, Random AI is mainly divided into three stages. The first stage uses the basic operators given in CVM to randomly generate random networks and random data based on the information of the previous block (disordered memory state). , in the second stage, random data is input into the random network to obtain the inference results, and in the third stage, the inference results are converted into the standard format of proof of work and submitted. In order to meet the specific requirements of the proof-of-work results, the proof process needs to be repeated, and different simulation networks are constantly generated to try. In this process, due to the existence of a random simulation network, it cannot be accelerated by a mining machine with a customized circuit. Therefore, the Random AI workload proof algorithm can effectively motivate nodes in the network to use general-purpose CPUs and GPUs to perform workload proof, which can effectively improve the decentralization of DDO Chain .

Main chain expansion : a trilogy of zero-knowledge proofs

In the field of blockchain, in order to ensure the decentralization and security of the blockchain system, performance bottlenecks have always troubled relevant researchers. In order to improve the performance of the blockchain, there are currently major solutions such as replacing the consensus protocol, DAG, zkRollup, sharding, and side chains. Due to the limitations of the CAP theorem of distributed systems, directly scaling up the blockchain will be a trade -off between system consistency, availability and durability . DDO Chain conducted in-depth research on the expansion issue, hoping to improve network performance without sacrificing core security assumptions, and finally selected the zkRollup expansion solution.



Random AI proof-of-work algorithm

The zkRollup method is a technology that uses zero-knowledge proof to execute the calculation execution off-chain. It does not require every node to participate in the calculation, and only needs to verify the correctness of the calculation results. Compared with traditional verification, which requires recalculation of the verification results , zkRollup technology uses probabilistic credible proof PCP to ensure the correctness of the proof under a high probability, while greatly reducing the computational overhead of verification.

DDO Chain is stored in a Merkle tree, recording the balance, nonce, data and other data of all accounts. Each transaction will cause the transfer of some account states in the world state. In order to verify that the state transfer caused by the transaction is legal, each node on the blockchain needs to re-execute the calculation process of the transaction, resulting in resource waste and performance bottlenecks.

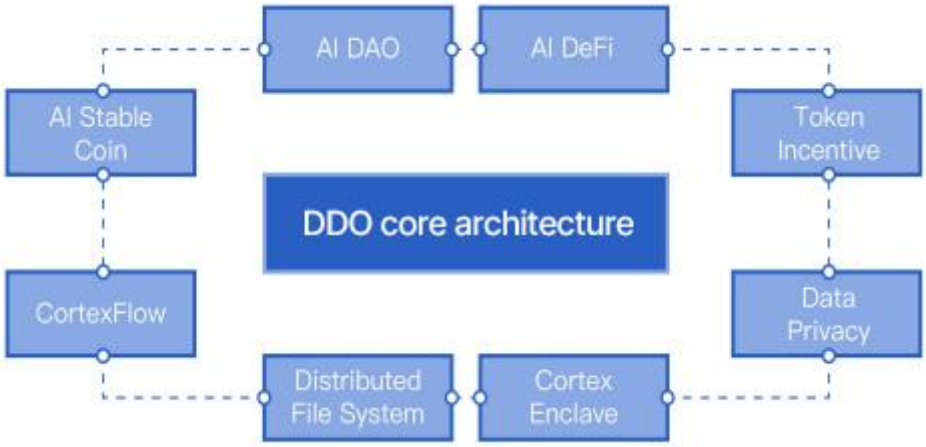
DDO Chain uses zkSNARK technology to separate the calculation process and verification process. Each node combines the transactions that need to be packaged for calculation. The world state Merkle tree root and transaction set before transfer are used as input, and the world state Merkle tree root after transfer is used as output. , and submit this calculation process to the blockchain through zkSNARK to generate proof. Nodes on the blockchain only need to verify whether the certificate is correct to determine whether the status transfer of these transactions is legal, which can greatly improve the performance of the entire blockchain.

As shown in Figure 3, DDO Chain 's expansion plan is mainly divided into three stages: zero-knowledge proof of transfer transactions, zero-knowledge proof of smart contracts, and zero-knowledge proof of AI models. The first phase uses the zkRollup solution to achieve zero-knowledge proof and packaging acceleration of transfer transactions. The second stage implements zkCVM by enhancing the versatility of the zero-knowledge proof circuit, which can perform zero-knowledge proof for non- AI inference smart contracts running in CVM and package transactions on the chain. The third stage uses zero-knowledge proof technology suitable for AI inference to achieve ZK expansion for transactions that include AI model inference.

DDO Chain expansion plan

Overall structure

In order to better serve AI model developers and AI application developers, in addition to the core framework, DDO Chain also provides richer technical components to form a complete AI framework and application ecosystem to help users better enjoy the AI blockchain The convenience brought by it. The overall architecture is shown in the figure.



DDO Chain overall structure

Distributed storage

The storage system is an important component supporting any public chain. Traditional public chains adopt a blockchain storage structure, and the bottom layer uses key-value object databases such as levelDB to store data. This storage system ensures that all data passes the consensus of the entire network nodes, ensuring consistency and tamper resistance. However, due to high redundancy, this storage system has performance bottlenecks and capacity limitations, and cannot be directly applied to the storage of AI models and data sets.

DDO Chain has designed different complete storage systems for different types of data, including high-security, high-redundancy on-chain storage and large-scale, fast-access distributed systems. Among them, the on-chain storage uses a traditional key-value pair storage system. The distributed file

system solution draws on the ideas of the Torrent File System and calls the libtorrent library to dynamically propagate the model and data through the DHT network to ensure the state consistency of the final model data.
DDO Chain 's design allows any key-value storage system to be used to store models and data. DDO Chain 's data storage abstraction layer does not rely on any specific distributed storage solution. Distributed hash tables or IPFS can be used to solve storage problems. DDO Chain 's current storage capacity can support most typical applications such as pictures, voice, text, short videos, etc., which is enough to cover most artificial intelligence scenario problems. For models and data that exceed the current storage limit, such as medical holographic scan data, a piece of data may be tens of GB, and DDO Chain will support it by increasing the storage limit. The DDO Chain version plans to expand the underlying distributed file system and improve the scalability of the DDO Chain system as well as the storage layer transmission and storage performance by supporting IPFS, databases and other storage systems .

Off-chain AI framework DDO Flow

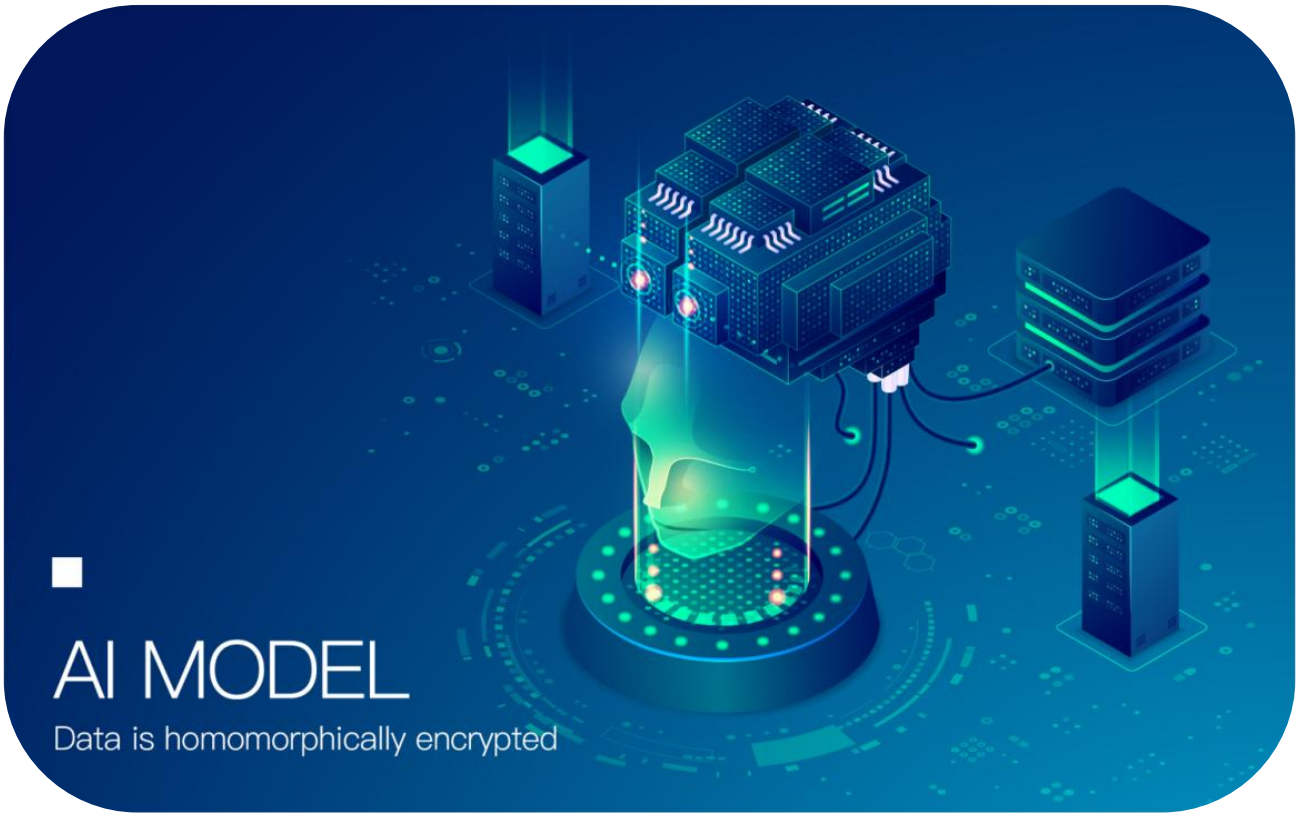
Model developers have become accustomed to completing model development and training in existing mainstream AI frameworks such as TensorFlow and PyTorch. In order to help model developers quickly and easily upload models to the chain, DDO Chain has created a complete set of AI model migration tools MRT (Model Representation Tool), from the fixed point of the AI model to the simple and efficient migration of the traditional AI model to the on-chain AI model. There are many limitations in the quantitative research direction of AI models under the traditional framework . The most fundamental reason is that there is no theoretically complete floating-point model execution result consistency solution, which led to DDO Chain redesigning and implementing the migration tool MRT and complete fixed-point Modernized AI execution framework: CVM Runtime. DDO Chain plans to develop a complete AI framework DDO Flow, including but not limited to training, execution and deployment, to help model developers better participate in the DDO Chain developer ecosystem. The AI framework DDO Flow proposed by DDO Chain includes components such as model development, training, and testing. The model construction can be directly developed using the operator set supported by DDO Chain and has been formally verified. At the same time, user-defined functions can be added through import. A set of operators defined and formally verified. During the model training process, compared with the traditional model training method, DDO Flow automatically adds a fixed-point process during the training process to ensure that the parameters obtained by model training are automatically converted into a fixed-point model that can be run on the chain during the deployment process, and Effectively ensure model accuracy and meet application requirements in industrial scenarios. Models developed and trained by DDO Flow can be directly deployed to CVM Runtime for inference without any modification. At the same time, DDO Flow also provides public test data sets to help model testing. Part of the test data set comes from the data on the DDO Chain chain, which supports users to design AI models for the data on the chain .

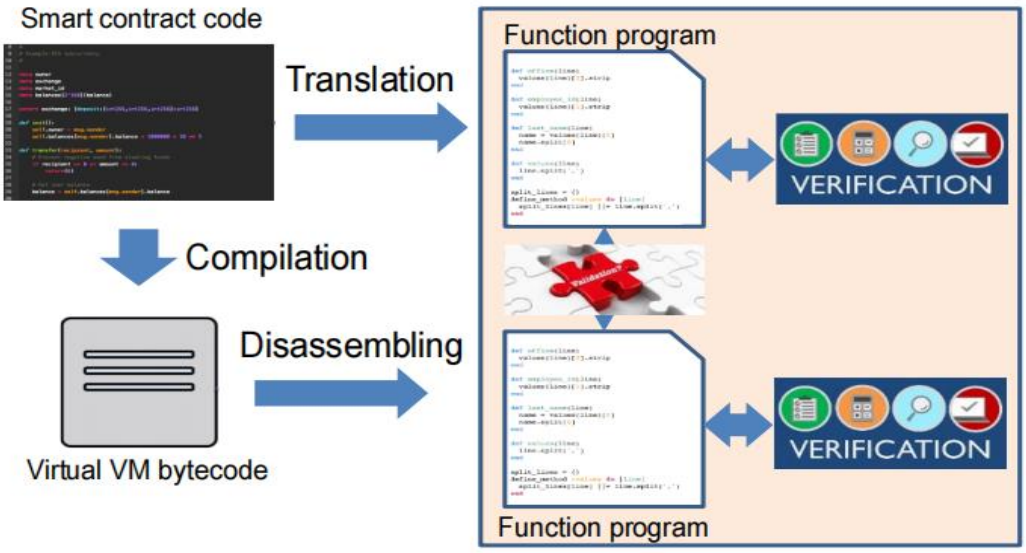
Model and data privacy

At present, the research area that blockchain is more concerned about is the guarantee of privacy. Homomorphic encryption scheme can protect user data or models from being stolen by others during cloud computing. The so-called homomorphic encryption refers to an encryption method. The open and transparent nature of the blockchain is a threat to the privacy of user data. In the field of AI , model

parameters and training/test data may be private data. Distributed storage alone can provide data availability, but not data privacy. In order to solve this problem, DDO Chain Project provides a complete set of privacy protection solutions, including data privacy protection and model privacy protection. With the help of DDO Chain Enclave's capabilities, DDO Chain can help users store models or data in the Enclave to protect privacy. Other nodes can input data into the Enclave, and the Enclave completes the inference process and returns the inference results. This solution not only ensures the privacy of user models and data, but also ensures the correctness of model inference results by Enclave.

DDO Chain plans to use three solutions: Enclave, fully homomorphic encryption and zero-knowledge proof to advance simultaneously. For public AI models, users can complete inference locally and generate zero-knowledge proofs, and upload the proofs for nodes to verify and synchronize. For privacy AI models that support fully homomorphic computing , users can use fully homomorphic encryption mode to first homomorphically encrypt their own inference data, and then upload the encrypted data for nodes to complete inference. The encrypted inference results can be decrypted and restored to the correct inference results.





Cross-chain

As more and more blockchains emerge, interoperability between multiple blockchains has become an important issue. Cross-chain technology forwards transactions or contract calls on the source chain to the target chain. Based on the basis of cross-chain trust, there are currently three main types of cross-chain technologies: atomic swap, notary mechanism and relay mechanism. Among them, the operation of atomic swap technology is too complex and is limited to on-chain asset exchange, making it impossible to complete cross-chain contract calls. The notary mechanism uses trusted nodes to monitor specific events on the source chain and send corresponding operations to the target chain. The signature is verified by the contract to ensure security, and most notary nodes need to be trustworthy. The relay mechanism implements light nodes of the source chain through smart contracts on the target chain, and verifies transaction records to the source chain. The relay mechanism does not need to trust the relay nodes. DDO Chain will enhance the interoperability between DDO Chain and other public chains by building cross-chain bridges , so that the AI capabilities on DDO Chain can be provided to more on-chain applications. Applications on other chains can call the AI contract on the DDO Chain chain through cross-chain bridges to complete AI inference, and then return the inference results to the chain to complete the function implementation. DDO Chain will first implement a cross-chain bridge with a single-node notary mechanism to support two-way asset cross-chain. Then implement a cross-chain bridge with a multi-node notary mechanism, support two-way contract calls, and provide security through multi-signature. Finally, DDO Chain will implement a cross-chain bridge with a relay mechanism to further improve the security of the cross-chain bridge.

1.3.2 Intelligent financial analysis and decision-making

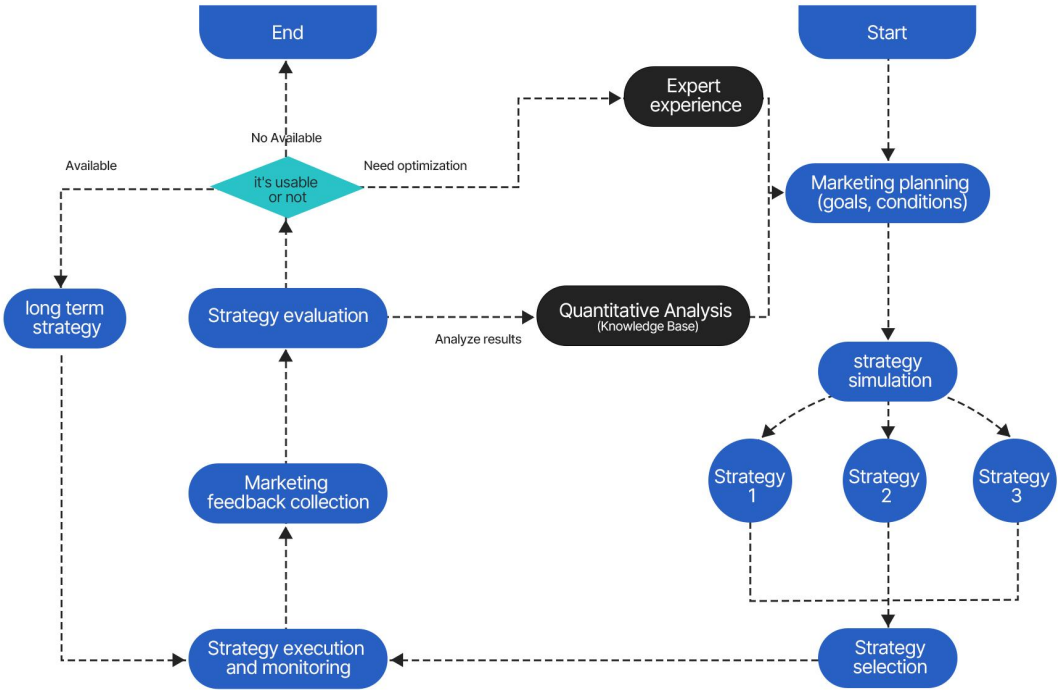
Provide closed-loop and continuous construction services for intelligent decision-making systems for financial institutions, and provide integrated closed-loop services from strategic consulting, analytical modeling, system implementation, and continuous data services. Consulting services can help customers improve their management capabilities in the fields of risk control and marketing, strengthen customers' business and process planning, and enhance customer trust. Combined with consulting

services, we provide marketing & risk control system design, modeling, system construction services and subsequent continuous data services that are more in line with customer needs, data-based, intelligent, professional, and consistent with consulting results.

The intelligent marketing construction philosophy of “unity of knowledge and action”

DDO Chain's intelligent marketing products adhere to the construction philosophy of "unity of knowledge and action" to support financial institutions in building two closed-loop systems. "Knowledge" refers to the strategy optimization closed loop, which combines expert experience and decision-making models to form effective marketing strategies. The process requires the ability to carry out strategy simulation, strategy development, strategy monitoring, strategy evaluation analysis and strategic intelligent optimization; "line" refers to the closed loop of action, the closed loop process of executing marketing activities in accordance with marketing strategies, and requires the ability to carry out activity planning, Ability to execute, give feedback, evaluate and perform optimization. We use expert experience combined with predictive models to formulate marketing strategies and put them on the market for execution verification. The two closed-loop collaborative operations continuously polish the core components of intelligent marketing, that is, the marketing decision-making model system, and form a model that is in line with the financial institution market and customer group behavior. Characteristic marketing decision-making ability.

Intelligent marketing products can help financial institutions achieve a three-stage leap from quantitative prediction to automatic execution to intelligent optimization. In the quantitative forecasting stage, it is necessary to digitize the marketing decision-making and execution processes and provide corresponding forecasting capabilities. In the automatic execution stage, it is necessary to be able to automatically execute marketing strategies that are evaluated as high-quality to improve marketing efficiency; in the intelligent optimization stage, it can conduct independent learning based on the quantitative results accumulated by the automatic execution strategy, and carry out intelligent optimization of strategies and the generation of new strategies.



Closed-loop iteration system for strategy development

Intelligent marketing products provide a closed-loop marketing strategy research and development process, supporting the improvement of full life cycle capabilities of quantitative prediction, automatic execution, and intelligent optimization of marketing strategies. This process includes marketing planning, marketing strategy simulation, marketing strategy selection, strategy execution and monitoring, intermediate and final result collection of marketing feedback, and comprehensive evaluation of strategies in the active marketing process. In principle, every strategy put into production should have a strategy evaluation link. The strategy evaluation link evaluates the executed strategy. The evaluation results can be divided into: usable, unusable, and further optimization.
The evaluation results are available marketing strategies, which will be solidified and automatically executed as long-term strategies. The execution method can be used as an execution strategy for responsive marketing or as a reminder for regular proactive marketing. If the evaluation result is unavailable in the strategy evaluation, the marketing strategy will be terminated directly and registered in the tested strategy knowledge base; in the strategy evaluation, if the strategy needs optimization, it will also be registered in the knowledge base, and expert experience will be involved. Optimization and next iteration build up the intelligent optimization capabilities of a complete marketing strategy.

big data applications

Traditional data management techniques are no longer technically and cost-effectively capable of collecting this data and supporting new big data applications. Businesses are challenged with managing and using rapidly growing new and disparate types of data. Competition is becoming fiercer and regulatory requirements are increasing. DDO Chain's modern data management platform for machine learning and analytics provides a comprehensive set of feature integrations to provide customers with a flexible, scalable and cost-effective solution.

Empowering machine learning: We are uniquely designed to empower the rapidly growing data science community and machine learning applications. Supports batch, on-the-fly and advanced analytics by integrating Spark with popular data science languages such as Python and R. Provides the ability to reliably run large-scale iterative algorithms, including machine learning algorithms, on large amounts of data, to support a variety of relational and non-relational schemas, and to express analytic workloads in multiple development and data science languages. These capabilities enable enterprises to identify trends in historical data, identify events in current or streaming data, and predict future events with the ability to continuously improve with experience.

Low total cost of ownership: Our scale-out architecture delivers high performance on low-cost industry-standard hardware or cloud infrastructure. This architecture allows organizations to gain insights and realize value from their data at a much lower cost than traditional data management platforms. Our proprietary cloud automation, systems management and data management capabilities reduce the staff required to run clusters and workloads while meeting compliance standards. Allowing customers to choose the infrastructure environment that is most cost-effective and appropriate for each use case. Additionally, our native security features require no additional third-party licenses, further reducing costs for our customers.

Data Security and Governance: Use proprietary authentication, network isolation, user and role-based permissions, access logging, auditing, lineage and encryption, including sophisticated key management, to provide comprehensive enterprise-grade capabilities across the entire platform Data security. In addition, we enable regulatory and industry-specific compliance through comprehensive data governance, including data discovery, data lineage tracing, metadata tagging and policy enforcement.

1.3.3 Comprehensive empowerment of traditional industries

Systematic

Systematicity means that a system or network has the characteristics of integrity, complexity, synergy, and innovation. A systemic network refers to a network composed of multiple nodes, in which each node can connect, collaborate and innovate with each other to form a powerful network effect. WEB3.0 + AI + traditional industries can build a more systematic network in which various nodes can connect, collaborate and innovate with each other, forming a powerful network effect. This systemic network can be analyzed from the following three aspects: nodes, connections and effects.

(1) Node. Nodes refer to the basic units in the network, such as users, merchants, platforms, capital, etc. The combination of DDO Chain WEB3.0 + AI + traditional industries can produce various types of nodes, such as AI developers, AI providers, AI users, WEB3.0 developers, WEB3.0 providers, and WEB3.0 users , traditional industry practitioners, traditional industry consumers, traditional industry investors, etc. Each of these nodes has its own role and capabilities. For example, AI developers can provide AI algorithms and models, AI providers can provide AI services and interfaces, AI users can use AI functions and applications, and WEB3.0 developers can provide intelligence Contracts and DApps, WEB3.0 providers can provide blockchain networks and storage networks, WEB3.0 users can use smart contracts and DApps, traditional industry practitioners can provide traditional industry services and products, and traditional industry consumers can Using traditional industry services and products, traditional industry investors can invest in traditional industry projects and enterprises, etc. These nodes form a diverse and enriched network.

(2) Connection. Connection refers to the basic relationships in the network, such as cooperation, competition, exchange, etc. The combination of DDO Chain WEB3.0 + AI + traditional industries can produce various types of connections, such as cooperation between AI developers and AI providers, exchanges between AI providers and AI users, AI users and WEB3 . Competition between 0 developers, cooperation between WEB3.0 developers and WEB3.0 providers, exchanges between WEB3.0 providers and WEB3.0 users, WEB3.0 users and traditional industry practitioners competition between players, exchanges between traditional industry practitioners and traditional industry consumers, cooperation between traditional industry consumers and traditional industry investors, etc. These connections form a dynamic and complex network.

(3) Effect. Effects refer to the basic results produced in the network, such as efficiency, security, fairness, diversity, etc. The combination of DDO Chain WEB3.0 + AI + traditional industries can produce various types of effects. For example, AI technology can bring higher efficiency and quality to traditional industries, such as reducing costs, increasing income, etc.; WEB3.0 technology can Traditional industries bring higher security and fairness, such as protecting privacy, allocating value, etc. Traditional industries can bring higher diversity and demand to AI technology and WEB3.0 technology,

such as providing scenarios and reflecting problems, etc. These effects form an optimized and innovative network.

DDO Chain can build a more systematic network in which nodes can connect, collaborate and innovate with each other, forming a powerful network effect. This kind of systematic network can enable each participant to obtain more benefits and opportunities, while also being able to cope with more changes and challenges.

ecological

Ecology refers to a system or network that has characteristics such as self-organization, adaptability, and self-evolution. An ecological network refers to a network composed of multiple participants, in which each participant can enjoy the benefits and opportunities brought by the network according to their own roles and abilities. DDO Chain WEB3.0+AI+traditional industries can create a more ecological network, in which each participant can enjoy the benefits and opportunities brought by the network according to their own roles and abilities. We can analyze this ecological network from the following three aspects: participants, roles and capabilities.

(1) Participants. Participants refer to the basic entities in the network, such as users, merchants, platforms, capital, etc. The combination of DDO Chain WEB3.0+AI+traditional industries can produce various types of participants, such as AI developers, AI providers, AI users, WEB3.0 developers, WEB3.0 providers, and WEB3.0 users , traditional industry practitioners, traditional industry consumers, traditional industry investors, etc. Each of these participants has their own needs and goals. For example, AI developers want to provide better AI algorithms and models, AI providers want to provide better AI services and interfaces, and AI users want to use better AI functions and applications, WEB3.0 developers want to provide better smart contracts and DApps, WEB3.0 providers want to provide better blockchain networks and storage networks, WEB3.0 users want to use Better smart contracts and DApps, traditional industry practitioners want to provide better traditional industry services and products, traditional industry consumers want to use better traditional industry services and products, and traditional industry investors want to invest in better Traditional industry projects and enterprises, etc. These participants form a diverse and dynamic network.

(2) Role. Roles refer to the basic functions in the network, such as producers, consumers, intermediaries, supervision, etc. The combination of DDO Chain WEB3.0+AI+traditional industries can produce various types of roles. For example, AI developers can act as producers and provide AI algorithms and models. AI providers can act as intermediaries and provide AI services and interfaces. AI users can Developers can act as consumers, using AI functions and applications, WEB3.0 developers can act as producers, providing smart contracts and DApps, WEB3.0 providers can act as intermediaries, providing blockchain networks and storage networks, WEB3. 0 Users can act as consumers and use smart contracts and DApps. Traditional industry practitioners can act as producers and provide traditional industry services and products. Traditional industry consumers can act as consumers and use traditional industry services and products. Traditional industry investors It can act as a supervisor and invest in traditional industry projects and enterprises. These roles form a collaborative and competitive network.

(3) Ability. Capabilities refer to the basic resources in the network, such as data, computing power,

funds, knowledge, etc. The combination of DDO Chain WEB3.0+AI+traditional industries can produce various types of capabilities. For example, AI technology can provide data processing capabilities, algorithm design capabilities, model training capabilities, etc.; WEB3.0 technology can provide data storage capabilities and smart contracts. Execution capabilities, value exchange capabilities, etc.; traditional industries can provide data collection capabilities, scenario application capabilities, demand feedback capabilities, etc. These capabilities form an optimized and innovative network.

DDO Chain can create a more ecological network, in which each participant can enjoy the benefits and opportunities brought by the network according to their own roles and abilities. This ecological network can enable each participant to develop their own strengths and potential, while also promoting communication and collaboration with each other.

value network

Value network refers to a system or network with characteristics such as value creativity, value exchangeability, and value distribution. Value network refers to a network composed of multiple value creators and value consumers, in which each value creator and value consumer can realize the exchange and distribution of value through smart contracts. DDO Chain WEB3.0+AI+traditional industries can form a more value network, in which value creators and value consumers can realize the exchange and distribution of value through smart contracts.

(1) Value creator. Value creators refer to people or organizations on the Internet who provide useful or meaningful things to others, such as products, services, knowledge, etc. The combination of DDO Chain WEB3.0+AI+traditional industries can produce various types of value creators, such as AI developers, AI providers, WEB3.0 developers, WEB3.0 providers, traditional industry practitioners, etc. Each of these value creators has its own value proposition and value form. For example, AI developers can provide AI algorithms and models, AI providers can provide AI services and interfaces, WEB3.0 developers can provide smart contracts and DApps, WEB3. 0 providers can provide blockchain networks and storage networks, and traditional industry practitioners can provide traditional industry services and products. These value creators form a diverse and enriched network.

(2) Value consumers. Value consumers refer to people or organizations on the Internet who use or enjoy things provided by others, such as users, customers, partners, etc. The combination of DDO Chain WEB3.0+AI+traditional industries can produce various types of value consumers, such as AI users, WEB3.0 users, traditional industry consumers, traditional industry investors, etc. These value consumers each have their own value needs and value assessments. For example, AI users need to use AI functions and applications, WEB3.0 users need to use smart contracts and DApps, traditional industry consumers need to use traditional industry services and products, and traditional industry consumers need to use traditional industry services and products. Industry investors need to invest in traditional industry projects and enterprises. These value consumers form a diverse and active network.

(3) Smart contract. Smart contracts refer to automated programs that realize value exchange and distribution on the Internet, such as payments, rewards, penalties, etc. The combination of DDO Chain WEB3.0+AI+traditional industries can produce various types of smart contracts, such as payment contracts between AI users and AI providers, reward contracts between AI providers and AI developers, WEB3.0 The payment contract between users and providers, the reward contract between WEB3.0

providers and developers, the payment contract between traditional industry consumers and traditional industry practitioners, the relationship between traditional industry investors and traditional industry practitioners Penalty contracts, etc. These smart contracts form a fair and transparent network.

DDO Chain can form a more value network, in which value creators and value consumers can realize the exchange and distribution of value through smart contracts. This value network can enable all participants to obtain reasonable and fair returns, while also stimulating more creativity and innovation.

1.3.4 The ecological value exchange scenario is fully open

In DDO Chain WEB3.0 ecosystem, we are committed to creating an open, diverse and highly interconnected ecosystem to support value exchange and sharing among users. To achieve this goal, we will open up a variety of ecological value exchange scenarios, including but not limited to the following:

Digital assets and digital options trading: DDO Chain will provide efficient and secure underlying technology for digital assets and digital options trading . Users can freely trade various digital assets on this underlying technology , including cryptocurrencies, digital options , and digital artworks. wait. DDO Chain Intelligent Public Chain will support each platform to continuously optimize the trading experience, provide liquidity, and support the storage and management of a variety of digital assets.

DEFI Ecology: DEFI (decentralized finance) is an important part of the DDO Chain ecosystem. Users can participate in various DEFI applications such as lending, liquidity mining, and stablecoin issuance to achieve asset appreciation and financial freedom.

NFT Market: The non-fungible token (NFT) market will become a gathering place for creators and collectors. Users can buy, sell, and display unique digital assets such as digital artwork, virtual land, and game items on the NFT market.

Social platform: The social platform of DDO Chain will provide a variety of social functions. Users can create personal profiles, follow interested users, and participate in social interactions. At the same time, they can also exchange ecological values through the social platform, such as rewards, appreciation, etc. .

Digital Creation: We encourage digital creators to publish and sell their creations within the ecosystem. This includes literary works, artwork, music, virtual worlds, and more. Users can purchase and support creators' works.

Digital financial services: DDO Chain will provide diversified underlying technologies for digital financial services , including digital options, loans, insurance, financial management, etc. Users can choose and participate in these services according to their own needs to achieve new financial experiences .

Smart contract market: On the DDO Chain, smart contracts will not only be limited to basic transfers and digital option issuance, but will also open up a wider smart contract market. Developers can create various smart contracts for different purposes such as supply chain management, identity verification,

voting systems, etc. These smart contracts will provide users with more automated and intelligent service options.

Digital identity authentication: The ecosystem will support digital identity authentication, and users can use decentralized identities to access various services and applications. This will improve user security and privacy and reduce the risk of data breaches.

Virtual Digital World: The virtual digital world of DDO Chain will be a vibrant digital ecosystem in which users can create, own, and buy and sell virtual land, items, and virtual characters. This virtual world will become an important part of the digital economy and entertainment.

Smart environment and IoT: The ecosystem will promote the development of smart environments and IoT, where users can interact with the physical world through smart devices and sensors to achieve a smarter and more efficient way of living and working.

Game Industry: DDO Chain will support game developers to create innovative games and provide digital asset trading and management functions. Users can obtain virtual assets in the game and use them in other scenarios in the ecosystem.

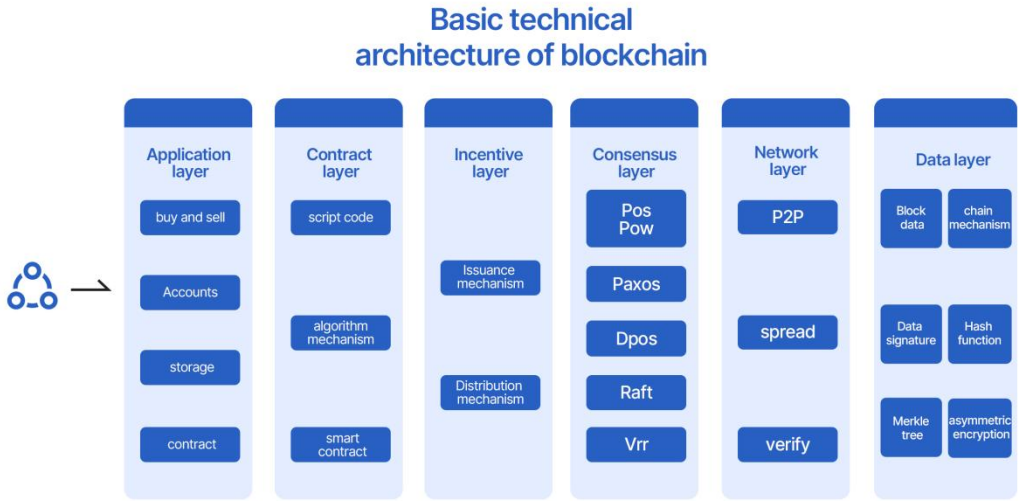
Global community: DDO Chain WEB3.0 ecosystem will establish a global community, bringing together users, developers and creators from different countries and regions. This community will promote cross-cultural exchanges and cooperation, promoting diversity and globalization of the ecosystem.

2. DDO Chain technology framework

2.1 Basic layer: Provides AI + blockchain underlying resources to enable the efficient implementation of WEB3.0 ecology

AI (artificial intelligence) and blockchain are two independent technologies, and their combination can enable more powerful and transparent distributed applications. In an architecture that combines AI and blockchain, AI technology can provide intelligent decision-making and analysis capabilities, while blockchain can provide decentralized storage and tamper-proof data records.

Specifically, in the distributed application architecture that combines AI and blockchain, there first needs to be a blockchain network. This network can be a public chain or a private chain. Then, smart contracts are established on the blockchain network, and these smart contracts can be used to realize automated execution of AI algorithms. Next, deploy the AI algorithm and model to distributed nodes, which can be computing nodes or storage nodes. Nodes communicate and exchange data through the blockchain network to achieve distributed collaboration and computing.



Data privacy and security: Blockchain technology can provide decentralized storage and tamper-proof data records, protecting user privacy and data security. At the same time, AI algorithms and models can be shared and exchanged through the blockchain network without worrying about data leakage and abuse.

Decentralization and transparency: Blockchain technology can realize a decentralized application architecture without centralized control, improving the security and reliability of the system. At the

same time, the data records of the blockchain network are open and transparent, allowing data traceability and auditing.

Distributed computing and collaboration: AI algorithms and models can be deployed on distributed nodes, which can perform distributed computing and collaboration. Each node can independently execute the AI algorithm and then share the results on the blockchain network to achieve distributed decision-making and analysis.

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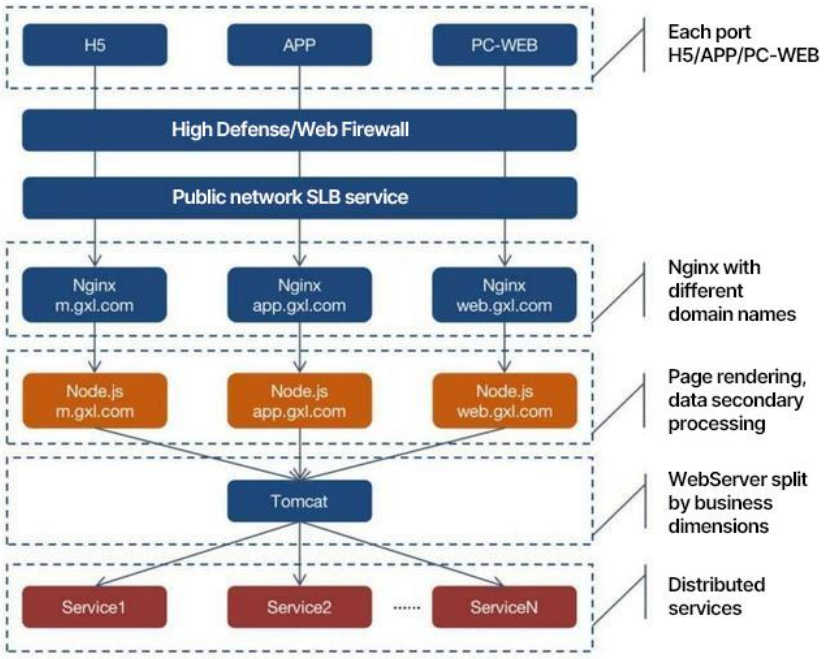
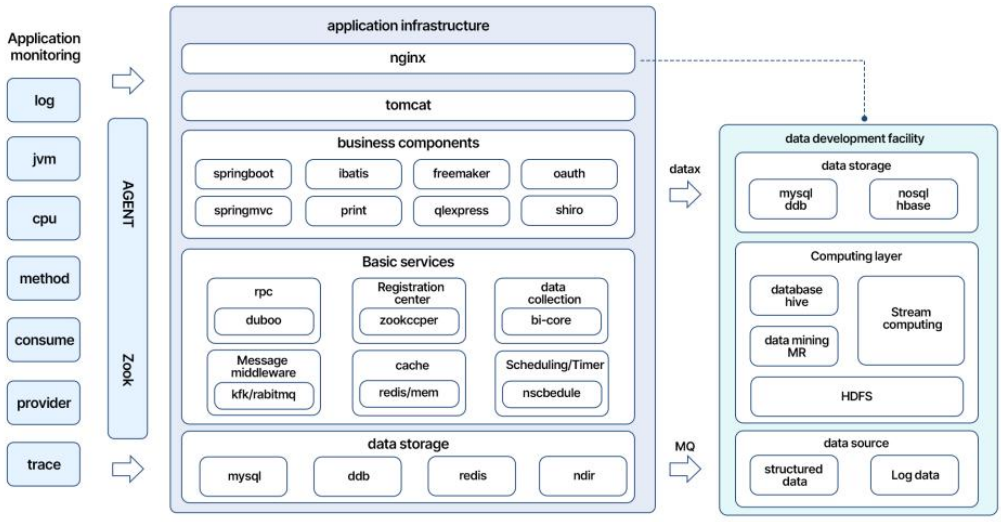




2.2 General layer: realize the integration of technology and applications and create core application value

2.2.1 Comprehensive standardization of technology applications

a. Interoperability and Compatibility:

Common data format: The common layer will develop a common data format, such as JSON or XML, so that different applications can share data. This helps ensure data consistency and interoperability.

Communication protocol: Develop communication protocol standards, such as HTTP or WebSocket, so that different applications can communicate and exchange information in a standardized way.

Interface standards: Develop application programming interface (API) standards to ensure that different applications can use the same interface to access and call functions. This makes it easier for developers to integrate different applications.

b. Safety standards:

Encryption standards: Use modern encryption algorithms such as AES or RSA to ensure the confidentiality of user data and communications. Develop standardized procedures for encryption algorithms and key management.

Authentication standards: Develop authentication standards, such as OAuth or OpenID Connect, to ensure users' identities are verified and only legitimate users have access to sensitive data and functionality.

Smart contract audit standards: Set standard procedures for smart contract audits to ensure the security and reliability of smart contracts. This includes standards for code reviews, vulnerability scanning, and audit reporting.

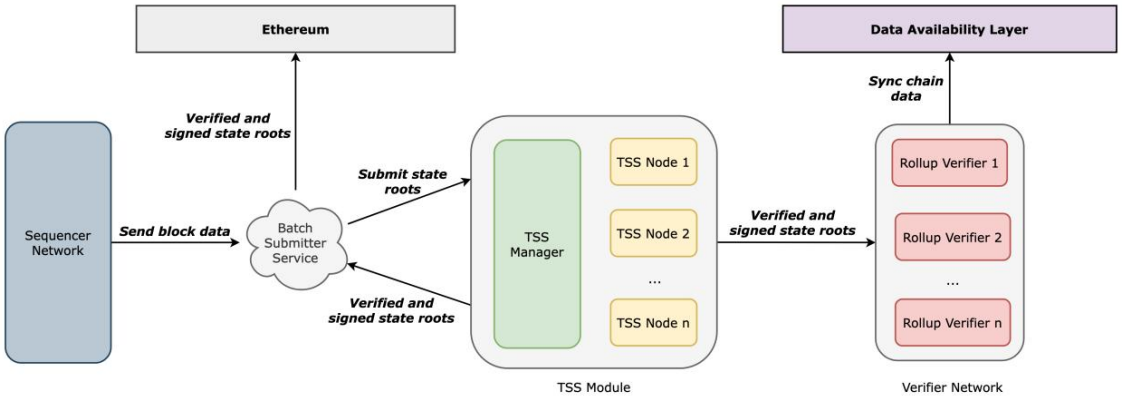
Vulnerability repair standards: Develop standard processes for vulnerability repairs to ensure timely discovery and repair of security vulnerabilities and protect user assets and data.

c. Data Privacy Standards:

Privacy protection technology: Use privacy protection technology, such as zero-knowledge proof or homomorphic encryption, to ensure the privacy of user data. These technologies can be used to anonymize user data.

GDPR and CCPA Compliance: Develop standards that comply with regulations such as the General Data

Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA) to ensure the lawful processing and protection of user data.

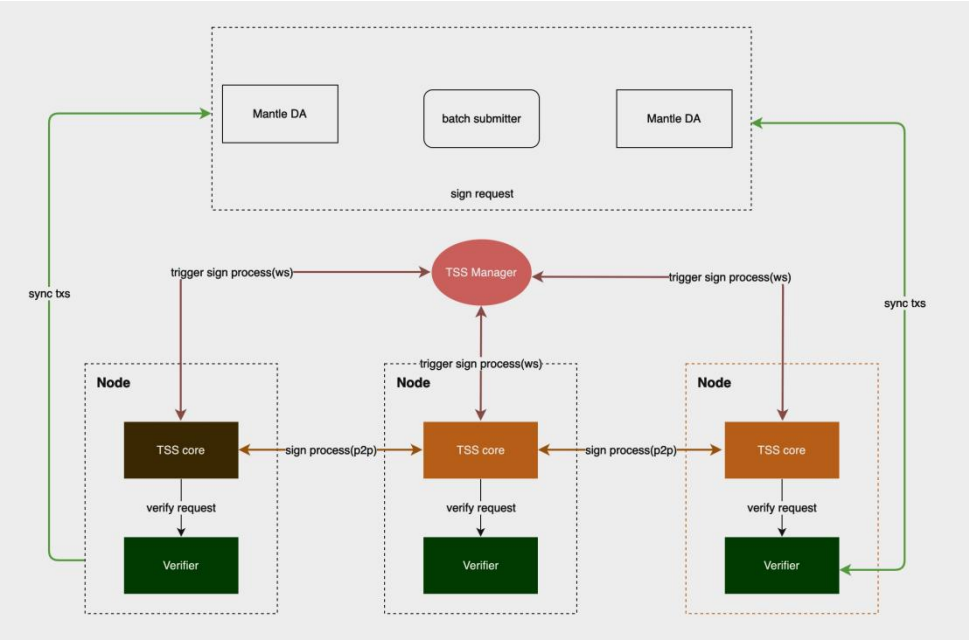


d. Smart contract standards:

Solidity standards: Solidity is a commonly used smart contract programming language. The common layer will provide standards and best practices for Solidity programming to ensure the quality and security of smart contracts.

Ethereum Virtual Machine (EVM) standards: The common layer will ensure that smart contract execution on the EVM is standards-compliant to ensure cross-platform compatibility.

Smart contract library: Provides a standard library for smart contract development, including commonly used smart contract templates and functions to accelerate contract development.



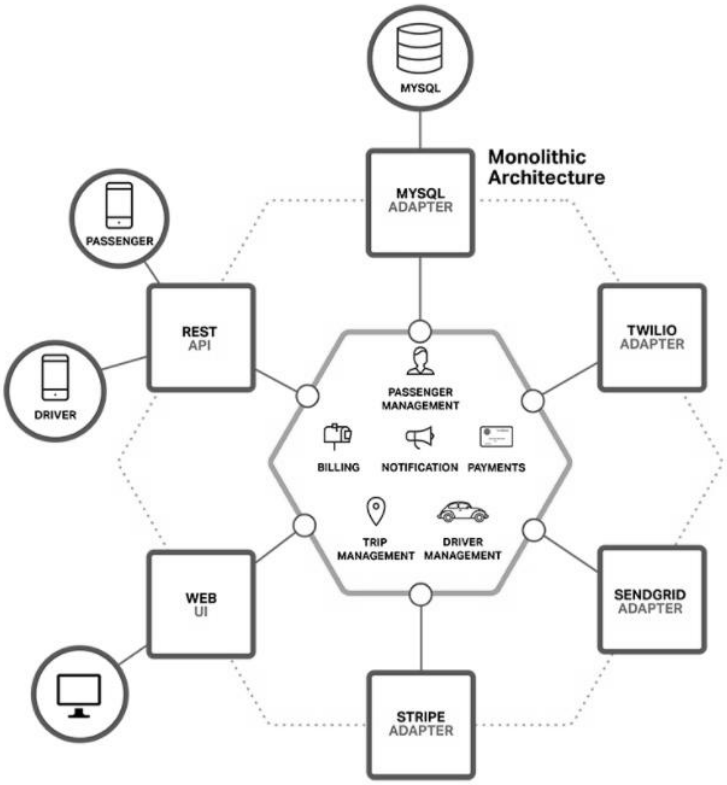
2.2.2 All development processes are modularized

Microservice architecture

Service splitting: Microservices architecture requires splitting the application into small services, with each service focusing on a single function or business logic. For example, user authentication, payment processing, user management, etc. can be used as independent microservices.

Loose coupling: Microservices should be loosely coupled to each other, which means they should not directly depend on the internal implementation details of other microservices. This can be achieved through clearly defined API interfaces.

Autonomy: Each microservice should be autonomous, with its own database and data storage. This ensures that the failure of one microservice does not affect other microservices.



Containerization technology

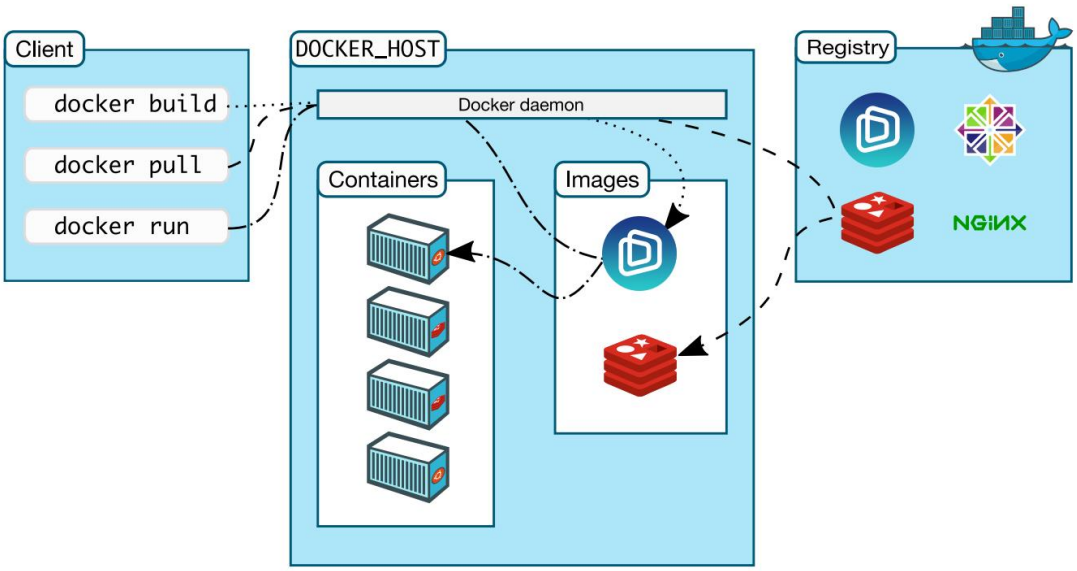
Docker containers: Use Docker containers to package each microservice and its dependencies into an independent container. This allows developers to easily run and deploy microservices in different environments without worrying about dependency conflicts.

Container registry: Use a container registry, such as Docker Hub or a private container registry, to store and share container images. This makes distribution and version control of containers more convenient.

Container orchestration

Kubernetes: Kubernetes is a powerful container orchestration platform used to automate and manage the deployment, scaling, and operation of containers. It allows defining the overall architecture of the application, including the relationships between microservices.

Automatic scaling: Kubernetes can automatically scale the number of microservice instances based on load to meet traffic needs. This ensures high availability and performance optimization.



API gateway

API management: Use API gateway to manage the API interface of microservices. It handles request routing, authentication, authorization, and request forwarding, simplifying communication between clients and microservices.

Security: API gateways can provide security controls such as OAuth authentication, JWT verification, and API key management to ensure that only authorized clients can access microservices.

Automate builds and deployments

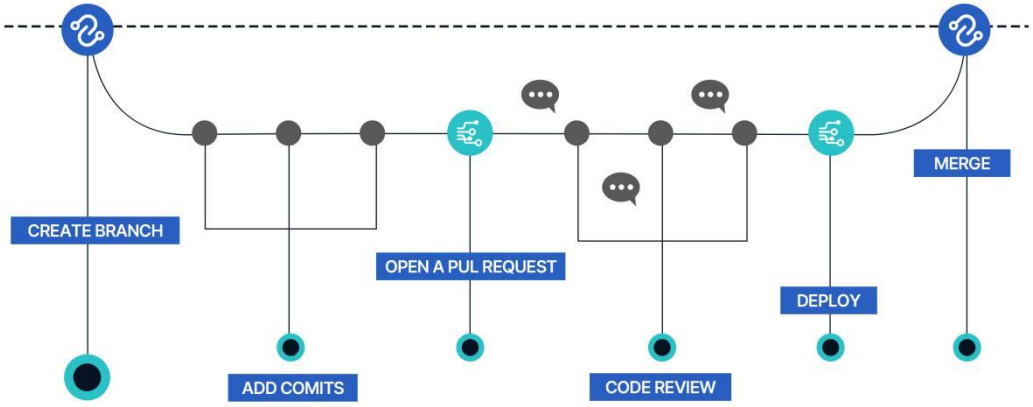
CI/CD pipeline: Build a continuous integration and continuous deployment (CI/CD) pipeline to automate the building, testing and deployment of microservices. Each code submission triggers the pipeline to automatically build and test microservices.

Container orchestration: Integrate CI/CD tools and container orchestration tools to automate the deployment and expansion of microservices. This ensures rapid delivery and deployment of new code.

Version control and collaboration

Git Tools: Use Git for version control so developers can track code changes and collaborate as a team. Branch management and code merging are key functions of Git.

Code Review: Implement a code review process to ensure code quality, consistency, and compliance with best practices. Code reviews also help with knowledge sharing and error detection.



Monitoring and logging

Application performance monitoring: Integrate application performance monitoring tools such as Prometheus or ELK stack to instantly monitor the performance and health of microservices. This helps identify and resolve issues promptly.

Logging: Use logging tools to record microservice activities and events. Logging can be used for troubleshooting and security auditing.

2.2.3 Comprehensive coverage of security mechanisms

Authentication and authorization

Multi-factor authentication (MFA): Introduce multi-factor authentication, such as using passwords and SMS verification codes, biometrics, etc., to ensure the security of user identities.

OAuth and OpenID Connect: Use standard protocols such as OAuth and OpenID Connect for authentication and authorization to ensure that only authorized users can access sensitive resources.

Data encryption and privacy protection

Data encryption: End-to-end encryption of data, including encryption during data transmission (HTTPS/TLS) and encryption of data storage. This ensures data confidentiality.

Privacy protection: Use privacy protection techniques such as zero-knowledge proofs or homomorphic encryption to ensure the privacy of user data while allowing necessary data processing.

Smart contract auditing and vulnerability scanning

Static and dynamic analysis tools: Use static and dynamic code analysis tools to audit the code of smart contracts to discover and fix potential vulnerabilities and security issues.
Contract audit service: Invite security experts to conduct smart contract audits to ensure the security and reliability of smart contracts.

Bug fixes and emergency updates

Vulnerability management process: Establish a vulnerability management process to promptly discover, report and remediate security vulnerabilities. This includes vulnerability reporting pipelines, emergency updates, and user notifications.

Permission management and access control

RBAC model: Use the role-based access control (RBAC) model to ensure that users only have access to the resources and functionality they require.
Smart contract permissions: Implement permission controls in smart contracts to limit access to contract functions and only allow authorized users to perform specific operations.

DDoS protection and network security

Distributed Denial of Service (DDoS) protection: Deploy DDoS protection mechanisms to prevent service interruptions caused by malicious attacks.
Network isolation: Use network isolation technology to isolate different services and components in different network areas to reduce the risk of lateral attacks.

Security auditing and monitoring

Security Audit Logging: Implement security audit logging to record key events and accesses for audit and investigation by the security team.
Real-time monitoring: Deploy real-time monitoring systems to monitor system performance and security events, and take timely measures.

Compliance and compliance

Compliance audit: Conduct regular compliance audits to ensure that the system complies with relevant

regulations and standards, such as GDPR, CCPA, financial compliance, etc.
Compliance: Comply with applicable regulations and standards to ensure the legal processing and privacy protection of user data.

2.2.4 Comprehensive and intelligent resource allocation

Automated resource scheduling

Container orchestration: Use container orchestration tools, such as Kubernetes, to achieve automated resource scheduling. Kubernetes can monitor the resource usage of containers and dynamically allocate and reclaim computing resources, such as CPU and memory, based on demand.

Auto-scaling: Set an automatic auto-scaling policy to automatically adjust resource allocation based on traffic load or specific rules. This ensures that the system automatically scales during times of high load and frees up resources during times of low load.

Intelligent algorithms and decision engines

AI and machine learning: Use AI and machine learning algorithms to predict resource needs and optimize resource allocation. These algorithms can analyze historical data and real-time traffic to make intelligent decisions.

Intelligent scheduler: Implement an intelligent scheduler to adjust resource allocation based on algorithm recommendations. The scheduler can automatically monitor system status and dynamically adjust resources according to policies.

Resource pooling and virtualization

Resource pool management: Organize computing, storage and network resources into resource pools. This allows the system to allocate resources from a resource pool on demand without having to manually configure the hardware.

Virtualization technology: Use virtualization technology, such as virtual machines (VMs) or containers, to virtualize physical resources into multiple virtual instances. This provides resource isolation and multi-tenancy support.

Automated operation, maintenance and monitoring

Self-Healing System: Implement a self-healing system that automatically detects and handles resource issues such as memory leaks or over-consumed processes.

Monitoring and Alerting: Integrate monitoring and alerting systems to instantly monitor resource usage and performance. When resource issues arise, the system can sound alerts and take automated actions to resolve the issue.

Resource optimization strategy

Cost optimization: Develop cost optimization strategies and adjust resource allocation based on resource prices and demand. This can help reduce cloud service costs.

Performance optimization: Develop performance optimization strategies based on the performance requirements and load conditions of the application. This ensures that the system operates at peak performance.

2.3 Application layer: Combined with the business needs of the digital economy, the intelligent financial scenario of WEB3.0 is derived

2.3.1 Embed friendly intelligent user interface

By using modern front-end development frameworks and technologies such as React, Angular or Vue.js, DDO Chain can build responsive and interactive user interfaces. These frameworks allow developers to easily create dynamic interface elements such as charts, forms, and real-time updating data displays. In addition, by using a library of pre-designed UI components, the consistency and aesthetics of the interface can be ensured.

In order to enhance user experience, the following technologies and methods will be used

Data Visualization: Utilize data visualization libraries such as D3.js or Chart.js to transform complex financial data into charts and graphs that are easy to understand and analyze. This helps users better understand their assets and investments.

Instant data update: Integrate technologies such as WebSocket or Server-Sent Events (SSE) to achieve instant data push and update. Users can obtain the latest market conditions and trading information in real time.

Personalize the user experience: Use user analytics and behavioral tracking tools, such as Google Analytics or Mixpanel, to understand your users' preferences and habits. Based on this data, personalized recommendations and suggestions can be provided to meet the user's needs.

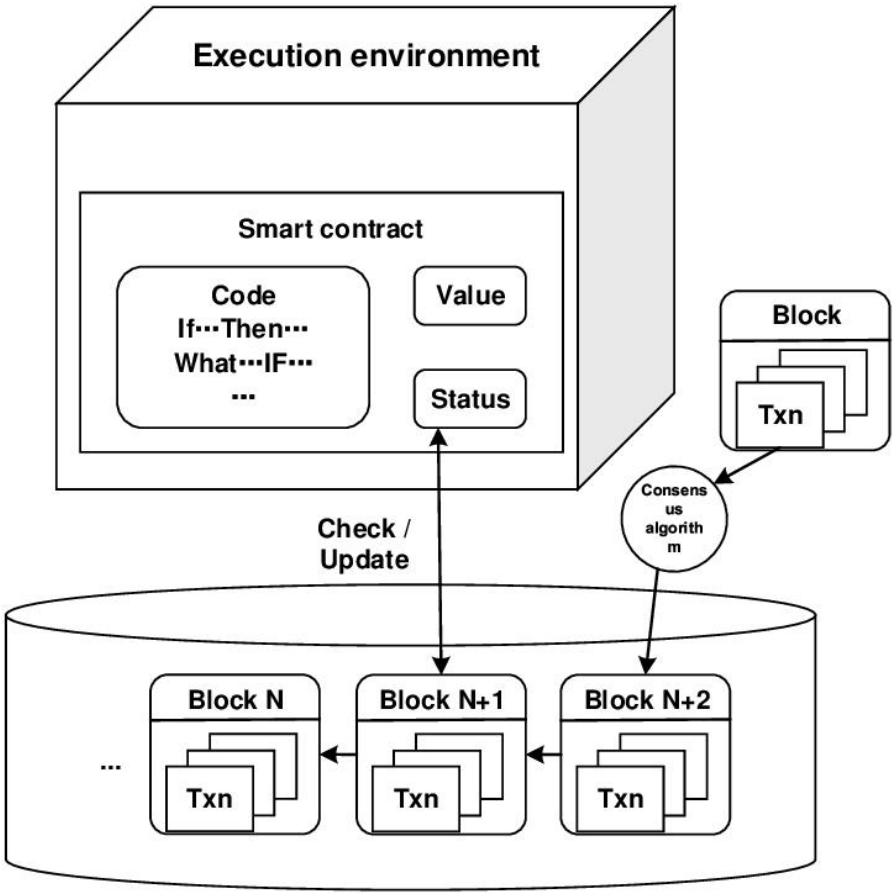
Multi-platform compatibility: Use responsive design to ensure that the user interface can be displayed and operated normally on different devices (such as PC, tablet and mobile phone). At the same time, using cross-platform development tools such as React Native or Flutter can achieve application consistency on multiple mobile platforms.

Security and Privacy: Implement strong security and privacy measures to ensure that users' sensitive information is protected. This includes data encryption, authentication and access control.

2.3.2 Embed smart contract service mechanism

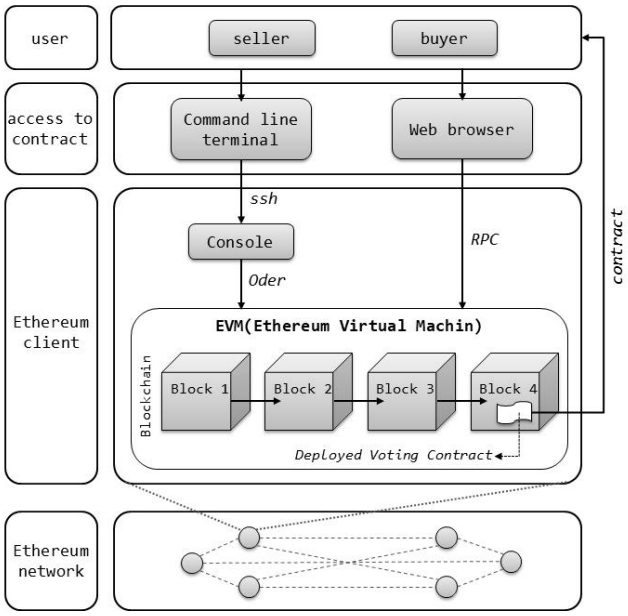
Smart contract writing: DDO Chain uses the smart contract programming language, Solidity language, to write smart contracts. These contracts contain the specific logic and rules of digital economic businesses, such as loans, transactions, investments, etc.

Contract deployment and management: Once smart contracts are written, they are deployed to the blockchain network. DDO Chain uses blockchain nodes to manage and maintain these contracts to ensure their security and availability. The deployment and upgrade of contracts require the consensus mechanism of the network to ensure the credibility of the contract.



Smart contract execution: Once deployed on the blockchain, smart contracts can be automatically executed to perform corresponding operations based on predetermined conditions and triggering events. This can include automating payments, transfers, recording transactions, etc. The execution of smart contracts is immutable because they are stored in blocks on the blockchain, providing a high degree of security.

Smart contract and business integration: The smart contract service mechanism allows DDO Chain to seamlessly integrate smart contracts with digital economic businesses. This means that users can conduct financial transactions through smart contracts without relying on traditional financial institutions. For example, users can borrow, invest, trade digital assets, etc. through smart contracts, and these operations are all performed based on the automated logic of smart contracts.



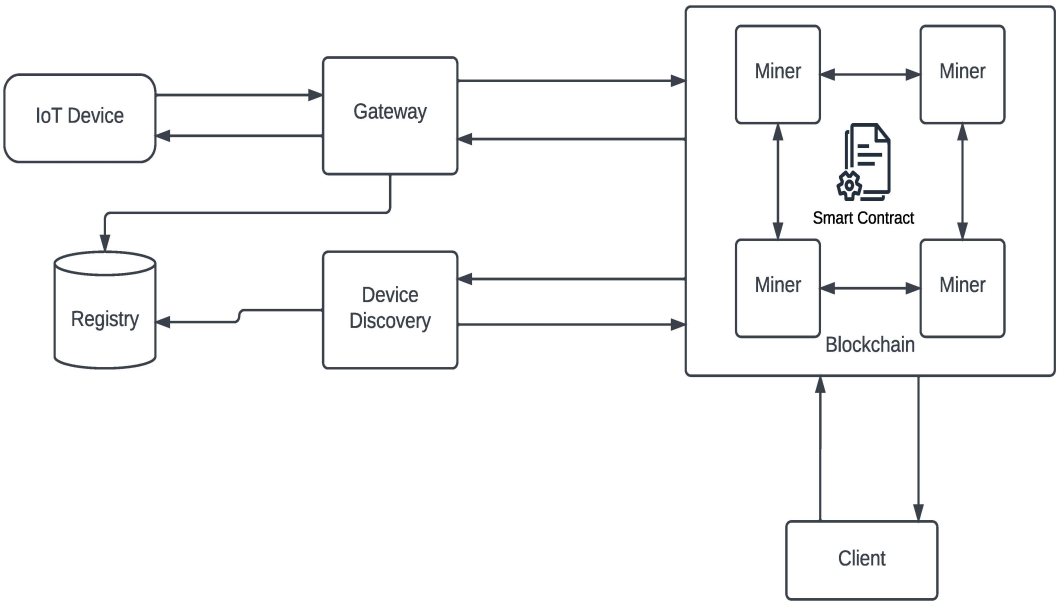
Transparency and verifiability of smart contracts: Smart contracts on the blockchain are publicly visible and anyone can view their code and execution history. This increases the transparency and verifiability of the contract, ensuring the fairness and security of the contract.

The automated execution and security of smart contracts make them a critical component of digital economy business. They provide users with greater trust and credibility while reducing the need for intermediaries and lowering transaction costs. By embedding smart contract service mechanisms, DDO Chain combines the smart financial scenarios of WEB3.0 with blockchain technology to provide users with more secure and efficient financial services.

2.3.3 Embed smart contract open interface

Allows developers to create, deploy and execute smart contracts. This function relies on the smart contract function of blockchain technology, and smart contracts are usually written using smart contract development languages (such as Solidity). Developers can use the open interface of smart

contracts to interact with the blockchain network to realize various smart financial scenarios, such as digital asset transactions, lending, crowdfunding, etc.



Smart contract open interface allows developers

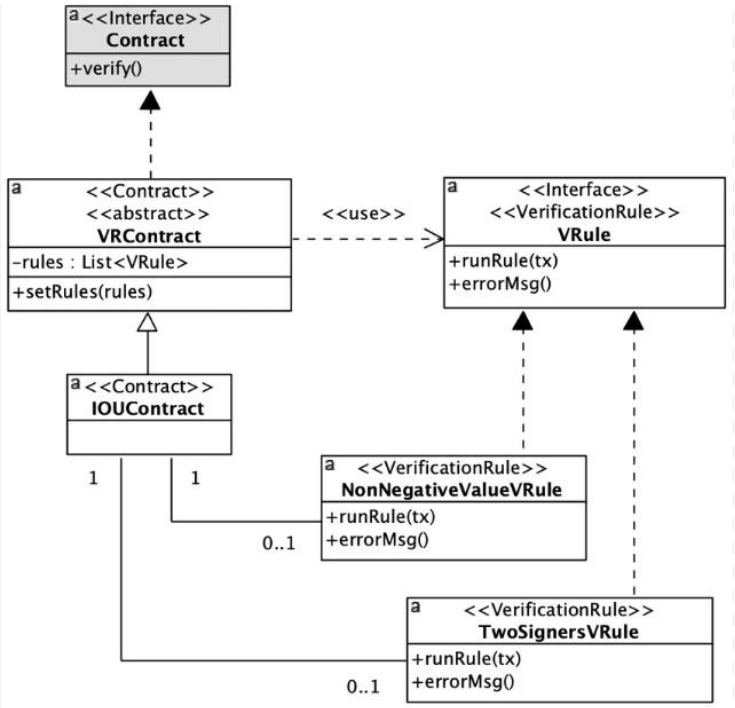
Contract writing: Developers can use smart contract programming language to write smart contracts and define the rules and behaviors of the contract. These smart contracts can represent a variety of scenarios such as digital assets, financial transactions, and voting systems.

Deployment and execution: Developers can deploy the smart contracts they write to the DDO Chain and trigger the execution of the contract through the smart contract open interface. The results of contract execution will be permanently recorded on the blockchain and cannot be tampered with.

Interaction and transaction: The smart contract open interface allows users to interact and trade with other smart contracts. For example, users can create digital assets, exchange them to other users, or participate in crowdfunding campaigns.

Automated execution: Smart contracts can automatically execute predetermined rules without manual intervention. For example, contracts can automatically distribute earnings, execute loan contracts, or perform asset exchanges.

Smart contract standards: DDO Chain may support smart contract standards, such as ERC-20, ERC-721, etc., so that developers can create smart contracts that meet specific standards, making it easier to integrate into the ecosystem.



By embedding an open interface for smart contracts, DDO Chain provides developers with powerful tools and platforms, enabling them to build diversified smart financial applications, organically combine digital economy business needs with blockchain technology, and achieve more intelligence. centralized and decentralized financial scenarios. This provides users with more choices and opportunities and strengthens the security and trustworthiness of the financial sector.

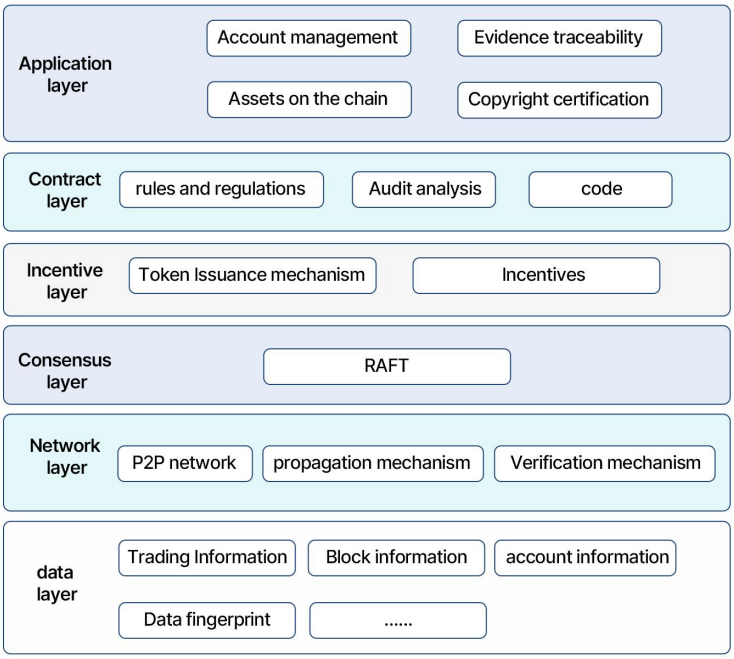
3. The three core functional modules of DDO Chain

3.1 Digital asset trading platform

3.1.1 underlying system

The underlying architecture consists of six layers, from bottom to top: data layer, network layer, consensus layer, incentive layer, contract layer, and application layer. The first layer is the data layer. The data layer encapsulates some key information related to digital assets, including block information, asset information, account information, transaction information, fingerprint information, etc. The second layer is the network layer. The network layer encapsulates the P2P networking mechanism, data dissemination mechanism and data verification mechanism to achieve synchronization and verification of block data between different nodes. The third layer is the consensus layer. The RAFT consensus mechanism was chosen because it is particularly suitable for private chain environments. The blockchain-based digital asset management system is essentially a distributed application (DApp) run by multiple nodes at the same time. All transaction requests from the upload node must be

confirmed by at least (n/2 + 1) nodes. Accepted by the accounting node. The fourth layer is the incentive layer. The incentive layer includes the Token issuance mechanism and the Token distribution mechanism. It maintains the stable operation of the entire blockchain network by rewarding those nodes that participate in accounting. The fifth layer is the contract layer, which encapsulates the preset logical clock and smart contracts. The accounting nodes need to complete the corresponding data recording and packaging tasks in accordance with the common contract provisions. The last layer is the application layer, which is used to provide external interfaces for manipulating data on the chain for account management, audit tracking, asset transactions, and asset information retrieval and query.



1) The upload node uploads the digital assets of the enterprise data center to the IPFS system, which performs fragmentation and segmentation operations and stores them in multiple participating nodes. The upload node only needs to save the generated data fingerprint, and the administrator passes this unique hash Greek values can be quickly accessed and downloaded as needed;

2) After the transaction reaches consensus, the accounting node is selected through the consensus mechanism. He is responsible for packaging and uploading key information such as asset information, block information, user information, fingerprint information, and transaction information. The final confirmed block It will be synchronized to other participating nodes and stored locally as a copy of the blockchain for backup to avoid data loss events;

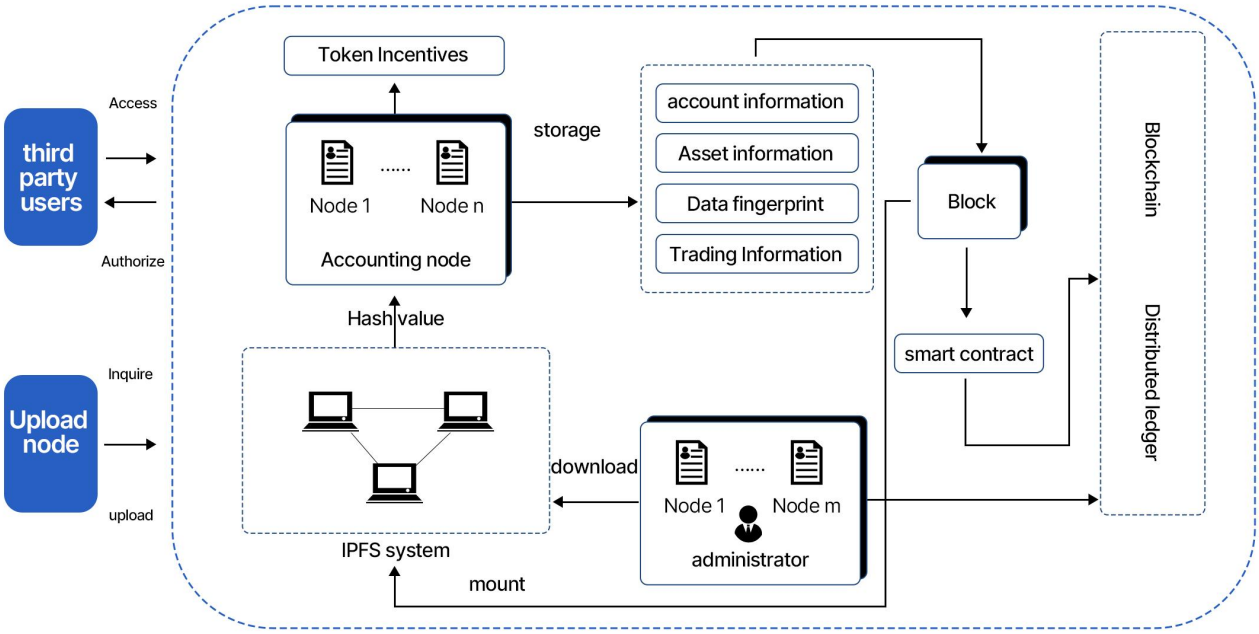
3) Mount the newly generated block to the IPFS system. The purpose is for the IPFS system to complete point-to-point communication and data query, but it does not affect the functional implementation and final processing results of the blockchain network;

4) Through the Token incentive mechanism, a certain number of Token rewards will be given to nodes that complete accounting tasks, and this will be used as a voucher for corporate employee performance

certification. Actual salary rewards will be given in a certain proportion based on the number of Tokens mastered. Through this This method can not only maintain the stable operation of the blockchain network, but also greatly stimulate the enthusiasm of employees and create more benefits for the enterprise;

5) The administrator verifies the consistency and integrity of the asset content by comparing the hash value of the original data with the data fingerprint on the chain to ensure the security of the company's important files;

6) The administrator authorizes third-party users to access the desired data through technical means such as identity verification and data encryption, so as to realize the sharing of data between enterprises and lay the foundation for the subsequent establishment of enterprise-level alliance chains.



3.1.2 trading mechanism

Coin-to-crypto trading: DDO Chain platform mainly focuses on the currency-to-coin trading model, and also selects high-quality blockchain digital assets from around the world.
Contract trading: DDO Chain platform will open futures trading and financing functions for individual digital asset varieties on the premise of ensuring market stability.
Over-the-counter trading: DDO Chain Platform will create an intermediary service platform that provides aggregation services to fully protect the assets of third parties.
Whole-network trading: DDO Chain platform realizes borderless cross-network transactions by connecting with major trading platforms around the world. Users can complete trading operations between multiple platforms with one click through this system.
Decentralized trading: DDO Chain platform will simultaneously start the development and construction of decentralized exchanges, which will be put into use in the future while ensuring safety, stability and efficiency.
the DDO Chain platform will also form a professional research team, adhering to the concept of open

cooperation, to select high-quality blockchain digital assets around the world.

3.1.3 Security risk control

1. Multi-level risk control mechanism: DDO Chain ’s risk control system adopts a multi-level risk control mechanism, including system-level risk control, exchange-level risk control and user-level risk control. Each level has independent risk control strategies and control measures, forming a mutually coordinated and complementary risk control network.
2. Real-time monitoring and early warning system: DDO Chain 's risk control system is equipped with a real-time monitoring and early warning system, which can conduct real-time monitoring and analysis of transaction behavior. Once abnormal transactions or risky behaviors are discovered, the system will immediately issue an early warning so that timely measures can be taken.
3. Data analysis and risk assessment: DDO Chain uses big data analysis and risk assessment models to conduct a comprehensive analysis and assessment of trading behavior and market conditions. Through in-depth mining and analysis of data, potential risks can be more accurately judged and corresponding risk prevention measures can be taken.

3.1.4 DDO Chain’s risk control system

1. KYC (Know Your Customer) mechanism: DDO Chain has implemented a strict KYC mechanism, requiring users to complete identity verification and real-name authentication before making transactions. This can effectively prevent malicious users and illegal transactions from occurring, and improve the security of the trading platform.
2. Transaction limits and risk control: DDO Chain has set up transaction limits and risk control mechanisms to restrict and control different users and transaction behaviors. By reasonably setting transaction limits and risk control parameters, transaction risks can be effectively reduced and the security of user assets protected.
3. System security and protection: DDO Chain adopts advanced system security technology and protection measures, including DDoS attack protection, data encryption and storage, security audit, etc. These measures can effectively prevent hacker attacks and data leaks, and ensure the stable operation of the trading platform and the security of user assets.

3.1.5 DDO Chain Risk Control System

1. Protect the security of user assets: DDO Chain 's risk control system can effectively prevent hacker attacks, fraud and malicious transactions, and protect the security of users' digital assets. Users can rest assured to store their assets in DDO Chain , conduct trading operations, and enjoy a safe and reliable trading environment.
2. Maintain the stability of the trading platform: DDO Chain 's risk control system can promptly detect and respond to transaction abnormalities and risk events, and maintain the stable operation of the trading platform. This is of great significance for improving transaction efficiency, increasing user trust and attracting more traders.
3. Compliance supervision requirements: With the rapid development of the digital asset trading industry, compliance supervision requirements are becoming more and more stringent. DDO Chain 's

risk control system can meet the requirements of regulatory agencies and provide transparent, safe and compliant trading services to provide protection for both users and exchanges.

3.2 AI application service platform

3.2.1 Deep integration of AI and WEB3.0

AI empowers different tracks of WEB3.0

AI-based trading strategies

The role of AI in trading strategies

- Data collection: Use the API to obtain the data required for liquidity mining from the exchange, such as the price of the trading pair, trading volume, liquidity provision volume, and attraction volume, etc.
- Data preprocessing: clarify, transform and standardize the collected data for subsequent analysis and modeling.
- Establish the DDO Chain model: Use the trained DDO Chain model to analyze historical data and predict current and future liquidity mining trends and profits.
- Risk control: Based on DDO Chain's prediction results, formulate risk control strategies, such as setting stop loss and take profit conditions, controlling transaction volume, etc., to protect the interests of investors.
- Implement trading strategies: Develop trading strategies based on the prediction results of the DDO Chain model, such as selecting trading pairs, deciding trading timing, setting trading prices, etc.
- Transaction execution: Execute transactions according to the trading strategy, and the AI system automatically executes the investment of funds into mining and obtains expected returns.
- Monitoring and optimization: Regularly monitor trading results and model performance, and optimize and adjust strategies to maintain good investment returns and risk control effects.

AI-based sentiment analysis strategy

This strategy is based on DDO Chain's natural language processing capabilities and performs sentiment analysis on market sentiment by analyzing text data such as news reports and social media posts. When the sentiment in most texts is "Positive" or "Buy", a trading strategy may choose to buy; and vice versa.

The implementation of this strategy requires collecting market-related text data and cleaning, analyzing and modeling this data. For the modeling of sentiment analysis models, supervised learning algorithms can be used to train using annotated training data to predict the emotional tendency of text. The formulation of trading strategies can be adjusted based on the prediction results of the model, combined with market trends and other factors.

AI-based trading strategy analysis

This strategy is based on DDO Chain's ability to understand text descriptions of trading strategies and

analyze and evaluate trading strategies. For example, analyze the backtest results and historical returns of the trading strategy to evaluate the effectiveness and reliability of the strategy, and formulate trading strategies accordingly. For the analysis and evaluation of trading strategies, machine learning algorithms can be used to predict the rate of return and risk of the strategy through model training and optimization. The formulation of trading strategies can be adjusted based on the prediction results of the model, combined with market trends and other factors.

AI-based asset portfolio management

The asset portfolio management tool based on DDO Chain can use natural language processing technology to help users better manage asset portfolios, optimize asset allocation and risk control, and at the same time provide more accurate predictions and suggestions in investment decision-making programs. can do:
Automated asset analysis and currency selection: Use DDO Chain's natural language processing to analyze and evaluate the fundamentals, market conditions, and macroeconomic factors of various assets, so as to automatically select appropriate investment targets and reduce the risk of wrong decisions.
Asset portfolio optimization: Use DDO Chain to predict market trends and risks, provide users with asset portfolio optimization suggestions, and achieve risk diversification and revenue maximization.
Automated transaction execution: Based on DDO Chain's trading decision-making model, automatic execution of buying and selling transactions enables instant adjustment and optimization of assets while reducing the risk of human intervention.

AI-based simulated trading tool (AI Demo Account)

The AI-based simulated cryptocurrency trading tool is a virtual trading platform that simulates the real cryptocurrency market environment based on AI algorithms and provides virtual funds for users to conduct simulated transactions. Users can learn cryptocurrency trading, formulate trading strategies and conduct simulated trading on the platform without taking on the risks of real trading, allowing more users to experience the AI function while also achieving advanced levels of self-investment.

The feasible direction of DEX+AI

Assisted decision-making: analysis and mining of transaction data to provide more accurate and comprehensive market analysis and predictions, helping traders make more informed investment decisions.
Optimizing asset portfolio management: AI technology can provide users with more personalized and efficient asset portfolio management services by analyzing users ' investment preferences, risk tolerance, historical transaction data and other information.
Improve user experience: AI technology can provide users with a more intelligent, faster and considerate transaction service experience through intelligent customer service, intelligent recommendations, intelligent Q&A, etc., and improve user satisfaction and loyalty.
Investment information collection: AI can help provide public opinion, sentiment, and risk information.
Price prediction: AI can use technologies such as big data and machine learning to analyze market data to predict the trend of cryptocurrency prices and help users make more informed investment decisions.

Trading decisions: Artificial intelligence can use automated trading systems to execute trading decisions, such as trading based on preset rules and strategies, thereby reducing the impact of human factors on trading.

AI safety

Fraud analysis: AI technology can monitor and analyze network traffic, identify and prevent network attacks and fraud through artificial intelligence, and improve the security and credibility of Dex.
Contract audit: AI technology can help optimize the writing and deployment of smart contracts, improve the quality and reliability of its code; it can also help monitor and prevent malicious behavior, and reduce the risks and vulnerabilities of Dex.
Credit analysis: Using technologies such as big data and machine learning, artificial intelligence can analyze customers' credit history, financial status, social networks, behavioral data and other multi-dimensional information to assess the customer's credit risk level. Artificial intelligence can use big data and machine learning algorithms to analyze a customer's credit history, financial status and other relevant data to assess the customer's risk level. To predict customer default risk.
Fraud detection: Artificial intelligence can use natural language processing and image recognition technology to analyze customers' transaction records and other behavioral data to detect potential fraud.
Transaction monitoring: Artificial intelligence can monitor trading activity using real-time data analysis techniques to identify potential abnormal trading behavior.
Risk management: The risk management system based on DDO Chain is a system that uses natural language processing technology to analyze and assess financial market risks. Through the analysis of financial data and real-time market news, predictions and warnings about market risks can be generated to help investors better manage risks.
Improve transaction speed and efficiency: Optimizing transaction processes (such as optimal routing) through AI technology can reduce transaction congestion, reduce transaction costs, and speed up transaction completion time.

Solve several major problems of current DEX

Insufficient liquidity: The trading volume of DEX is smaller than that of CEX, resulting in insufficient liquidity and the transaction price is easily affected by market fluctuations. The use of AI technology can improve the intelligence of trading robots, thereby improving trading efficiency and profitability, and increasing trading volume and liquidity.
Security issues: Due to the decentralized nature of DEX, there are security risks in the transaction process, such as asset theft, contract vulnerabilities, etc. The use of AI technology can improve risk control capabilities, realize intelligent risk control and safety monitoring, and prevent risk events from occurring.
Poor user experience: Compared with CEX, the user interface of DEX is simpler and the user experience is poor. The use of AI technology can improve users' personalized service capabilities, realize intelligent customer relationships and recommendation systems, and improve user experience.
High transaction costs: Compared with the low-cost handling fees of CEX, DEX currently has relatively high transaction costs due to miner fees and other reasons. Using AI technology can optimize the trading strategy of trading robots, reduce transaction costs and risks, and improve profitability.

3.2.2 AI application incubator

In response to the problems faced by AI start-ups such as business difficulties, difficult financing, and high costs, DDO Chain AI Incubator will integrate the Internet 3.0 industry chain, build a benign industrial ecology, and help early-stage artificial intelligence application companies complete product innovation through business, capital, and cost support. , technology iteration, scene implementation. On the one hand, it opens its own technology ecology, computing power ecology, business ecology, and scenario ecology to help start-ups and large institutions connect to achieve technological empowerment, product innovation, entrepreneurial support, and business interoperability. On the other hand, the incubator cooperates with well-known investment institutions and more than 20 ecological resource partners to provide capital market consulting, training and industry insights for start-up companies, helping artificial intelligence companies solve the problem of "difficulty finding money" in the early stage.

Incubation services

- Technical Support

Platform capabilities: DDO Chain TAOC platform and common technology innovation center provide public technical services to enterprises
Data center: Provides super computing power, accelerates big data analysis and processing capabilities, supports major projects or conducts collaborative research and development

- Supporting facilities

Office space: Provide diversified office space, with multi-functional conference rooms, demonstration exhibition halls and other office supporting facilities, convenient transportation and complete living facilities
Entrepreneurship services
Entrepreneurship counseling : providing necessary professional consulting services in the early stages of business operations
Corporate training : Provides various types of training on corporate management, financing, team building, etc.
Project application : Provide consultation for settled enterprises to apply for government support funds at the national, provincial, municipal and district levels

- market synergy

Establish a professional marketing team to form a market-oriented DDO Chain product ecosystem to help companies cultivate professional business personnel, form a market collaborative ecosystem, and help companies grow rapidly

In the future, DDO Chain AI Application Incubator will provide free office space, financial and tax law services, policy docking and other support items to AI start-ups, helping companies overcome early growth obstacles, reduce costs and increase efficiency, and promote a richer and more complete AI industry ecosystem.

3.2.3 AI combined with ecological implementation

AI and ecosystem

DDO Chain AI application service platform uses advanced artificial intelligence technologies, such as machine learning, deep learning, natural language processing, etc., combined with cloud computing, big data and other technologies to provide users with comprehensive AI solutions. The integration of these technologies not only promotes efficient processing and analysis of data, but also enables intelligent solutions to complex problems, bringing revolutionary changes to the ecosystem of different industries.

Industry application examples

- Smart manufacturing

In the field of intelligent manufacturing, DDO Chain AI application service platform improves production efficiency and product quality through intelligent production processes, equipment maintenance and quality control. For example, using deep learning algorithms to analyze image data of the production line can achieve early defect detection, significantly reduce production costs and improve product quality.

- medical health

In the field of medical health, the platform analyzes medical images through deep learning models, assists doctors in disease diagnosis, and improves the accuracy and efficiency of diagnosis. At the same time, through big data analysis, disease risk prediction and health management can be achieved, and personalized medical services can be provided to patients.

- Financial Services

In the field of financial services, DDO Chain AI application service platform analyzes the financial market through machine learning models and provides investors with data-based decision support. At the same time, the use of natural language processing technology can improve the efficiency and quality of customer services of financial institutions, such as realizing 24-hour online customer consultation through intelligent customer service systems.

- smart city

In the construction of smart cities, DDO Chain AI application service platform realizes traffic flow optimization, environmental monitoring, public safety and other functions through comprehensive monitoring and analysis of city operations, improving urban management efficiency and residents' quality of life.

Technical challenges and solutions

In the process of realizing the deep integration of AI and ecosystem, DDO Chain AI application service platform faces a number of technical challenges, including data collection and processing, AI model development and optimization, system integration and deployment, etc. To address these challenges, the platform has taken a series of measures:

1. Data processing and analysis: Ensure data quality and processing efficiency by building powerful data processing capabilities and an efficient data analysis framework.
2. Model development and optimization: Use the latest AI research results to continuously optimize model performance, while focusing on the interpretability and security of the model.
3. System integration and deployment: Provide flexible API interfaces and SDK packages to ensure that

AI technology can be quickly integrated into existing IT systems and lower the technical threshold.

3.3 The public chain ecosystem is implemented in all scenarios

3.3.1 DApp ecological business empowerment

DDO Chain Ecological Chain uses decentralized wallets as DApp development and ecological entrances, provides friendly development tools, technology and business environment for large quantities of decentralized applications, and provides traffic entrances for subsequent operations of DApps on the chain. At the same time, DDO Chain is also an open source platform, and any developer can develop based on the DDO Chain. Therefore, DDO Chain will not interfere with developers and their products, and will provide them with help and advice on technology development and product operations.
In addition to incubating smart public chains, DDO Chain will also break through the bottleneck of cross-chain technology and cooperate with well-known public chain development teams in the industry to jointly build a cross-chain DApp ecosystem covering various major fields such as asset management, game entertainment, e-commerce, and social communication.
In order to help achieve the ecological carrying goal of tens of thousands of DApps, DDO Chain 's DApp integration platform has strong technical strength. It not only provides developers with flexible and easy-to-use blockchain infrastructure, but also achieves data transparency and privacy protection. It is also based on The decentralized system realizes the self-evolution of the intelligent ecology. Moreover, DDO Chain has a professional and experienced founding team and rich industry resources. It will use its rich industry experience and profound industry understanding to protect the construction and development of the entire ecosystem.

3.3.2 Technical services and application promotion

Technical service and support

- Smart contract platform
- DDO Chain provides a flexible and powerful smart contract development platform that supports multiple programming languages, allowing developers to easily build and deploy safe and efficient decentralized applications. By providing detailed documentation, development kits (SDKs) and application programming interfaces (APIs), DDO Chain ensures that developers can quickly get started and realize their ideas.
- Decentralized Finance (DEFI) Services
- The DDO Chain ecosystem focuses on the development of decentralized financial services and provides users with a brand new financial service experience by providing stable coins, lending platforms, exchanges and asset management tools. These services are designed to improve capital efficiency, reduce transaction costs and provide greater financial inclusion.
- Digital identity and data storage
- In terms of digital identity authentication, DDO Chain provides a secure and non-tamperable identity management system through blockchain technology to ensure user privacy and data security. At the same time, its decentralized data storage solution provides enterprises and

individuals with new ways to store, verify and share data.

Application promotion and scene implementation

DDO Chain ecosystem is committed to realizing the application of blockchain technology in multiple fields and industries. The following are application cases in several key areas:

- supply chain management

Through blockchain technology, DDO Chain can realize the full traceability and transparency of the supply chain process, helping companies reduce operating costs, improve efficiency, and ensure the authenticity and safety of goods.

- Cross-border payment

DEFI service of DDO Chain , we can realize fast and low-cost transfer of cross-border payments, solve the problems of high fees and slow processing of traditional bank transfers, and provide strong support for global trade.

- digital rights management

DDO Chain provides content creators with a new copyright protection mechanism through non-tamperable blockchain technology, allowing them to safely register, manage and transfer digital copyrights, effectively combating piracy and infringement.

- smart city

In the construction of smart cities, DDO Chain can be used in many aspects such as urban governance, intelligent transportation, and energy management. It promotes the intelligence and digitalization of urban management by improving data processing efficiency and transparency.

3.3.3 User rights protection mechanism

The importance of user rights protection mechanism

In the field of blockchain, the protection of user rights and interests is the basis for building trust and promoting technology applications. With the widespread application of blockchain technology, users are faced with many challenges such as asset security, privacy protection, and transaction transparency. Therefore, establishing an effective rights and interests protection mechanism is crucial to protect the interests of users and promote the healthy development of the ecosystem.

User rights protection strategy of DDO Chain ecosystem

1. Asset security

Decentralized storage: Utilize the decentralized characteristics of the blockchain to decentralize user asset storage and reduce the risk of concentrated attacks by hackers.

Multi-signature wallet: Provide users with a multi-signature wallet to increase the security of asset transfers and ensure that transactions can only be executed after multi-party authentication.

Regular security audits: Cooperate with a professional security team to conduct regular security audits of the system to discover and repair potential security vulnerabilities in a timely manner.

2. Privacy protection measures

Anonymous transaction: Supports anonymous transaction function to protect user transaction information from being leaked, while ensuring the traceability and non-tamperability of transactions.

Zero-knowledge proof: Using zero-knowledge proof technology, users can prove the legitimacy of

their transactions without exposing any personal information.
Data encrypted transmission: All user data is encrypted during transmission to ensure data security and privacy.
3. Transparency and fairness of transactions
Publicly verifiable smart contracts: All smart contract codes are public and anyone can verify the contract logic to ensure openness, transparency and fairness of transactions.
Decentralized Autonomous Organization (DAO): By establishing DAO, community members are given more decision-making power, participate in ecological governance, and protect the interests of users.

Scenario application and practice

- supply chain finance

In supply chain finance scenarios, smart contracts are used to automatically execute contract terms and realize instant payment of funds, reducing the risk of transaction fraud and protecting the rights and interests of all parties in the supply chain.

- digital rights management

Provide copyright registration services for digital content creation through blockchain technology to ensure that the creator's intellectual property rights are protected, and automatically distribute copyright income through smart contracts to protect the economic interests of the creator.

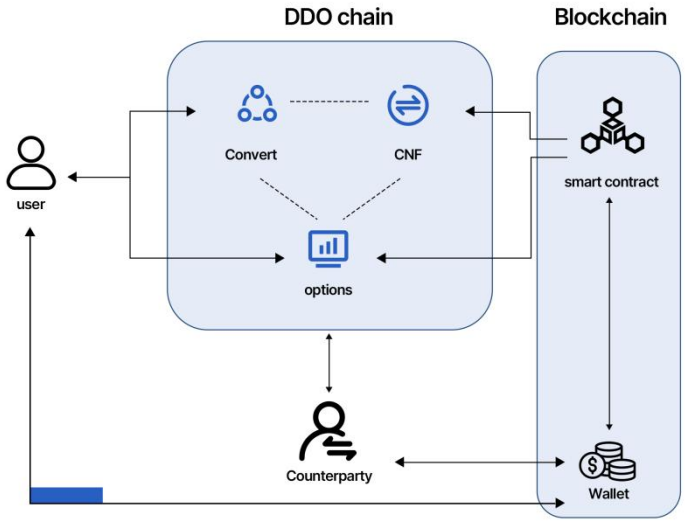
- Authentication

In the digital identity authentication scenario, DDO Chain protects the security of users' personal information through a distributed identity authentication system, and at the same time provides convenient identity verification services, improving the efficiency and security of identity authentication.

4. Five core innovations of DDO Chain

4.1 Digital options based on blockchain technology

the perfect combination of Wall Street financial experience and blockchain technology , the DDO Chain R&D team created the world's first digital option value asset , providing users with professional value exchange scenarios and platform technical support. DDO Chain Project supports BTC, BCH, ETH and other mainstream tokens that comply with ERC-20 standards, and will gradually add other digital assets in the future to diversify option products.



DDO Chain uses smart contracts to greatly simplify the design of traditional options products and speed up the entire transaction process. DDO Chain's proprietary Nest system includes option pricing tools and matching tools. Users only need to enter the asset package and convert it into digital options , and then they can use the options to help increase the value of the assets and obtain better returns at the same time. In this process, users only need to hold the DDO Chain token DDO to conveniently reduce payment transaction fees, withdrawal fees, API authorization fees, etc.

DDO Chain has the following characteristics :

- The size, validity period and execution price of option assets are fully customized;
- Absolutely safe : all digital options will be automatically executed by smart contracts;
- Nest System: Machine learning-based option pricing and matching tool that greatly simplifies the trading process;

DDO Chain will be able to meet the investment needs of different customer groups, such as miners,

investors, merchants accepting crypto payments, companies financing through digital options , crypto funds, etc. DDO Chain is committed to becoming the global leader in digital options by creating an all-weather, safe and reliable platform .

4.2 Realize smart contracts for the entire business process

Smart AI Contract

DDO Chain allows users to perform machine learning-related programming on the DDO Chain chain and submit some interactions that depend on other contracts, which will become very interesting. For example, with the electronic pets Cryptokitties running on Ethereum, the interaction between pets can be dynamic, intelligent, and evolutionary. Through the enhanced learning model uploaded by users, smart contracts combined with artificial intelligence can easily implement various applications with artificial intelligence. At the same time, DDO Chain provides AI calling interfaces for other chains . For example, on Bitcoin Cash and Ethereum, DDO Chain provides call results based on artificial intelligence-based analysis of contract wallet addresses. Those models that analyze addresses will not only help regulatory technology (RegTech), but also provide general users with dynamic risk assessments of transfer destination addresses .

```
import { expect } from "chai";
import { ethers } from "hardhat";

describe("MyTestToken", function () {
  const useMTT = async () => {
    const MyTestToken = await ethers.getContractFactory("MyTestToken");
    const MTT = await MyTestToken.deploy("My Test Token", "MTT", 1000000);

    return MTT;
  };

  it("Deployment", async function () {
    const [owner] = await ethers.getSigners();

    const MTT = await useMTT();

    expect(await MTT.totalSupply()).to.equal(1000000);
    expect(await MTT.balanceOf(owner)).to.equal(1000000);
  });

  it("Transfer", async function () {
    const [owner, address1] = await ethers.getSigners();
```

```
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.20;

import "@openzeppelin/contracts/token/ERC20/ERC20.sol";
import "@openzeppelin/contracts/access/Ownable.sol";

contract MyTestToken is ERC20, Ownable {
    constructor(
        string memory name,
        string memory symbol,
        uint256 initialSupply
    ) ERC20(name, symbol) Ownable(msg.sender) {
        _mint(msg.sender, initialSupply);
    }

    function mint(address to, uint256 amount) public onlyOwner {
        _mint(to, amount);
    }

    function burn(address account, uint256 amount) public onlyOwner {
        _burn(account, amount);
    }
}
```

4.3 Intelligent sharing platform development benefits

1. Resource sharing

the digital and decentralized management of various resources through blockchain technology . Whether it is physical assets, digital content or services, they can be registered, traded and shared on the platform. This approach makes resource utilization more efficient and reduces information asymmetry and transaction costs.

2. Smart contract automatic execution

Smart contracts play a central role in the platform. All transactions and service agreements are implemented through smart contracts, ensuring the automation of transactions and the strict execution of contract terms. This eliminates human delays and errors, making transactions more reliable and efficient.

3. Income distribution

The smart sharing platform uses smart contracts to automatically calculate and distribute benefits. Whether they are participants in the shared economy or contributors of assets, they can obtain fair income distribution according to preset rules. This enhances the enthusiasm of participants and promotes the healthy development of the entire ecosystem.

4.Application cases

Sharing economy

In the sharing economy model, smart sharing platforms can be used in areas such as shared accommodation and shared travel. Through smart contracts, users can directly rent houses or vehicles,

and the platform automatically handles payment and security deposits, improving the efficiency and security of transactions.

Digital content sharing

For digital content creators, smart sharing platforms provide a new revenue model. Creators can upload their works to the platform, and each user's access or use will automatically settle the income through smart contracts, protecting the rights and interests of creators.

Data sharing

In the era of big data, data sharing has become particularly important. Intelligent sharing platforms can be used for data transactions and sharing, such as medical data, scientific research data, etc. By ensuring the security and privacy of data, the platform encourages the sharing and rational use of data.

4.3.1 AI - based asset portfolio management

fund classifier

At present, the number of public funds on the market is close to 20,000. Each fund has different risk and return characteristics, and its performance is also highly random. The classification and optimization of fund products is a prerequisite for asset allocation.

For fund classification, we first classify all public fund products from the bottom based on large classification dimensions, and perform AI feature clustering and classification optimization on the subdivisions of each major category of assets, so as to obtain more suitable business logic and Categorical dimensions of experience. Before running the fund classifier, it is usually necessary to perform the advance calculation of the fund heavyweight stock completion algorithm, thereby improving the accuracy and practicality of the fund classifier and fund screener. Specifically, the fund's heavy holdings completion algorithm usually uses data mining and machine learning technology to identify and classify the fund's heavy holdings. For stocks that have not been identified or classified, we can predict their possible heavy positions through correlation analysis with known stocks and other methods, and make supplements.

Secondly, we draw lessons from the holding based style attribution model HBSA (Holding Based Style Attribution) to construct a new public fund classification algorithm and form corresponding characteristic factors based on the strategic characteristics of public stock funds and their strategic characteristics. Through AI unsupervised clustering of the characteristic factors of funds of different strategy types, preliminary strategy labeling is carried out; a strategy fund pool is constructed by qualitatively screening typical strategy type funds to form the stock fund strategy type index, and the net value of each fund is Regress with the constructed strategy type index to determine the outliers of the clustering effect and correct the classification effect; the fund coverage includes ordinary stock funds and partial stock funds. Strategies include equilibrium strategies, prosperity trends, quantitative strategies, etc. Among them, for the feature identification of each strategy, an unsupervised clustering learning algorithm of strategy feature factors is used, with the goal of discovering hidden structures and relationships from unlabeled data. Compared with supervised learning, which relies on labeled data for training, unsupervised learning can automatically learn features from unlabeled data to better understand the data.

Finally, based on the above method, the strategies, styles, and industries of stock funds, bond funds,

and fixed-income + funds were carefully reclassified. The final classification results were more in line with and satisfied the actual business scenarios of intelligent investment advisory in the industry. required.

Deep reinforcement learning matching research

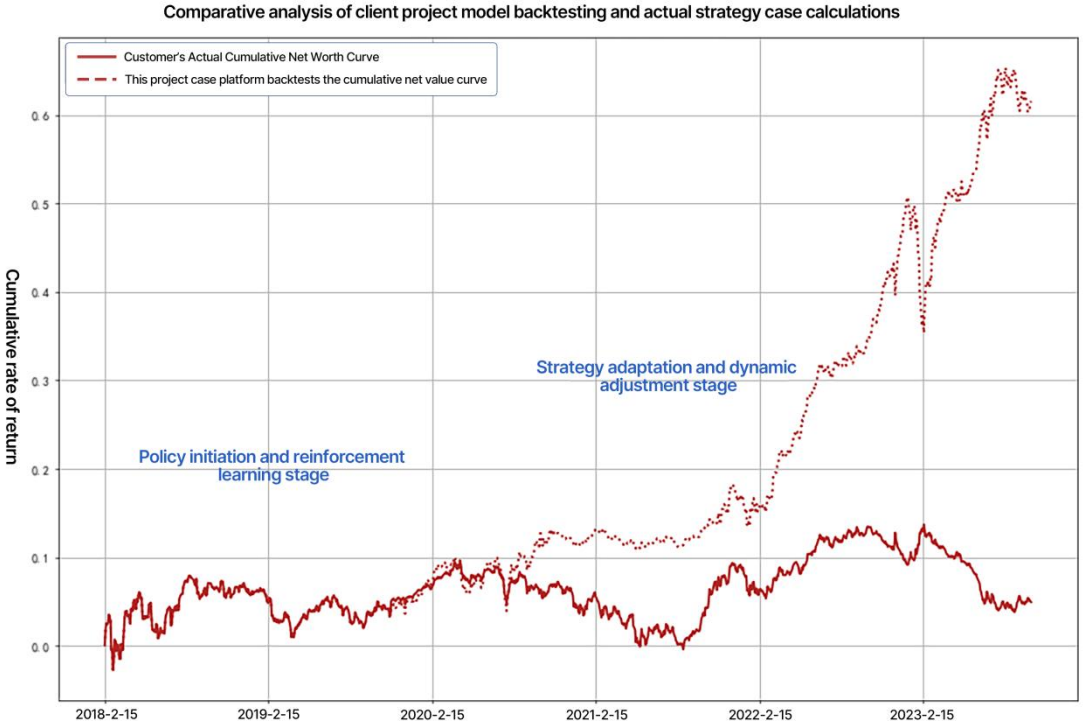
Matching fund portfolio strategy portraits and customer portraits is the key technology of this project. Through deep learning and reinforcement learning matching algorithms, the rich label feature portraits on the fund product side and the innovative customer portrait factorization system label features on the customer portrait side are dynamically matched. , to achieve recommended solutions for optimal allocation of financial assets based on customers ' personalized investment needs. The customer portrait factorization architecture system mainly includes three aspects: identifying the customer's investment type, understanding the customer's investment preferences, and calculating the customer's investment ability. Ultimately, it is possible to achieve an optimal investment advisory portfolio configuration adjustment effect within the scope of customers' cognitive preferences.

Based on deep learning technology, it aims to recommend suitable fund product portfolios to customers with fund and stock trading records. First, perform the next step of analysis by extracting customer IDs that have both fund and stock transaction records. Secondly, by matching the customer profile attribute labels with the purchased fund product profile labels, we can find the customer's preferences and suitable product circles and fund classification characteristics. Finally, through the asset allocation model and optimal allocation model, we build a fund investment portfolio suitable for customers based on the risk-return dimension and make matching recommendations.

strategic expert system

In order to help customers carry out strategic asset allocation and tactical asset allocation, the DDO Chain system is mainly based on the cyclical preferences of strategic rotation, including weekly frequency, monthly frequency and quarterly frequency, and designs corresponding fund portfolio allocations under the constraints of target risk factors. Optimization algorithm. Using this method, customers can optimize asset allocation plans by matching different periodic matrices and target risk factors. When allocating a customer for the first time, the customer asset allocation center is determined based on the customer risk rating, customer life cycle, and customer asset allocation tags, and the customer investment preference and transaction frequency tags are extracted. Then, based on the analysis of customer assets, a customer asset allocation vector matrix is generated, and the optimal solution is calculated by combining macro factor rotation, constraining the portfolio target factor exposure, and maximum Sharpe, maximum return, minimum drawdown and other index requirements. When adjusting portfolio positions, it is necessary to update the asset allocation center based on the customer's existing asset allocation ratio and form a new asset allocation vector matrix. If the products in the asset-product list change, the corresponding products in the original positions need to be directly replaced with the new highest-rated products. When increasing or decreasing funds, it is necessary to re-match the amount of customer assets, reset the asset and allocation ratio center, and decide whether to perform optimization based on whether the existing asset allocation vector matrix is available, and solve asset rebalancing while adjusting portfolio positions. question.

DDO Chain Intelligent Public Chain innovatively proposes a multi-factor strategy fusion method, which integrates rich style rotation or industry rotation multi-factors into strategies, and synthesizes momentum values based on the multi-cycle return results of each strategy as a multi-factor strategy. Configuration weights for factor policy fusion. This method can realize the fusion of adaptive dynamic weighting strategies based on real-time effective factors, and obtain the optimal weekly, monthly, and quarterly frequency opinion scores for each major asset class, style, and industry.



4.3.2 Whole-process safety assurance system

The core components of the whole-process safety assurance system

1. Application of encryption technology

DDO Chain extensively applies advanced encryption technologies during data transmission and storage, including symmetric encryption, asymmetric encryption and hash algorithms, etc. to ensure the confidentiality and integrity of data. These encryption measures provide strong protection for users' transactions and personal information.

2. Security audit of smart contracts

As a key technology for DDO Chain to realize automated transactions and services, smart contracts are of vital importance in terms of security. DDO Chain has established a strict smart contract security audit mechanism, including code review, vulnerability scanning and stress testing, to prevent contract vulnerabilities and security risks.

3. Defense of distributed architecture

Utilizing the distributed nature of blockchain technology, DDO Chain realizes decentralized storage of data and resources, greatly reducing the risk of single points of failure. In addition, the system's resistance and stability are enhanced through distributed denial-of-service (DDoS) attack defense.

4. User identity and access control
DDO Chain introduces complex user authentication and access control mechanisms to ensure that only authorized users can access sensitive operations or data. Through multi-factor authentication, digital signature and other technologies, the level of account security is improved.

5. Real-time monitoring and emergency response
A comprehensive system monitoring and security warning mechanism has been established to enable real-time monitoring of network status, transaction activities and possible security threats. Once an abnormal behavior or security incident is detected, the emergency response program is immediately launched to quickly locate the problem and take corresponding measures to minimize potential losses.

Innovations compared to other blockchain platforms

Compared with other blockchain platforms, DDO Chain has shown many innovations in the design and implementation of the security system. For example, by combining the latest encryption technology and self-developed security tools, it provides more efficient and reliable data protection. At the same time, DDO Chain also attaches great importance to the power of the community and encourages users, developers and security experts to participate in security supervision and improvement, forming a security ecosystem that is participated and maintained by multiple parties.

5. DDO Chain realizes financial transformation in four dimensions

5.1 AI technological changes promote the self-evolution of WEB3.0

As we enter the WEB3.0 era, machine learning plays a vital role in improving the online user experience (UX), and the Internet is expected to become more intelligent, decentralized and personalized. As a subset of artificial intelligence, machine learning uses algorithms to learn from data and improve the performance of specific activities. Machine learning is being used in WEB 3.0 to analyze large amounts of data to provide personalized content, increase search results, and improve the overall user experience.

personalise

Personalization is one of the main ways to use machine learning to improve the WEB3.0 user experience. Platforms like DDO Chain are leading the wave of personalization. User data can be collected and analyzed with the help of machine learning algorithms to provide personalized content, recommendations and search results. For example, social media networks use machine learning to evaluate user behavior and preferences in order to deliver appropriate information, advertising and products. Likewise, e-commerce websites use machine learning to examine user information, including

browsing and purchase history and search queries, to suggest items that customers might purchase.

DDO Chain Chatbot

DDO Chain chatbots and conversational interfaces are increasingly popular in WEB 3.0 because they provide users with a more natural and intuitive way to interact with websites and applications. These interfaces are powered by machine learning algorithms, allowing them to learn from user interactions and improve their responses over time. By leveraging machine learning, chatbots can provide users with a more personalized and relevant experience. For example, it can analyze user data and interactions to tailor responses and provide more relevant information. Not only does this improve the overall user experience, it also helps increase user engagement and retention. Additionally, chatbots and conversational interfaces can help streamline customer service and support processes by automating routine tasks and providing instant responses.

Valid search results

Machine learning plays a vital role in enhancing user experience in WEB3.0 , especially in providing effective search results. Unlike traditional search engines that rely on keywords and metadata, machine learning algorithms examine the context of the search query and the user's search history to provide more precise and relevant results. For example, when searching for "best pizza in New York," machine learning algorithms can consider factors such as the user's location, reviews, and other characteristics to provide personalized and contextual results. This will result in a more tailored and accurate search experience, helping users find exactly what they are looking for more quickly and easily. By leveraging machine learning algorithms, WEB 3.0 search engines can not only provide more accurate results but also improve over time by learning from user interactions and feedback. As a result, users can expect a more seamless and personalized search experience, making it easier to navigate and engage with the digital world.

Relevant and engaging information

In WEB3.0 , machine learning is not only used to provide personalized suggestions and effective search results, but also to deliver more relevant and attractive information. By analyzing user behavior, machine learning algorithms can identify the most engaging types of content and serve users more specific content. For example, if users click on videos frequently, machine learning algorithms can use this data to serve up more video content in the future. This not only provides users with a more personalized and engaging experience, but also helps content providers optimize their products and increase user engagement. By leveraging machine learning to deliver more relevant and engaging content, WEB 3.0 platforms can increase user retention and satisfaction, ultimately leading to a more successful digital ecosystem.

WEB3.0 smart with enhanced blockchain technology

Blockchain and AI have the potential to transform a wide range of industries because of blockchain's ability to secure and verify transactions, and AI 's ability to analyze large amounts of data.

- smart contract

Smart contracts are a way for artificial intelligence in WEB3.0 to enhance blockchain technology. These contracts can be set up to automatically execute trades according to predetermined criteria, which will speed up and improve the process. These contracts can be made more reliable and secure by using artificial intelligence algorithms to examine them and uncover any potential weaknesses or flaws.

- data analysis

another area where blockchain could benefit from artificial intelligence . Without artificial intelligence algorithms, the massive data generated by blockchain technology may be difficult to manage and analyze. Blockchain users can use artificial intelligence to quickly and efficiently examine large amounts of data to see patterns and trends, helping businesses make informed decisions and plan.

- Scalability

Artificial intelligence can also enhance blockchain's scalability. As blockchain technology develops, the number of transactions that can be completed per second becomes increasingly important. The performance of blockchain can be enhanced through artificial intelligence algorithms to make it faster and more efficient.

5.2 Intelligent finance leads a new direction in wealth management

DDO Chain establishes financial + technological barriers and optimizes wealth management models

In view of the problems that the traditional wealth management model has cumbersome management processes, consumes a lot of time and energy, and has poor timeliness, DDO Chain has made an in-depth layout, that is, developing new wealth management technologies and models from all aspects, and taking the lead in the formation of the industry pattern. occupy the high ground.

The first is strong professional strength. The degree of specialization in wealth management directly affects product quality and reputation, which will be directly reflected in user stickiness. Taking this into account, DDO Chain not only relies on CreditEase's professional experience and top experts in the field of financial technology, but also focuses on high-quality assets in its asset categories. It also provides diversified asset choices such as funds and insurance, and is committed to product specialization. Comprehensive protection.

Technology research and development innovation. DDO Chain is developing an original technology that is more suitable for wealth management, namely the KYC intelligent scoring system, which gives it independent technical advantages in asset quality rate, product portfolio, security assessment, etc. For example, through multi-dimensional data and machine learning algorithms, on the one hand, we conduct intelligent analysis of key indicators such as customers' investable assets, risk tolerance, and liquidity needs; on the other hand, we analyze company financial reports, macro data, life cycles, etc. It provides a variety of vertical financial services based on various types of massive data, and ultimately accurately matches financial products for the wealthy people.

by DDO Chain , the era of intelligent wealth management is accelerating.

DDO Chain not only upgraded its technology to provide safe, professional and intelligent online comprehensive wealth management services, but also innovated wealth management model

innovations at the service level and user level. It finally gained market recognition and accelerated the comprehensive development of the era of intelligent wealth management. Come and usher in a new era of wealth management.

1. Personalized financial management has become a new trend

DDO Chain lays the foundation for the development of intelligent wealth management through multi-dimensional + high-frequency massive data, and formulates personalized asset allocation recommendations for customers based on their investment goals and risk preferences. Such an intelligent technology model does not blindly refer to historical market performance to manage capital investments, but provides customers with decentralized strategy portfolio recommendations and portfolio optimization strategies to achieve relatively personalized product services.

Intelligent wealth management provides users with intelligent services through technological innovation. In terms of investment philosophy, it focuses on the automatic rebalancing of the target investment return portfolio. Through this automated strategy, investors can effectively avoid making irrational decisions when facing market fluctuations, allowing investors to always stick to their long-term financial management goals. It protects and optimizes industry development and personal asset income to the greatest extent.

2. Professional machine processing will gradually replace manual processing

Wealth management products continue to innovate through technological means. It is no longer a simple artificial intelligence memory operation habit and simple voice interactive control software, but provides professional in-depth service optimization of financial investment, that is, large-scale data processing and analysis for professional investors. The platform may even replace the work of existing analysts.

On the one hand, the platform can quickly and massively perform various data processing and analysis tasks, and at the same time, it can also quickly answer complex financial questions inquired by investors; on the other hand, the platform can further break down the upstream and downstream industries of the company and conduct detailed analysis. It also predicts the impact of the subdivision project on the company and gives reasonable future valuation and profit forecasts, which will completely subvert the existing wealth management market model.

3. Security is also higher in the era of intelligent wealth management

The information disclosure of traditional wealth management services is obscure, and there is a problem of conflict between the interests of financial product suppliers and customers. However, the intelligent analysis and management launched by DDO Chain fully discloses the investment philosophy, financial product selection range, fees, etc., and customers can access it anytime and anywhere. View investment information to manage your own capital movements. In addition, intelligent platform management of funds can further ensure the safety of customer funds. For example, DDO Chain 's comprehensive upgrade of its own security technology, its major data risk control and industry hardware upgrades have further enhanced the industry's capital security and information security; secondly, it provides fast and effective asset allocation based on its algorithm without human intervention , to avoid possible conflicts of interest and human-induced errors due to human factors, etc. Compared with traditional investment advisory, it can ensure its stability, neutrality and consistency; thirdly, intelligent management tracks customer accounts in real time and monitors customer accounts Asset status, and through electronic channels, customers can check their account status anytime and anywhere to ensure the safety of account funds.

To sum up, with the development of artificial intelligence, big data analysis and other technologies in the financial field, in the future, under the triple guidance of DDO Chain 's optimization of financial technology technology, emphasis on mining potential customer needs and product and service innovation, the era of intelligent wealth management is approaching. Speeding up.

5.3 Intelligent risk control opens a new paradigm for financial development

The intelligent risk control system is a full life cycle management of risks. According to the risk focus of different aspects of the business, it collects, cleans, and processes data, establishes and analyzes data indicators, identifies risks with the help of a rule engine, and builds a one-stop risk view management platform to realize the management of risks. Credit risk early warning and monitoring. The construction of an intelligent risk control system requires the following three aspects to be promoted collaboratively.

- Mining the value of industrial data

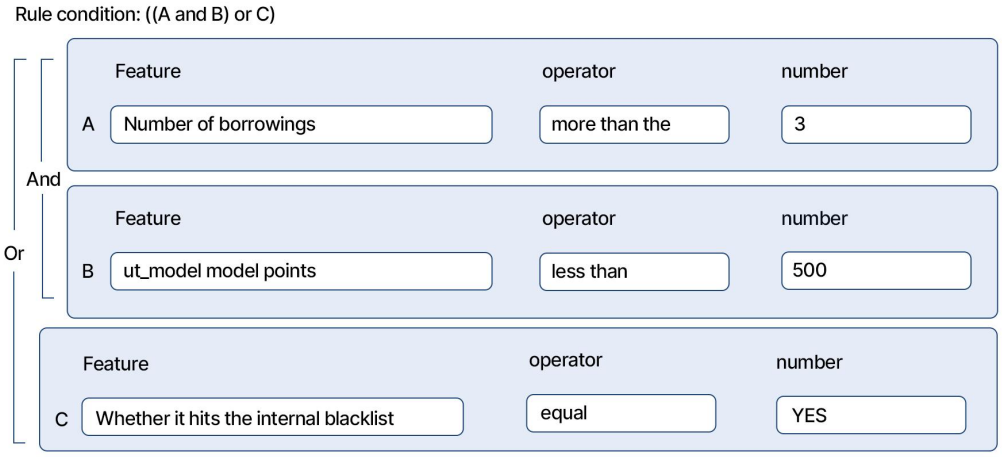
To improve the accuracy and efficiency of industrial chain supply chain financial services and improve risk management levels, we must first deeply integrate information and data from each link of the industrial chain, go deep into the industrial chain business process, and mine data that matches specific industry characteristics and transaction links, including Transaction models, payment methods, logistics and transportation, etc., refine business scenarios, form digital assets, and build a foundation for controlling financial risks in the industry chain.

- Driving risk control technology innovation

To achieve high-performance, high-reliability, and intelligent risk identification, it is necessary to combine the diverse and personalized risk control needs of different banks and different businesses, continuously explore and apply new technology means, and upgrade the intelligent risk control system. The following are examples of key technical directions :

ⅰ. Graphical decision-making engine

This is a new rule engine system. It has a simple and easy-to-use graphical operation background, which supports risk control analysts to adjust risk control rules and processes in the background, configure BPMN standard graphical risk control decision-making flow, AB Test offload testing, etc., and can achieve The iteration of the risk control strategy process has been reduced from days to hours, greatly improving the efficiency of risk control strategy adjustment.



ii .Machine learning model

The introduction of intelligent models such as machine learning can improve the actual effect of intelligent risk control. It regards model scoring as an important decision-making feature, adjusts and changes risk control rules in a timely manner, and objectively and truly judges risk status, effectively solving the rule configuration of traditional single system risk control systems by black industries (industries where borrowers use criminals to find loopholes in the rules). attacks, and at the same time identify abnormal fluctuations in risk characteristics of the industrial chain.

iii .Big data applications

Big data management can greatly improve the sensitivity of credit risk management and the accuracy of measurement by introducing multi-party credit data supplementary rules and models through cross-platform, cross-business line, and cross-regional data integration and risk information mining. Risk identification capabilities.

- Building a data analysis talent team

In the process of digital transformation, banks' traditional credit risk control talent teams and information technology talent teams often cannot be effectively integrated, which requires a dedicated data analysis talent team to improve operational efficiency. DDO Chain data analysis talents can build data models and risk control model products with the credit business as the core, provide end-to-end data service support for the business, and solve data standards, data quality, and data integration that arise in the process of building cross-domain data models. And other issues. They can integrate data modeling and credit risk control, and their competency standards far exceed those of traditional data modelers. These data analysis teams will become one of the most important core competitiveness of banks in the construction of intelligent risk control systems and even in the overall digital transformation. Different from the traditional post-loan management model, the intelligent risk control system helps financial institutions establish a more complete risk assessment system of "subject credit + transaction credit" to achieve dynamic, refined and efficient risk management, and can be applied in all aspects The pre-loan, loan and post-loan aspects of the business, especially the improvement of the duration asset management system, allow financial institutions to better identify, judge and manage industrial chain supply chain risks.

Pre-loan access and due diligence

The intelligent risk control system analyzes the current industry situation data and the company's

production and operation data to draw customer portraits and formulate more accurate customer access strategies. In addition, during the pre-loan due diligence stage, compared with manual work, through a series of analyzes by the intelligent risk control system, preliminary conclusions can be drawn quickly and efficiently about the sustainability of the business and the risk points of the enterprise.

Loan assistance in implementing credit granting conditions and loan review conditions
After loan approval and before disbursement, the bank's customer department needs to implement the credit disbursement conditions and loan review conditions based on the approval. The intelligent risk control system can firstly provide data information required by relevant conditions, and secondly, it can calculate more complex credit limits based on dynamic changes in data and different transaction scenarios, further assisting in the implementation of credit issuance and loan review.

Post-loan management and risk monitoring
After credit is issued, the intelligent risk control system conducts real-time tracking and monitoring of loan funds and the production and operation of financing enterprises, and collects "four streams" data of business flow, logistics, capital flow, and information flow of financing enterprises, integrating the four streams into one and cross-checking Really, risks are quantified through specific data and indicators, early warning rules are set one by one, and risk early warning and statistical analysis are carried out on fluctuating data in real time, so that risk managers can timely adjust risk early warning strategies and carry out risk early warning handling. By building DDO Chain intelligent risk control system, financial institutions can realize three aspects of value. First, it replaces expert experience to improve the accuracy of risk control. Different from relying on expert experience, the intelligent risk control system is based on the integration of multiple digital technologies and can conduct comprehensive, objective and accurate analysis of business and scenario data. Based on the distribution characteristics of the data and the risk preferences of financial institutions, it can analyze various types of risks. Monitoring data sets reasonable thresholds, which greatly improves the accuracy of risk control. Second, high-frequency data monitoring and real-time targeted risk control. Compared with the historical data relied on by traditional risk control, the intelligent risk control system uses real-time data and adopts multi-dimensional and fine-grained data analysis with precise measurement. The risk control effect is more immediate, high-frequency and continuous, making risk exposure No more hindsight, and risk management measures are no longer one-size-fits-all. Third, help financial risk control reduce costs and increase efficiency. As digital transformation continues to advance, data processing capabilities and risk control capabilities are becoming key core competitiveness of financial institutions. The intelligent risk control system will help financial institutions fully activate the potential of data elements, improve digital risk control capabilities, reduce risk provisions and risk capital consumption, and create a truly " digital " business model.

5.4 Intelligent customer service builds a new communication bridge in finance

Specific applications of intelligent customer service

(1) Dial tone detection\prompt tone detection

The dial tone detection system monitors automatically dialed calls, accurately classifies them through voice recognition technology based on the voice prompts given by the customer's phone, determines whether the phone information is valid, and forms a report. Quickly determine effective contact information in batches, improve work efficiency, and avoid manual repetitive and ineffective work.

(2) Intelligent outbound calls

For a large number of simple and repetitive outbound call types in specific scenarios such as notifications, return visits, and interruption point services, intelligent outbound call tasks can be set, and the system can implement automatic outbound calls and intelligent question and answer. The type of outbound calls can be set to automatic outbound dialing (the system automatically performs outbound calls based on the set conditions) or preview outbound dialing (manual one-click outbound calling is required after agent browsing and review).
Speech synthesis automatic outbound calling
Upload the required notification words through speech synthesis or manual recording, and the system will automatically dial the customer's phone number to notify. The content of the notification can be set by yourself whether it can be interrupted. According to the content of the notification, the customer can hang up or choose to connect to a manual agent for detailed consultation . In the background, you can directly view or download and save the questionnaire content, outbound call records, voice-to-text chat records, recordings, reports, etc.
Intelligent Q&A
By uploading or setting outbound call tasks such as return visits and interruption points, as well as a global question and answer library, the system automatically dials customer calls and implements multiple rounds of voice dialogue in the form of one question and one answer through speech recognition and semantic understanding technology. And you can set whether the customer during the call can be directly transferred to labor and customer satisfaction. In the background, you can directly view or download and save the questionnaire content, outbound call records and voice-to-text chat records, customer satisfaction status, recordings, reports, and manual transfer status.
The development of intelligent voice has the ability to interrupt complex voice conversations in multiple rounds. In vertical scenarios, multiple rounds of natural language understanding are performed based on the conversation context. Support users to interrupt at any time, ensuring that the robot can respond to customer conversations in a timely and flexible manner, conduct secondary analysis of interrupted sentences, and optimize the conversational content.

(3) Intelligent navigation

Introducing intelligent speech recognition technology, customers only need to speak keywords after calling the customer service hotline, and the system can automatically identify and call out the corresponding self-service voice service node or enter manual service. At the same time, relevant reports are formed, which can instantly or regularly export uncovered points of customer issues and enrich the relevant issue library in a timely manner. For situations where a large number of robots are concurrent, system staff can monitor the simultaneous operation of multiple robots, and can be immediately transferred to manual services during the monitoring process. The system's open knowledge base online learning and updating capabilities facilitate system administrators to annotate various speech scenes and emerging words encountered during actual interactions, promoting intelligent robots to continuously optimize and improve interaction capabilities and keep up with the

pace of the times. The system can also perform emotional detection on abnormal information such as changes in the user's speaking speed and intonation during the call. It can increase the monitoring level for customers who are emotional and transfer them to manual processing in a timely manner.

(4) Agent Assistant

- Automatically archive incoming call nodes and reasons

At present, we rely on manual judgment to select the reason for the call after the call is over. The main purpose is to facilitate background thematic analysis and instant understanding of changes in customer demands. It is limited to find the desired key nodes in the long and complex structure tree of the reason for the call. Due to the system display speed, etc., it will still waste some time of the customer service representative. With the help of intelligent voice technology to effectively identify keywords, keywords that have been emphasized multiple times by users will automatically pop up for customer service representatives to view and confirm clicks, which can greatly improve work efficiency and provide faster customer service.

- Automatic entry of work orders

According to the customer's appeal, you can choose whether you need assistance or make a complaint, and call up the corresponding work order. The intelligent voice assistant automatically enters the relevant information based on the communication content, and finally manually checks and modifies it before submitting it manually.

- Sales department information is automatically called up

When keywords such as a certain sales department, a certain location, a certain department, etc. appear during the call, the system automatically calls up relevant information about the corresponding sales department, nearby sales departments, or corresponding departments, making it easy for the agents to select the corresponding ones for viewing.

- SMS automatic entry

Automatically call up the corresponding text message content based on the keywords of the customer's appeal. Based on the agent selection, automatically enter the relevant content and the customer's mobile phone number, and then manually trigger the text message.

(5) Intelligent operation monitoring

Real-time monitoring of the status of the intelligent outbound call platform and incoming call platform. When the platform operation indicators appear to be set or reach a specific threshold, automatic alarms are issued through pop-up boxes or text messages, emails, etc. for timely processing; real-time monitoring of the robot's intelligent Q&A when customers are not Export and summarize satisfactory records and unanswered or stuck problem points, timely update and improve the Q&A library, and improve the quality of robot services; real-time monitoring of major violations, timely alarms, and timely processing; real-time monitoring of the work order system, pending work orders or Immediate notification of new progress on work orders.

(6) Intelligent knowledge base

Ranking based on frequency of use and consultation hit rate, different colors are displayed according to frequency and ranking, which facilitates focused viewing and quick search of key knowledge; keyword title retrieval, full-text retrieval, intelligent search, and advanced filtering; supports agents to set their

own styles and adjust the order ; The knowledge Q&A database supports agents uploading problems and solutions; knowledge base update reminders, Q&A database update reminders, etc.

(7) Intelligent training

Analyze quality inspection results immediately or regularly, provide daily reports, weekly reports, and monthly reports to view and analyze the distribution and trends of individual quality inspection violation types, locate service shortcomings, and at the same time summarize, compare and analyze violations based on time periods from the perspective of the team or agent. Condition. Achieve precise positioning of weak businesses and weak employees, and transform from traditional standardized and popular training to personalized push training customized according to employee abilities.

(8) Intelligent voice quality inspection

The intelligent voice quality inspection system uses speech recognition, keyword retrieval, audio comparison, emotion recognition and other technologies to convert call center call recordings into text, and analyzes business terms, polite words, taboos and other keywords Set to analyze the agent's call content, and analyze the agent's speaking speed, silence duration, etc. Compared with traditional manual quality inspection, intelligent quality inspection can achieve 100% comprehensive coverage. Intelligent quality inspection can also analyze voice data through deep mining, find differences, and summarize advantages and disadvantages, so as to formulate targeted high-quality speech techniques and provide better services.

- Speech Recognition

The intelligent quality inspection system uses an advanced speech recognition engine to completely convert speech into text. The overall text accuracy can reach more than 90%, and the text accuracy in the financial industry can reach more than 95%. It can also be continuously processed manually in the later stage. training intervention to achieve further optimization.

- speaker separation

The intelligent quality inspection system has speaker separation technology. Since call centers generally have two channels, the intelligent quality inspection system can easily separate the "customer service" voice and the "customer" voice to display the conversation content more intuitively.

- Quality inspection rules

According to the call center's custom rules for business processes, the intelligent quality inspection system can cover the entire amount of data and leave the parts that are truly worth investing in manual quality inspection after screening. This not only saves the labor cost of the call center, but also achieves the accuracy of quality inspection data. Full coverage.

- Traffic detection

The traffic detection function in intelligent quality inspection is very comprehensive, completely eliminating the problem of inconsistent manual quality inspection standards. Silent detection technology, the intelligent quality inspection system can accurately determine whether the call center agent's waiting time for customers violates service standards; the semantic analysis technology of the intelligent quality inspection system can accurately determine what the call center agent should say, should not say, and misses. Quick and accurate detection of content in each dimension; the speech speed detection technology of the intelligent quality inspection system can accurately calculate and quantify the speaking speed of call center agents ; the call grabbing detection technology of the intelligent quality inspection system can accurately identify a recorded call There are time periods

during which calls are scrambled; the emotion detection technology of the intelligent quality inspection system can detect the negative emotions of both call center agents and customers.

- Scoring system

The intelligent quality inspection system customizes scoring rules and corresponding plus and minus points to quantify service quality, and call center agents can see the scoring results more intuitively. At the same time, it also supports online processing of call center agent objection reviews.

- Quality inspection assessment

The quality inspection report of the intelligent quality inspection system is detailed. You can not only check the traffic detection results, content detection results, hit recording details, traffic groups, but also the agent risk details.

- Alarm push

The intelligent quality inspection system can instantly monitor high-risk emergency dialogue scenarios such as "customer complaints", "customer exposure" and other public opinion risks; it can also monitor business risks such as "customer business affected", "customer funds affected" and other business risks.

- data analysis

The intelligent quality inspection system performs data analysis, traffic statistics, hot spot analysis , and abnormal analysis visual display on the quality inspection voice, providing a basis for management decision-making in the call center. In the business analysis interface, you can display word clouds of conversational hot words by time (the analysis objects include all, customers, and customer service), ranking statistics by keywords by the number of occurrences, extraction and visual display of customer intentions, and customer intentions. Extract the ranking statistics of categories and keywords according to the number of occurrences, and the line chart of negative sentiment trends.

The value of intelligent customer service

The intelligent customer service system uses advanced technologies such as machine learning, semantic analysis, and voice interaction to provide customers with uninterrupted, fast and accurate intelligent interactive services 7*24 hours a day. The advantages of intelligent customer service are not only reflected in price. In addition to solving the capital problem of maintaining human resources for traditional customers, in practical applications, based on the customer service data accumulated by the call center over the past many years, the business team summarizes and organizes common customer problems to build a powerful, The comprehensive knowledge base gives it incomparable advantages in large concurrency moments, handling peak loads and valley filling, and providing on-demand services and personalized services at any time.

(1) Cost

Intelligent customer service has promoted significant reductions in manpower, management, operation and maintenance costs. From the perspective of outbound phone calls alone, intelligent customer service can make thousands of calls a day, while even manual customer service who is very skilled in business can only make hundreds of calls a day. In the current environment where labor costs are getting higher and higher, There is no doubt that using smart customer service can greatly save labor costs.

(2) Time

In terms of improving the response speed and working hours of customer service, intelligent voice customer service has no physical limitations, the service time is much longer than manual service, and 7*24-hour service can be achieved. Although the current practical application of intelligent customer service requires some time to continuously improve the knowledge base system, it is indeed extremely efficient in handling repetitive issues with clear conclusions in providing anytime, on-demand services in specific scenarios. The gradual popularization of intelligent customer service has liberated customer service manpower from complicated mechanical questions and answers, allowing human services to focus on warm and personalized services with higher value.

(3) Pipeline

In the mobile Internet era, call center customers come from multiple channels. The application of intelligent customer service makes the call center more capable in serving customer access through multiple channels, meeting the call center's need to comprehensively serve customers and serve customers quickly and efficiently.

(4) Intelligent algorithm

Intelligent customer service can improve customer satisfaction through intelligent algorithm training and learning. Manual customer service requires short or long training to firmly grasp relevant knowledge points, while intelligent customer service does not require training at all. It can directly input relevant information into the system knowledge base and then it can work. Higher-end intelligent voice robots You can also learn and summarize independently, and strengthen the focus of customers' concerns, and the communication effect will naturally be greatly improved.

(5) Emotional control

Intelligent customer service has no emotional changes and can maintain standard service quality. Especially when there are obvious peaks and troughs in customer business, intelligent customer service can realize large-scale replication in a short period of time to cope with fluctuations in business concurrency scale and achieve elastic operation and maintenance. At present, most intelligent customer service is used for outbound calls. Some customers have a very unfriendly attitude towards outbound calls. If the call is made manually, customers will be rejected countless times every day, which will inevitably have an emotional impact. In the long run, it will also cause personnel and the intelligent voice customer service uses advanced simulated personal voice technology. The tone is not very different from human pronunciation, and there is no emotional change. Even if the customer loses his temper, he will not feel any discomfort.

(6) Human-machine mutual assistance to improve customer experience

Intelligent customer service is a great boost to the customer service industry, so it is positioned to assist rather than compete with traditional customer service. Intelligent customer service is a "partner" that collaborates with artificial agents and promotes each other, to jointly and efficiently complete customer demands. Improve customer experience.

(7) Provide comprehensive analysis of customer attributes

Intelligent customer service can conduct a comprehensive analysis of customer attributes and, based on the analysis results, recommend targeted products to customers, turn non-corporate customers into corporate customers, convert traffic into business volume, and assist the company's relevant business departments to expand existing business scale.

(8) Build a multi-level service system

Intelligent customer service can effectively combine intelligent robots, ordinary employees and investment consultants to solve various problems raised by customers through a progressive service system, becoming a bridge between the company's overall service system and customer communication.

(9) Intelligent quality inspection to ensure high quality services

Intelligent quality inspection during and after service has significantly improved response speed, quality inspection rate and evaluation standards, ultimately achieving higher quality services for customers. At the same time, it plays a great role in strengthening customer service content analysis and management, exploring industry customer service business and operational value, and assisting call center operations.

6. The three core supporting points of DDO Chain

6.1 Platform strategic planning: the guarantee that determines the value potential of WEB3.0 and AI technology

Platform strategic planning is the cornerstone of the success of DDO Chain, which determines the full realization of the value potential of WEB3.0 and AI technology. Through forward-looking strategic layout, DDO Chain can accurately capture market trends, quickly respond to industry changes, and thus lead technological innovation.
Integrating WEB3.0 and AI : DDO Chain promotes the development of the digital economy and maximizes the value of data by integrating WEB3.0 and AI technology. This combination not only optimizes the performance of the blockchain, but also improves the efficiency and accuracy of the AI algorithm.
Promote industrial integration: DDO Chain is committed to applying blockchain and AI technology to multiple industrial fields, promoting industrial upgrading and transformation, and creating more value for users and partners.

6.2 Engineering platform management: a means to promote the implementation of AI technology scenarios

Engineering platform management is an effective means to promote the implementation of AI technology scenarios. DDO Chain ensures rapid iteration and stable operation of technology by establishing a complete engineering management system.
Modular design: DDO Chain adopts modular design, which improves the flexibility and scalability of the system, facilitates rapid response to market demand, and realizes customized services.
Automated testing and deployment: Through automated testing and deployment, DDO Chain can effectively improve development efficiency, reduce system error rates, and ensure platform stability and reliability.

6.3 Trustworthy compliance governance: ensuring the fundamentals of safe and standardized application of AI technology

6.3.1 Data Privacy and Confidentiality

Encryption technology: DDO Chain extensively uses encryption technology to protect data privacy and ensure the security of user information and transaction data.
Privacy Policy: By formulating a detailed privacy policy, DDO Chain clarifies the rules for data collection, use and sharing, enhancing users' trust in the platform.

6.3.2 The intelligence of AI algorithms

Algorithm optimization: DDO Chain continuously optimizes the AI algorithm, improves the intelligence and accuracy of the algorithm, and provides users with higher quality services.
Transparent and explainable: DDO Chain focuses on the transparency and explainability of AI algorithms to ensure that users can understand and trust the AI decision-making process.

6.3.3 Overall system robustness

Fault-tolerance mechanism: By designing an efficient fault-tolerance mechanism, DDO Chain can ensure that the system can still operate stably in the face of external attacks or internal errors.
Continuous monitoring: DDO Chain implements comprehensive system monitoring to promptly discover and deal with potential security threats to ensure the continuous availability of the system.

7. Technical implementation of DDO Chain

7.1 Machine learning: From virtual to reality, helping the financial industry become intelligent

Data analysis and insights

Machine learning technology has significant advantages in data analysis. By analyzing large amounts of data such as historical transaction data, market trends, and user behavior, machine learning algorithms can identify potential patterns and regularities. DDO Chain uses these insights to provide users with more accurate financial services, such as investment advice, risk assessment and market forecasts.

Smart contract automation

Smart contracts are one of the core applications of blockchain technology, and machine learning can further enhance the capabilities of smart contracts. By introducing machine learning models, smart contracts can automatically adjust their execution logic based on external data or other on-chain activities to achieve more dynamic and intelligent contract behavior. This is particularly important for complex financial products and services, such as dynamically adjusted insurance rates or loan interest rates based on changes in market conditions.

Risk Management and Fraud Detection

Machine learning is particularly good at identifying complex patterns and anomalous behavior, which makes it very useful in the fields of risk management and fraud detection. DDO Chain monitors and analyzes transaction activities by deploying advanced machine learning models, which can instantly identify potential fraud, money laundering activities or other suspicious transactions, greatly improving financial security.

Customer service and interaction

Machine learning can also improve user experience through intelligent customer service systems. These systems are able to understand user queries and provide fast and accurate responses. On the DDO Chain platform, this technology can be used to answer users' questions about blockchain operations, financial product details, transaction status, etc., to achieve 24/7 customer support without the need for a large amount of human resources.

7.2 Deep learning: perform pattern recognition and feature extraction, and analyze opportunities and risks

Image recognition and identity authentication

DDO Chain may require identity authentication to ensure compliance and security. Deep learning can be used for image recognition to help platforms verify users' identities. By analyzing the ID card, photo or video provided by the user, the deep learning model can automatically identify the face and the information on the ID card, and match it with the information in the database to verify the user's identity.

Natural language processing and smart contracts

Deep learning can also be used in natural language processing (NLP) to extract useful information from text data in order to generate smart contracts or perform transaction analysis. NLP models can parse contract text, news reports or social media comments to identify contract terms, market news or user emotions, helping users better understand and manage their financial transactions.

Time Series Analysis and Market Forecasting

In financial markets, time series data is of great value. Deep learning models can be used to analyze historical market data to identify patterns and trends to help users make more informed investment decisions. This includes stock price forecasts, currency exchange rate analysis, and predictions of market volatility.

The role of opportunity and risk analysis

opportunity analysis

- Deep learning models are able to discover patterns and opportunities hidden in large amounts of data. By analyzing market data, user behavior and economic indicators, deep learning can help DDO Chain identify potential investment opportunities. For example, models can identify price trends for specific stocks, the strength or weakness of a certain currency, and value investing opportunities in the market.

Risk Analysis

- Deep learning can also be used for risk analysis to help DDO Chain identify potential risk factors. The model can analyze market fluctuations, abnormal trading activities, abnormal user behavior, etc., as well as possible hacker attacks or fraud. This helps to take timely measures to reduce potential losses and improve the security of the platform.

7.3 Natural language processing: Seeking to break through the limitations of quality, scene and expression in changes

Smart contracts and contract management
NLP technology can be used for the creation and management of smart contracts. By understanding the contract description in natural language, the system can automatically generate the code for the smart contract and ensure that the conditions and terms of the contract are accurately encoded. In addition, NLP can also help users manage and interpret contracts to improve the understandability and transparency of contracts.

User Support and Query Answers
On the DDO Chain platform, users may have various questions about blockchain technology, financial products and transactions. NLP technology can be used to build intelligent customer service systems to help users quickly obtain answers and support. These systems can understand users' natural language queries and provide corresponding information or solutions.

News and market intelligence analysis
NLP can be used to analyze news reports and information on social media to identify events and trends related to financial markets. By capturing news articles, social media posts and comments, the NLP model can help DDO Chain analyze market sentiment, the impact of news events on the market, and investor sentiment, etc., thereby providing users with better investment decision support.

The key role of NLP

1. Improve information understandability
NLP technology can transform complex technical information into easy-to-understand natural language text. This helps ordinary users better understand blockchain and financial products, lowers the barrier to entry, and promotes wider adoption.
2. Automated contract management
Through NLP technology, DDO Chain can realize the automatic creation and management of smart contracts. This means that users do not need to have a deep understanding of contract programming languages, but can use natural language to describe contract conditions, and the system will automatically generate corresponding smart contract code, reducing the possibility of errors and misunderstandings.
3. Market analysis and decision support
The role of NLP in market intelligence analysis cannot be ignored. By analyzing large amounts of data from news and social media, DDO Chain can discover market events and trends in a timely manner and provide users with more timely decision-making support. This can help users better seize opportunities and manage risks.

7.4 Computer Vision : Improve technical reliability and promote integration with scenes

Authentication and security

Computer vision can be used for user authentication and security management. Through technologies such as facial recognition, iris scanning or fingerprint recognition, DDO Chain can ensure that only legitimate users can access its platform. This increases the security of the platform, preventing unauthorized access and fraud.

Image Analysis and Asset Management

DDO Chain may require image analysis and management of assets. For example, for the management of physical assets or valuables, computer vision can be used to detect and identify these assets and ensure their safety and integrity. This helps improve asset traceability and management efficiency.

Market surveillance and security

In financial markets, computer vision can be used to monitor market activity and detect abnormal behavior. By analyzing image and video data of market transactions, potential fraud or anomalies can be discovered in a timely manner, improving market transparency and security.

The critical role of computer vision

- Improved technical reliability

Computer vision technology can improve the technical reliability of the DDO Chain platform. It can automatically identify and process large amounts of image and video data, reducing the impact of manual errors and subjective judgments, and improving the accuracy and consistency of data.

- Integration with different scenarios

Computer vision is adaptable and can be applied to different scenarios and industries. DDO Chain can apply computer vision technology to different fields such as identity verification, asset management, and market monitoring according to different needs to achieve diversified functions and services.

- Automation and intelligence

Computer vision technology can make the DDO Chain platform more automated and intelligent. By automatically identifying and processing image data, the system can automatically perform specific tasks and operations, reducing the user's burden and improving operational efficiency.

7.5 Reinforcement learning: learning optimal strategies through the interaction between the agent and the environment

Trading strategy optimization

DDO Chain may need to continuously adjust its trading strategies to adapt to market changes. Reinforcement learning can be used to train agents to automatically execute trading strategies and continuously learn and optimize strategies based on market feedback. This helps improve the

efficiency and profitability of transactions.

Risk Management and Portfolio Optimization
Reinforcement learning can be applied to risk management and portfolio optimization. By interacting with the market environment, agents can learn to identify potential risks and adjust portfolios to minimize risks. This helps improve the efficiency and stability of asset management.

Intelligent customer service and decision support
Reinforcement learning can also be used for intelligent customer service and decision support. Through interactive learning with users, the agent can understand the user's needs and preferences and provide personalized services and suggestions. This improves the user experience and customer satisfaction of the platform.

The key role of reinforcement learning

- Automated decision-making

Reinforcement learning enables DDO Chain to realize automated decision-making. Agents can automatically execute decisions based on learned strategies without the need for human intervention, thereby improving operational efficiency and speed.

- instant adaptability

Reinforcement learning enables DDO Chain to instantly adapt to changing markets and environments. The agent can learn through continuous interaction with the environment and adjust its strategy in time to adapt to new market trends and situations.

- Optimal strategy learning

The goal of reinforcement learning is to learn the optimal policy, that is, the policy that can obtain the maximum reward in a given environment. This helps DDO Chain make more informed decisions, maximize returns and reduce risks in complex financial markets.

7.6 Data Mining and Big Data Analysis: Uncovering opportunities by processing and analyzing large-scale financial data

Market trend analysis
Through data mining and big data analysis, DDO Chain can analyze large-scale market data and identify market trends and patterns. This helps users better understand the direction of market development and make more informed investment decisions.

User Behavior Analysis
Data mining and big data analytics can be used to analyze user behavior patterns and preferences. This can help DDO Chain to recommend financial products and services in a personalized manner and improve user satisfaction and loyalty.

Risk Management
In the financial industry, risk management is crucial. Data mining and big data analysis can be used to identify potential risk factors and help DDO Chain better manage risks and reduce losses.

The key role of data mining and big data analysis

- Explore opportunities

By analyzing large-scale financial data, data mining and big data analysis can help DDO Chain explore potential investment opportunities. The model can identify the rise and fall trends of specific assets, changes in market volatility, and other influencing factors, thereby helping users make more informed investment decisions.

- Improve decision quality

Data mining and big data analysis can improve the quality of decision-making. By providing more data support and insights, these two areas can help DDO Chain users better understand the market and users, and thereby better formulate strategies and decisions.

- real-time monitoring

Data mining and big data analysis enable real-time monitoring of market conditions. This helps DDO Chain detect market changes and potential risks in a timely manner, so as to take corresponding measures to reduce risks.

7.7 Blockchain smart contract technology: sustained high performance to carry massive business needs

Financial Transactions and Asset Management

DDO Chain can use smart contracts to realize financial transactions and asset management. Smart contracts can replace traditional financial institutions to execute transactions, thereby improving the efficiency and security of transactions. At the same time, it can also automatically manage and track the ownership and liquidity of assets.

Blockchain-based financial products

Smart contract technology can be used to create a variety of blockchain-based financial products, such as decentralized exchanges, lending platforms, and stablecoins. These products can provide users with more choices while reducing transaction fees for traditional financial products.

Digital identity verification and privacy protection

Smart contracts can be used for digital identity verification and privacy protection. Users can use smart contracts to manage and verify their digital identities while protecting the privacy of their personal information. This helps improve users' data security and privacy.

The key role of blockchain smart contract technology

- Automation and transparency

Smart contracts enable automated contract execution, thereby reducing the possibility of human error and disputes. It also increases transaction transparency as all transactions and contracts are recorded on the immutable blockchain for public viewing.

- High performance and scalability

DDO Chain uses smart contract technology to carry massive business needs with sustained high

performance. Smart contracts can process multiple transactions in parallel, thereby increasing the throughput of the system. In addition, the scalability of blockchain also allows the system to accommodate growing users and transactions.

- Reduce agency costs

Traditional financial systems often require intermediaries to execute and verify transactions, which adds cost and time. Smart contracts can eliminate these intermediaries, thereby reducing transaction costs and time.

7.8 Artificial intelligence chips and distributed computing: ensuring computing speed and large data volume computing capabilities

high performance computing

AI chips and distributed computing can be used for high-performance computing tasks such as training and inference of deep learning models. This is important for processing large-scale financial data and executing complex smart contracts, as they often require large amounts of computing resources.

large-scale data processing

In the financial sector, large-scale data processing is a common task. Artificial intelligence chips and distributed computing can be used to efficiently process and analyze large amounts of data, thereby helping DDO Chain better understand market trends and user behavior.

Instant decision support

Artificial intelligence chips and distributed computing can be used for real-time decision support. DDO Chain can use these technologies to analyze market data, predict future trends, and provide users with timely decision-making suggestions, thereby improving users' transaction efficiency and success rate.

artificial intelligence chips and distributed computing

- Computing speed and efficiency

Artificial intelligence chips and distributed computing provide high-speed and efficient computing capabilities that can process large amounts of data and computing tasks in a short time. This helps DDO Chain respond to user needs and market changes faster.

- Large data processing capabilities

In finance, data volumes are often very large. Artificial intelligence chips and distributed computing can process large-scale data, ensuring that DDO Chain can cope with the growing data demand.

- immediacy

Artificial intelligence chips and distributed computing enable instant calculation and decision-making. This is important for financial trading and market monitoring, as timely decisions can impact trading results and risk management.

7.9 DDO Chain has the world's top AI smart contracts, self-developed technology and artificial intelligence to ensure speed and large data volume computing capabilities

The world's top AI smart contract

The AI smart contract of DDO Chain is one of its core technologies. These smart contracts are highly intelligent and automated and can execute complex business logic and financial transactions. They use the most advanced artificial intelligence algorithms to implement functions such as intelligent risk management, automated investment strategies and digital identity verification. These smart contracts provide DDO Chain with high-performance and efficient computing capabilities that can handle a large number of business needs.

Self-developed technology

DDO Chain has conducted a large amount of self-research and innovation work in the technical field. This includes independently developed blockchain technology, distributed computing systems, data mining algorithms and artificial intelligence models. These self-developed technologies enable DDO Chain to better adapt to the needs of the financial field and provide high-performance computing and data processing capabilities.

AI

DDO Chain relies on artificial intelligence technology to optimize its various business processes and decision support. Artificial intelligence can automate complex tasks, analyze large-scale financial data, predict market trends, and provide users with personalized services. This not only improves calculation speed, but also improves decision-making quality and user experience.

Ensure computing speed and large data volume computing capabilities

DDO Chain ensures computing speed and large data volume computing capabilities by integrating the world's top AI smart contracts, self-developed technology and artificial intelligence . This means that DDO Chain can respond quickly to the ever-changing financial market, handle large-scale data analysis and transaction tasks, and provide users with efficient financial services. This provides users and partners of DDO Chain with a strong competitive advantage.

7.10 Trading engine: ensuring efficient, accurate and reliable trade execution and market analysis functions

The key role of trading engines

1. Transaction Execution

The trading engine is responsible for executing trading orders submitted by users. It ensures fast execution of orders, matches buyers with sellers, and completes transactions in the market. Efficient

transaction execution is the foundation of a financial trading platform and directly affects the user's trading experience.

2. Market data analysis
The trading engine monitors market data and analyzes price trends, volume and other market indicators. This helps users understand market dynamics and make informed investment decisions. Market data analysis can also be used to develop intelligent trading strategies and risk management.

3. Smart contract execution
In DDO Chain, smart contracts are the core of financial transactions. The transaction engine is responsible for executing business logic in smart contracts, including automated settlement, asset transfer and contract execution. This eliminates the need for intermediaries, making transactions more efficient and secure.

4. Risk management
The trading engine performs risk management, monitors potential risk factors and takes steps to reduce risk. This includes monitoring market volatility, asset liquidity and asset price fluctuations, among other things. Risk management is critical to the robustness of a financial trading platform.

Trading engine features
1. Order matching
The trading engine is responsible for matching buyers' orders with sellers' orders and executing transactions. It must handle a large number of orders efficiently and ensure fairness and justice in the market.

2. Market data subscription
The trading engine needs to subscribe to real-time market data from multiple market data sources. This includes price, volume, depth charts, and other market indicators. It must be able to handle large-scale market data efficiently.

3. Smart contract execution
The trading engine must be able to execute the business logic defined in the smart contract. This may involve the transfer of assets, settlement and contract execution. It must ensure the security and correct execution of smart contracts.

4. Risk monitoring
Trading engines need to monitor market risks in real time, including market volatility, asset liquidity and potential risk events. It must be able to take measures to reduce risks and protect users' assets.

7.11 Quantitative engine: realizing automated trading strategy development, backtesting and execution capabilities

1. Automated trading strategy development

Quantitative engines allow traders and developers to develop trading strategies using programming languages or visual tools. These strategies can be based on technical analysis, fundamental analysis, machine learning or other algorithms. Automated strategy development can greatly improve trading efficiency and innovation.

2. Backtesting and simulated trading
The quant engine allows users to backtest and simulate trading strategies before actual application. This means users can test the performance of strategies on historical market data and understand their potential profitability and risks. Backtesting and simulated trading help optimize strategies and improve decision-making.

3. Instant transaction execution
Once a trading strategy has been validated by backtesting, the quant engine can automatically execute the strategy's trades. It can connect to market data sources, monitor market conditions, and execute trades based on signals generated by the strategy. Instant trade execution significantly reduces human error and trade delays.

Quantization engine capabilities

- strategy development environment
- The quantification engine provides a development environment, including programming interface, graphical interface and database. Users can use these tools to develop and manage trading strategies.
- Historical data acquisition
- The quant engine provides access to historical market data, including price, volume, and market indicators. This data is used to backtest the performance of the strategy.
- Backtesting and Simulation
- Users can use the quantitative engine for backtesting and simulated trading. This allows users to see how the strategy performs under different market conditions.
- Real-time data monitoring
- The quant engine is connected to real-time market data sources, allowing real-time monitoring of market conditions. This includes price movements, order book depth, trade information, etc.
- trade execution
- Once the strategy is validated, the quant engine can automatically execute trades. It can connect to an exchange or broker's API, execute trades and manage positions.

7.12 WEB3.0 engine: universal basic tool, providing core competitiveness

1. Achieve decentralization
The WEB3.0 engine allows DDO Chain to establish a decentralized application ecosystem. It provides support for blockchain technology and smart contracts, enabling users to create and access decentralized applications without relying on traditional centralized intermediaries. This helps strengthen users' digital asset control and data privacy.

2. Support smart contracts
WEB3.0 engine has the ability to execute smart contracts. This means that users can create smart contracts on the DDO Chain, which can automatically execute business logic, implement functions such as asset transfer and digital identity verification. Smart contracts can change traditional business processes and improve efficiency and security.

3. Promote the digital economy
WEB3.0 engine supports the development of digital economy. It allows users to create and trade digital assets, including cryptocurrencies, tokens, and digital securities. This helps DDO Chain become the infrastructure of the digital economy and promote the circulation and exchange of digital assets.

WEB3.0 engine functions

- Blockchain technology support
- The WEB3.0 engine provides support for blockchain technology, including distributed ledgers , consensus algorithms and encryption technology. These technologies ensure the security, decentralization and traceability of the DDO Chain.
- Smart contract execution
- WEB3.0 engine has the execution function of smart contracts. Users can create, deploy and execute smart contracts on the DDO Chain to realize automated business logic and data processing.
- Decentralized application support
- The WEB3.0 engine allows users to create and access decentralized applications (DApps). These applications run on the blockchain without the need for intermediary servers, providing greater security and transparency.
- Digital asset management
- The WEB3.0 engine supports the management and trading of digital assets. Users can create, hold and trade a variety of digital assets, including cryptocurrencies, tokens and digital securities.

8. The innovative economy of DDO Chain

8.1 Empowering innovation in smart financial scenarios

1. Intelligent recognition
The intelligent identification technology of DDO Chain uses artificial intelligence and blockchain to verify user identity. It can efficiently and accurately identify users, prevent identity theft and fraudulent activities, and improve the security and trust of financial services.

2. Intelligent financial management
DDO Chain's smart financial services use artificial intelligence algorithms to analyze market data and formulate personalized investment strategies. This helps users achieve better returns on investment and improve the efficiency of financial management.

3. Intelligent risk control
Intelligent risk control is a key function of DDO Chain, which uses big data analysis and artificial intelligence to monitor risk factors. It can help financial institutions detect potential risks in time and take measures to reduce losses.

4. Intelligent customer service
DDO Chain's intelligent customer service uses natural language processing and machine learning to provide intelligent customer support. It can answer user questions, handle complaints and provide personalized recommendations to improve user experience.

8.2 AI empowers e-commerce scene innovation

8.2.1 Intelligent recommendation

Personalized recommendation algorithm: AI uses machine learning and deep learning algorithms to analyze users' shopping history, search behavior, click-through rate and preference data. This algorithm continuously learns and improves to provide the most relevant product recommendations for each user.

Instant recommendations: AI can also provide instant personalized recommendations, adjusting recommendation results based on the user's current browsing behavior and shopping cart contents, increasing the user's chance of immediate purchase.

Cross-channel consistency: AI -powered e-commerce platforms can ensure consistent recommendation experiences for users across different channels (websites, mobile applications, social media, etc.), improving the convenience of user interaction and shopping.

Recommendation explanation: AI can explain the reasons for recommended results, providing transparency to users, increasing users' trust and acceptance of recommendations

8.2.2 Intelligent service

Automated customer service robot: The e-commerce platform uses natural language processing technology to create an intelligent customer service robot that can automatically answer frequently asked questions, handle refund and return requests, provide order status information, and provide 24/7 support.

Personalized interaction: AI can provide personalized suggestions and promotional information based on the user's historical purchase records and preferences to improve the user's shopping experience.

Intelligent search: AI technology can provide intelligent search functions to help users find the products they need more quickly and reduce browsing time.

Sentiment analysis: AI can analyze users' emotions and feedback to better understand user satisfaction and emotions and help improve services.

8.2.3 Intelligent management

Inventory optimization: AI can predict demand, help e-commerce platforms optimize inventory management, reduce slow sales and out-of-stock situations, and reduce inventory costs.

Automated order processing: AI can automatically process orders, including order confirmation, shipping and returns processing, improving the speed and accuracy of order processing.

Supply chain coordination: AI can coordinate various links in the supply chain to ensure on-time delivery of goods, reducing delays and problems.

8.2.4 Intelligent matching

Accurate buying and selling matching: AI empowers e-commerce platforms to accurately match users' needs and sellers' products, improving the success rate of transactions.

Fake transaction detection: AI can detect fake transactions and fraud to help maintain the credibility and security of transactions.

Market analysis: AI analyzes market trends and competition, provides sellers with better pricing

strategies and sales suggestions, and promotes the healthy development of the market.

8.3 Empowering decentralized social networking

8.3.1 End-to-end encryption

Guarantee user privacy: End-to-end encryption ensures that users' chat messages and social content are encrypted during transmission, and only the two communicating parties can decrypt the content. This enhances user privacy protection and prevents data leakage and snooping.

Strengthen data security: Encryption technology helps prevent man-in-the-middle attacks and data tampering, ensuring that users' social information and chat content are protected, allowing users to use social platforms with greater confidence.

8.3.2 Decentralized identity

Users control identity data: A decentralized identity system allows users to own their own identity data and decide when to share it with third parties. This gives users greater control over their identity information and reduces the potential for identity theft and abuse.

Cross-platform authentication: Decentralized identity can achieve single sign-on and authentication between different social platforms and applications, improving user experience and convenience.

8.3.3 LinkDEFI / GameFi

Social and DEFI interoperability: linking social and DEFI together, users can access DEFI services such as deposits, loans and investments on the social platform . This expands DEFI 's user base and provides more financial opportunities.

Integration of social games with GameFi: Integrate social games with GameFi, allowing players to participate in games on social platforms and obtain in-game digital assets. This promotes the development of GameFi and increases the interactivity of social games.

8.3.4 Linking NFT with GameFi

Social integration of NFTs: Allowing users to display and trade NFTs on social platforms expands the visibility and interactivity of the NFT market. Users can share their NFT collections and communicate with other users.

GameFi and social interaction: The social platform can be integrated with GameFi, allowing users to participate in GameFi games in a social environment and obtain rewards and digital assets. This makes

social interactions more entertaining and rewarding.

8.4 Empowering digital options

8.4.1 Blockchain underlying architecture

High-performance blockchain: DDO Chain improves transaction speed and throughput by optimizing the underlying blockchain technology. This ensures that digital options transactions can be executed efficiently and reduces transaction delays.

Smart contract support: The underlying architecture of the blockchain supports smart contracts, allowing future digital options to be automatically executed on the blockchain, improving the transparency and credibility of transactions.

Cross-chain interoperability: DDO Chain realizes the interoperability of digital options with other blockchain platforms through cross-chain technology, providing users with a wider range of digital options options.

8.4.2 Wallet management

Secure wallet: DDO Chain provides a secure digital asset trading platform and wallet to ensure that users' digital option assets are properly kept. This includes multiple layers of security measures such as multi-signature, hardware wallet support, and more.

Convenient management: Users can conveniently manage their digital options assets, including viewing balances, transaction history and transfer operations. The wallet interface is user-friendly and easy to operate.

Multi-chain support: DDO Chain's wallet supports multiple digital currencies and tokens, allowing users to flexibly manage different types of digital options.

8.4.3 Payment management

Digital option payment: Users can use digital options to make payments, enabling transactions without the need for traditional currencies. This facilitates the widespread application of digital options.

Fast Settlement: Digital options payment management ensures fast settlement of transactions, reducing payment delays, especially in cross-border transactions.

Smart payment contract: Smart contracts in payment management can automatically perform payment operations and ensure the accuracy and reliability of transactions.

8.4.4 Security Mechanism

Smart contract security: DDO Chain implements a smart contract security mechanism to detect and prevent contract vulnerabilities and attacks to ensure the security of digital options contracts.

Authentication: Security mechanisms include strengthened user authentication to ensure that only legitimate users can trade and manage digital options.

Auditing and monitoring: Perform real-time auditing and monitoring of digital options transactions and contracts to detect and respond to potential security threats in a timely manner.

8.5 Empowering Metaverse Scenes

8.5.1 Empowering digital people in business

Personalized Digital Humans: DDO Chain empowers the Metaverse scene through digital human technology, enabling users to create personalized digital representatives. These digital humans can interact, communicate and participate in various activities on behalf of users in the virtual world.

Digital People Market: A marketplace for creating digital people that enables users to sell or rent their digital people and receive financial rewards from them. This creates a digital human economic ecosystem.

Virtual Social Interaction: Users can use their digital persons to interact with other users in the metaverse, creating rich social experiences, from virtual parties to virtual business meetings.

8.5.2 Empower automated robots

Automated Assistant: DDO Chain empowers the Metaverse scenario to provide automated robot assistants to perform repetitive tasks, provide information and support, thereby improving user efficiency and convenience.

Virtual Assistant Marketplace: Users can create their own virtual assistants and offer the services of these assistants on the marketplace. This provides a revenue stream for developers of virtual assistants.

AI tour guide: Automated robots can act as virtual tour guides, providing users with navigation, explanations and explanations in the metaverse, enriching the virtual tourism experience.

8.5.3 Empower virtual creation

Virtual creator tools: DDO Chain empowers the Metaverse scene to provide virtual creator tools, allowing users to easily create virtual environments, items, characters and interactive elements. This facilitates virtual creation and content generation.

Digital asset market: Users can sell or trade the virtual content they create, forming a digital asset market where creators can benefit from their creativity.

Community collaboration: Virtual creation tools and platforms encourage collaboration and community participation among users, promoting the rich diversity of the Metaverse.

8.5.4 Empowering smart environments and the Internet of Things

Intelligent environment perception: DDO Chain empowers the Metaverse scene to realize intelligent environment perception in the Metaverse by connecting IoT sensors. Users can monitor and control items and environments in the virtual world.

Smart home interaction: Users can use Yuanverse to interact with smart home devices, control lighting, temperature, audio, etc., to achieve the integration of virtuality and reality.

Virtual commerce and item trading: Virtual commerce and item trading in the Metaverse are supported by IoT technology. Users can purchase virtual goods and map them to the real world.

8.6 Empowering the gaming industry

8.6.1 Assisted game design

Game development tools: DDO Chain provides game developer tools to simplify the game production process, lower the development threshold, and enable more creators to participate in game development.

Intelligent character generation: AI technology can be used to generate virtual characters in games, including appearance, behavior and dialogue. Such intelligent generation provides more game character choices.

Automatically generate game levels: AI can automatically generate game levels, providing a diverse and challenging game experience and reducing game development time.

8.6.2 Enhance gaming experience

Virtual Reality (VR) and Augmented Reality (AR): DDO Chain supports VR and AR technologies to provide a more immersive experience for games and enable players to interact with the game world.

Dynamic sound effects: Intelligent sound effects generation can generate dynamic sound effects based on the game plot and player behavior, improving the interactivity of music and sounds.

Virtual item trading: The support of DDO Chain allows players to obtain virtual items in the game and trade them to the real world, creating a game economic system.

8.6.3 Inspire game creativity

Intelligent story generation: AI can help game developers generate exciting game storylines, stimulate creativity, and provide a more engaging game experience.

User-generated content (UGC): DDO Chain supports players to create their own game content, including levels, maps, characters, etc., which stimulates players' creative enthusiasm and interaction.

Game asset creation market: Players and creators can create and trade game assets on the DDO Chain, which creates a game creation market and promotes the generation and sharing of ideas.

9. Introduction to the ecological token of DDO Chain

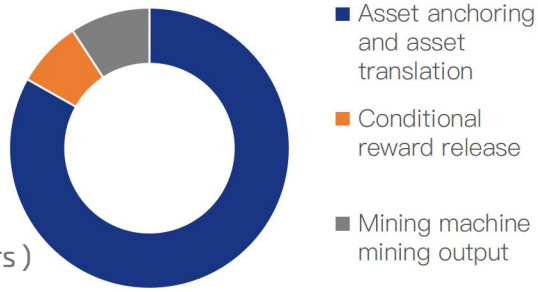
9.1 Introduction to digital options

The native token or digital option of DDO Chain DDO Chain is DDO, which is also the payment application currency for gas fees on the chain . Any transfer and contract interaction will pay a certain amount of DDO digital options to the verifier node according to the gas price. At the same time Some are directly destroyed.

Full name of the token: Ding Dao Option
Abbreviation: DDO
Total number of issuances: 65 billion, never more issuance

Token distribution

- Asset anchoring and asset translation: 54 billion
- Conditional reward release: 5 billion
- Mining machine mining output: 6 billion (completed in 167 years)



deflation model

Production cycle: The mining machine production cycle is 16 to 7 years, and the market circulation is very small.
Deflation mechanism: The mining output rate of mining machines gradually decreases, and less and less circulation is released.
Destruction mechanism: The platform and ecological business will use the proceeds of each project to repurchase and destroy DDO to ensure that the market circulation is getting smaller and smaller.

10.Outlook for the development of DDO Chain

Technical aspects: DDO Chain will continue to be committed to the continuous innovation and improvement of core technical capabilities. By continuously promoting the research and development of blockchain technology, DDO Chain will drive the evolution of financial intelligence and provide users with more efficient and safer digital financial services. In terms of technology, it is expected to achieve higher throughput, lower transaction costs, and faster confirmation speeds to adapt to the growing needs of the digital economy.

In terms of application: the application fields of DDO Chain will be further deepened and expanded to achieve an improvement in the intelligence of the scene. This will support the in-depth development of the digital economy, covering many fields such as finance, e-commerce, social networking, and games. Users will be able to enjoy more intelligent and personalized services, and the transparency and security of blockchain technology will provide a solid foundation for these applications.

In terms of rights and interests: DDO Chain is committed to providing users with more rights and interests and sharing more revenue opportunities. Through the management and trading of digital assets, users will have the opportunity to obtain more economic returns. In addition, DDO Chain will continue to optimize user experience, ensure the security of users' digital assets, and provide more investment and financial management options to meet the needs of different users.

Guarantee: The level of trustworthy governance will continue to improve, and DDO Chain will lead the development of industry standards. Security, privacy and compliance will become important keywords for the development of DDO Chain. DDO Chain will take measures to protect users' data privacy, prevent potential risks, and comply with relevant regulations and standards to ensure compliant operations.

Strategic aspect: DDO Chain will implement the globalization route and promote the goal of global layout. Establishing partnerships and expanding market share globally will be part of the strategic planning of DDO Chain. By cooperating with partners in different countries and regions, DDO Chain will establish a strong community and ecosystem around the world and promote the global development of the digital economy.

11. Data Security and User Privacy Risk Tips

Data security risk reminder

Trading risks: Digital asset trading involves risks, and market fluctuations may result in loss of asset value. Users need to invest carefully and understand the market conditions carefully.

Password risk: Users need to keep private keys and passwords properly to prevent unauthorized access and asset loss. Private keys and passwords should not be shared with others.

Network attacks: DDO Chain will take security measures to protect user data, but there are still risks of network attacks. Users need to be vigilant and not click on suspicious links or provide personal information to untrusted entities.

Compliance risk: Digital asset transactions may be subject to regulatory restrictions depending on the regulations in the user's location. Users need to understand and comply with local laws and regulations.

User privacy risk warning

Data collection: DDO Chain may need to collect certain information from users to perform services. Users' personal data will be protected by the privacy policy and will not be shared with third parties without authorization.

Anonymity: Although blockchain technology is inherently anonymous, users need to be aware that transactions and activities on public blockchains may be tracked. Users can take steps to enhance their anonymity.

Social engineering: Criminals may try to obtain a user's private key or password through social engineering. Users need to be wary of phishing attacks and fraud.

Public information: Users need to understand that some user information may be publicly visible on the blockchain, such as transaction records. User activity on the public blockchain may be viewed by others.

DDO

Dingdao WEB3.0 Ecological Value Exchange
Intelligent Public Chain