Make shared eco for global foods

White paper

Ifoods chain

Contents

Abstract

It is a valuable strategy to make a detection platform for food quality and safety, and it relates with national economy and people's livelihood. At present, the effective eco consisted of consumer, experts, enterprises, and organizations etc has not been established for food quality and safety. Supply-side is lack of channels for reliable detected data transmission, consumption-side is lack of convenient and safe food quality and safety detection methodologies, methods and knowledge. The traditional centered detection methods, with disadvantages of high cost, time-consuming, cannot meet the consumers' requirements of rapid and instantdetections. We express a desire and put forward a proposal to make a shared detection platform for food quality and safety.

Ifoods chain is a public chain that bases on block chain technology to make a safe, reliable, shared distributive food quality and safety detection. The profit of consumers, detection officer and inspector is protected by smart contract. Food detectionsmart device and dynamic ARP detection (DAI) technique enable the consumers'detection food quality and safety rapidly. Multi-party is attracted to participate in the eco using excitation mechanism and shared block chain technique. Block chain existing evidence and distributed storage technique guarantee the safety and querying of the trade information. The development of decentralized application (DAPP) and smart device realize the multi-distributive mode application of all technology areas in food quality and safety.

The public chain system requirement is met by the design of the white paper. The public chain system of Ifoods chain realizes many applications including smart devicefood detection and dagger, distributed food detection data value delivery and protection, distributed food detection network, distributed eco maintenance and administration, and distributed e-commerce network etc.

Glossary

IFOOD：IFOOD is the digital coin of the de-centralized eco.

Food detectionsmart device: Food detectionsmart device is a distributed device that bases on reliable food data model to collect samples being detected, and upload the data of food detection and location, and simultaneously daggering.

Super probe system: Super probe system, developed by Ifoods chain and focused on mature application of meat detection, headed to consumer, enterprises and supervises and can rapidly and instantly obtain food quality and safety information, is a kind of smart device of food detection.

Distributed data value protection and transmission: Ifoods chain's eco data is self-owned, which participants' data are absolutely confidential and the data for trade can be done safely and reliably.

Distributed food detection network: Participants in Ifoods chain eco are the massive distributed device owners.

Distributed eco maintenance and administration: Ifoods chain eco includes the profit of the participants such as trade matching, community voting etc.

Distributed ecommerce network:
In Ifoods chain, the access to market needs community voting for medium to high quality food distributed sales network, which is different with traditional sales network.

USP system：USP（universal service platform） system is a mediated element of the Ifoods chain block chain. USP system will be reserved for front-end application of open API interface and SDK for different users.

DAI : Distributed Artificial Intelligence (DAI) is a combination of the artificial smart and distributed calculation.

DID：Ifoods chain uses DID to identify and manage entities' network identity on the chain. DID aims to realize the identity authentication based on blockchain, in which ID generation, ID management and user authentication, etc.

OBFT: OBFT is a sort of algorithm that is improved having super nodes, 1/3 error tolerant rate and better consensus efficiency.

Ⅰ. Ifoods chain desire and mission

Ifoods chain desire：

Make global food detection shared eco

Ifoods chain global mission：

Ifoods chain public chain is developed basing on block chain technology, smart contract, DAI, smart devices and other technologies. Ifoods chain provides consumers with the means to quickly detect food safety and quality data, protect the rights and interests of food detecting experts, and promote the development of food safety.

Ⅱ. Food safety detection eco background

2.1 Food safety detection market scale analysis

According to the global food market data issued by the GlobalData in July 2017, the Chinese food market ranked first in the US $1 trillion and 173 billion 900 million, while the United States ranked 1 trillion and 166 billion 300 million in second. Japan, Germany and Britain also rank among the top five, but the scale is only $23 billion, far from China and the United States. The total global food market is US $6 trillion and 317 billion 600 million and is expected to grow to US $7 trillion and 735 billion in 2020. In the 2015 regional ranking, Europe topped the list of US $2 trillion and 126 billion 800 million, followed by Asia Pacific with us $2 trillion and 123 billion, followed by North America, Latin America and the Middle East. The industry believes that with the growth of China's economy, the Asia Pacific region surpassed Europe last year and became the world's largest food market.

The growth of food market drives the development of food safety detecting market. According to the survey, 59.3% of respondents were most concerned about the relevant detection certificate when choosing food. In contrast, price, brand, production, processing and appearance are not very highly concerned.
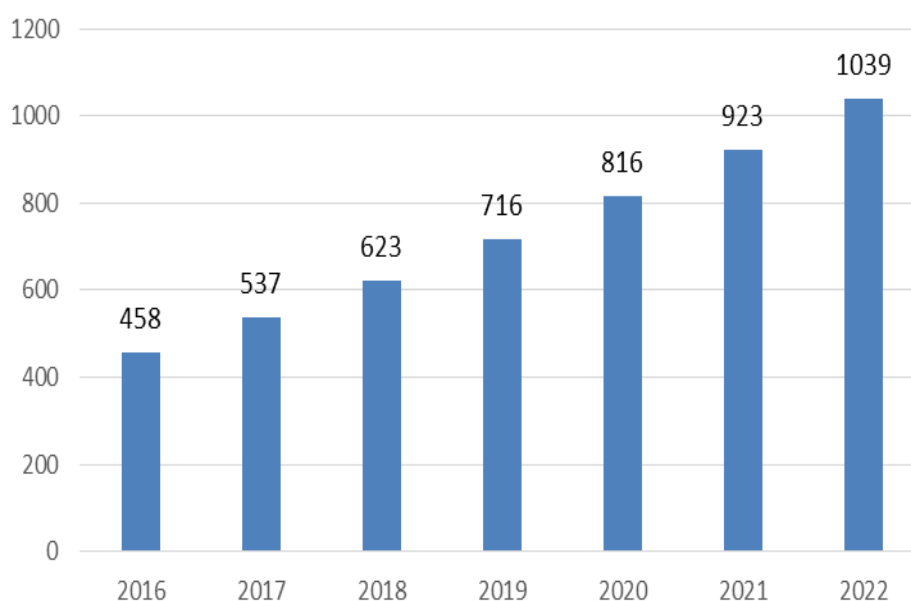
Fig 2.1 2016-2022 China food safety detection market prediction （Hundreds millions yuan）

According to the year of 2018-2023 analysis report on the development prospects and investment opportunities of China's food safety detection industry, the demand for fast food safety detection will be increased by more than 15% in the next few years. It is estimated that by 2022, the market scale of domestic food safety detecting industry will exceed 100 billion yuan.

2.2 High quality food safety market demand

Meat market demand

Taking beef as an example, the import of beef in China increased from 16 thousand tons in 2000 to 700 thousand tons in 2016 (a steep increase in 2013, up to 4 times the same year period), while the export volume fell from 47 thousand tons to 25 thousand tons in the same period. The rise of beef price and the reverse change of beef import and export further confirm that China's beef cattle industry is in short supply and the industry space is vast.

At present, the per capita consumption of beef in China is about 5kg, accounting for only 1/2 of the world mean and 40% of the Asian mean. Assuming that the per capita consumption of beef in our country reaches the world average of 10kg, the total consumption is close to 15

million tons, and the beef consumption market in our country is expected to reach 900 billion yuan in the future.
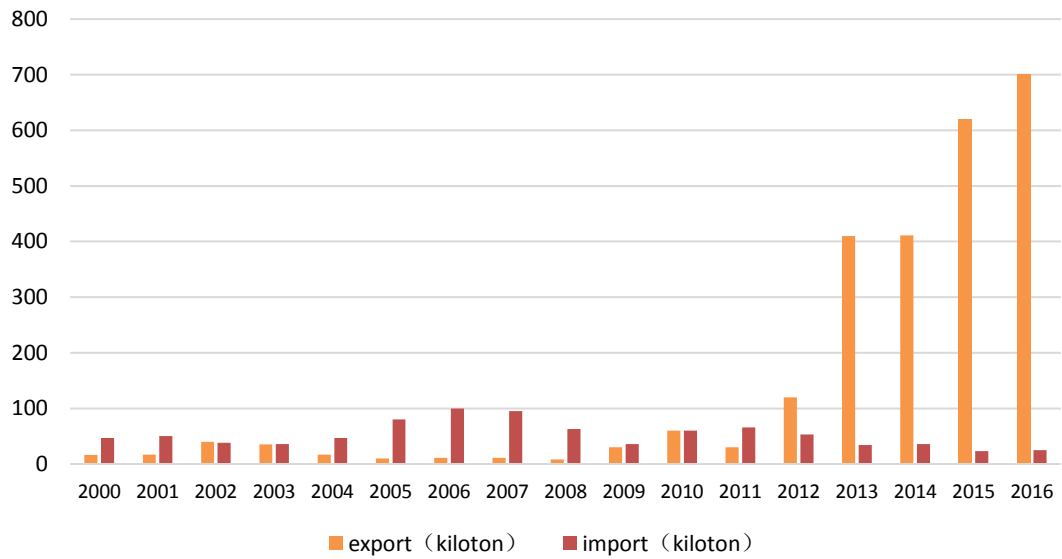
Fig 2.2 Import and export volume of China in 2000-2016 years

Organic food market analysis

The report "Organic Foods & Beverages Market Analysis by Product, Organic Beverages, and Segment Forecasts, 2014-2025" shows that by 2025, the global organic food and beverage market is expected to reach US$320.5 billion, much higher than the US$77.4 billion in 2015. . Fruits and vegetables dominate the global organic food market, accounting for more than 37% of market revenue in 2015. It is predicted that by 2025, the organic fruits and vegetables market is expected to earn more than 110 billion US dollars.

Fig 2.3 organic food sales in main global countries in 2015（Hundreds millions yuan）

In addition, consumers' consumption of organic meat and poultry products is also increasing, and this segment of the market is pushing ahead in the development of the entire market. During the forecast period, the compound annual growth rate (CAGR) of sales of organic meat and poultry products is expected to reach 13%.

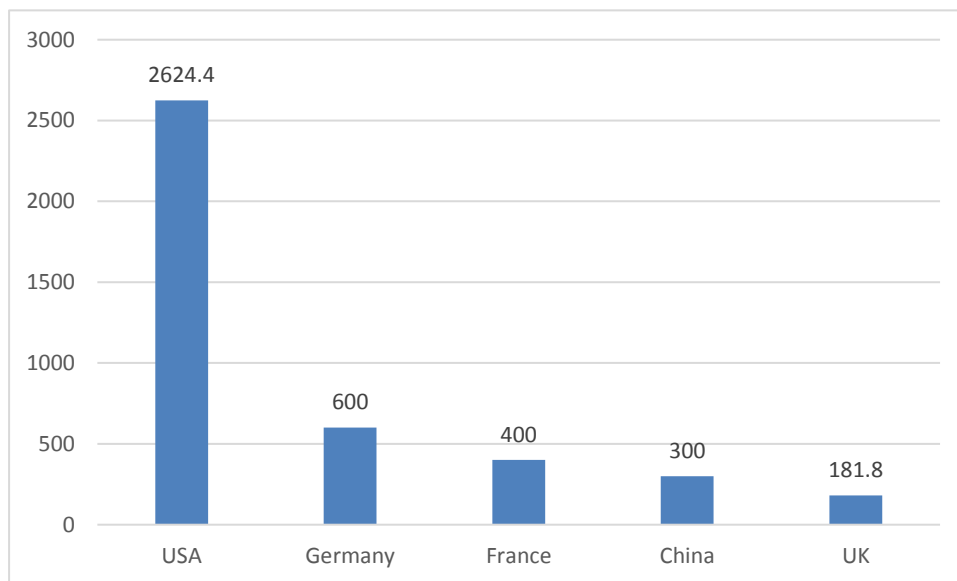In 2015, organic food sales in the United States reached 262.44 billion yuan. Europe is the second largest organic food consumer market except the United States.
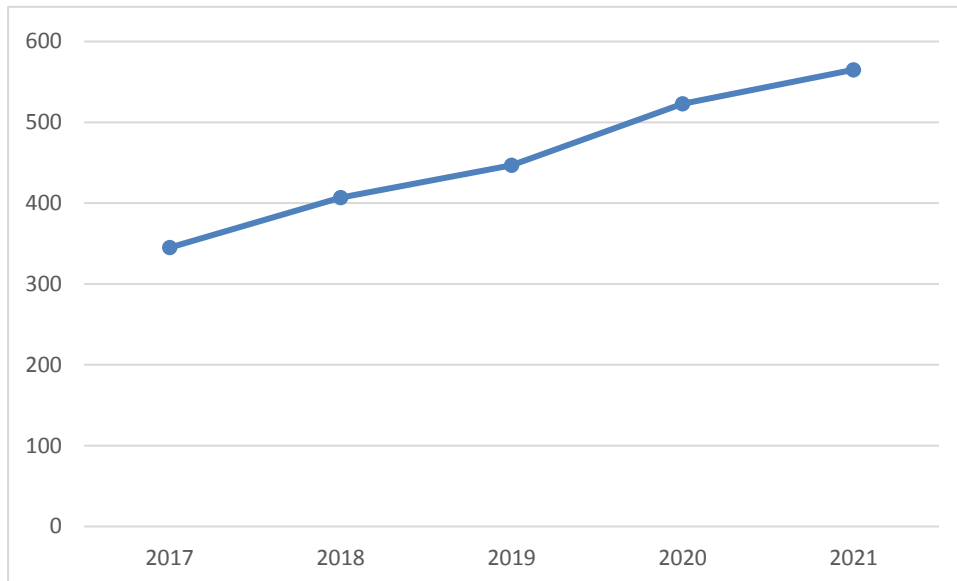
Fig 2.4 China organic foods sales in 2017-2021（Hundreds millions yuan）

American organic food market share accounts for 90% of the world's total. According to the "Organic survey" conducted by the International Organic Market Research Organization, Germany and France are the countries with the highest organic food sales in Europe. In 2015, they were nearly 60 billion yuan and 40 billion yuan respectively. Britain ranked third, with sales of 18.18 billion yuan. The broad market space for international organic food provides an extremely favorable external environment for the development of China's organic food industry.

The "Investment Analysis and Forecast Report of China's Organic Food Market in 2017-2021" released by the China Investment Advisor predicts that China's organic food sales will reach 34.5 billion yuan in 2017, and the average annual compound growth rate for the next five years (2017-2021) will be approximately 13.17%, sales in 2021 will reach 56.5 billion yuan. According to the data of the Organic Trade Organization (OTA), sales of organic food and beverages in China will increase by 15.9% from 2015 to 2020.

High demand for food safety and quality detection

According to research data, the scale of demand for food safety detecting device in China reached more than 30 billion yuan in 2013, and the growth rate has been maintained at more than 30% in recent years. From a digital perspective, there are 24,847 detection agencies in the country for agricultural systems, quality detection, food and medicine, and health care systems. In 2013, the agricultural system alone had a total of 3.1 million law enforcement personnel deployed throughout the year, 621 new detecting institutions and laboratories were newly added, and detection agencies nationwide issued 85 million detection reports on food and agricultural products, and the annual market for detecting device. 100 billion yuan in scale. Under such a scale, food safety is still not perfect, and it is expected that by 2020, the total number of laboratory and fast-check equipment and consumables plus third-party detecting will reach more than one trillion yuan.

2.3 Development Trend of Food Safety Detection Methods

Food safety detection requires government supervision, corporate awareness and full participation. Food detection has a high technical threshold and the equipment is expensive. The testing organizations need sophisticated instruments to study various components of food. Large high-precision testing instruments are not suitable for popularization, and the sampling detection by testing organizations can't fundamentally satisfy people's right to know about food safety detection information. Expensive high-precision equipment in labs and the rapid detection technology have been used for food detection. In the long run, the development of food detection technology can't be separated from the increase in people's demands.

In 2018, the emergence of smart devices such as super probes and the protection of intellectual property rights of food testing data by block chains created conditions for the participation of all people in food safety detection. The survey shows that 59.3% of respondents are most concerned with the relevant detection certificates when purchasing foods. By contrast, prices, brands, production and processing areas and appearances are less concerned. We believe that smart devices such as super probes can meet consumers' needs for

real-time food safety detection, and the future food safety detection will be as easy as using a smart phone. Smart devices such as super probes can truly guarantee the core interests of consumers, regulators, merchants, and detection experts and are increasingly recognized by more and more people.

2.4 Pain points in food safety and quality detection

Supply-side pain points

On the supply-side of the food safety quality detection market, there are pain points and lack of trusts. The food detection expert detection data analysis service relies on a third-party centralized system, and there is no channel and way of trust to deal directly with the detector and demander. At the same time, relying on a third-party centralized system makes the food detection expert's data model easy to leak, and the intellectual property rights of the detection expert cannot be well protected.

Consumption-side pain points

There is a lack of methods, means, and knowledge in the consumption side of the food safety and quality detecting market. In terms of food safety quality detecting methods, sample detecting methods on the market are costly, time-consuming, and food safety detection thresholds high. It is difficult for traditional methods to meet the needs of researchers, ordinary citizens, and businesses to quickly and cost-effectively detect food safety.

Lack of convenient, low-cost detecting method

The food detection methods in the market are costly and time-consuming, and the food safety detection threshold is high. Traditional means cannot meet the needs of ordinary citizens and businesses to quickly and cost-effectively detect food safety. In the traditional process of meat detection, the process of sample selection, instrument detection, and results analysis are complex and cannot meet the needs of end consumers.

Safe detecting of intellectual property is difficult to protect

In the traditional centralized detection method, the detection expert provides a third-party central organization of the detection data model. Food science and technology intellectual property lacks effective protection measures, and expert knowledge data models are easily leaked and stolen.

Insufficient food related knowledge of consumer

Food data is in the hands of suppliers, detecting departments, and businesses. Consumers often do not get the data they really need. At the same time, due to the lack of relevant knowledge, consumers and businesses face food-related data provided by the regulatory authorities. On the one hand, it is difficult to judge the merits of food, and on the other hand, there is no intuitive understanding of the detection data.

Ⅲ. Ifoods chain eco model

The Ifoods chain eco is a distributed food safety quality detectioneco based onblockchain. In the Ifoods chain, detecting experts, examiner, regulators, food companies, businesses, and consumers participate in the eco. Ifoods chain is based on technologies such as blockchain technology, smart contracts, DAI, and food detection smart devices to protect the interests of participants while satisfying the need for rapid and instant detection of food by eximiners, meeting the needs reflected by the value of food detection experts' knowledge, meeting the needs of companies, The need for rapid detecting, data linking, etc. Ifoods chain provides consumers with a means to quickly detection food safety quality data, protect the rights of food detection experts, and promote the development of food safety. The Ifoods chain eco model is shown in Figure 3.1.

Detecting experts

In the Ifoods chain ecosystem, detecting experts in food, meat, vegetables, food, water, and oil fields provide reliable food data analysis models. (Ifoodschain determines the reliability and feasibility of detecting experts to provide food data analysis models through community voting and smart data analysis models)
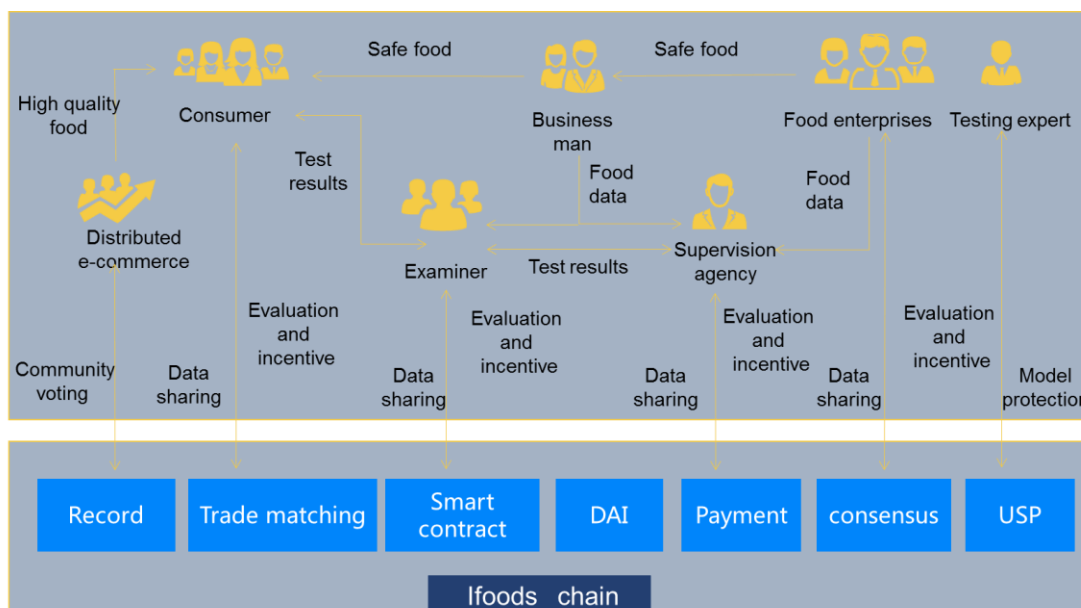
Fig 3.1 Ifoods chain eco model

Examiner

In the Ifoods chain ecosystem, the examiner is an eco participant who uses food detection smart devices for food data extraction and selects food model libraries for distributed food detecting.

Supervision department

In the Ifoods chain eco, the supervision department uses food detectionsmart devices to analyze food data rapidly and instantly, and improves detection efficiency and administrative efficiency.

Food enterprises and business men

In Ifoods chain eco, food enterprises and business men can reduce food detection cost by using food detectionsmart device to analyze food data rapidly and instantly.

Distributed e-commerce

In Ifoods chain eco, high quality food enterprises selected by the mode of community voting will become the participants of the distributed suppliers.

Consumers

In the Ifoods chain ecosystem, the buyers of safe food and the purchasers of detecting data. Consumers can be detects, and detects can also be consumers.

IV. Ifoods chain application scenarios

Ifoods chain will develop a variety of DAPP applications including smart devicefood detection, daggering, distributed data value delivery, protection, distributed food detection network, distributed eco maintenance and administration and distributed e-commerce etc.

4.1 Smartfood detecting device and Mining (awards)

Smartfood detecting device

Block chain account book cannot be tempered with, on which multi-party maintain the account book together. Smart devices are based on the block chain, which guarantees real-time, orderly and forgery of the uploaded data. Meanwhile, the collected data of smart device is owned by the user, which can be shared and be sold for awards. A massive shared data enables every food data at all levels of distributor, detailer, e-commerce, consumers and all levels of municipal supervision agencies to consensus and share.
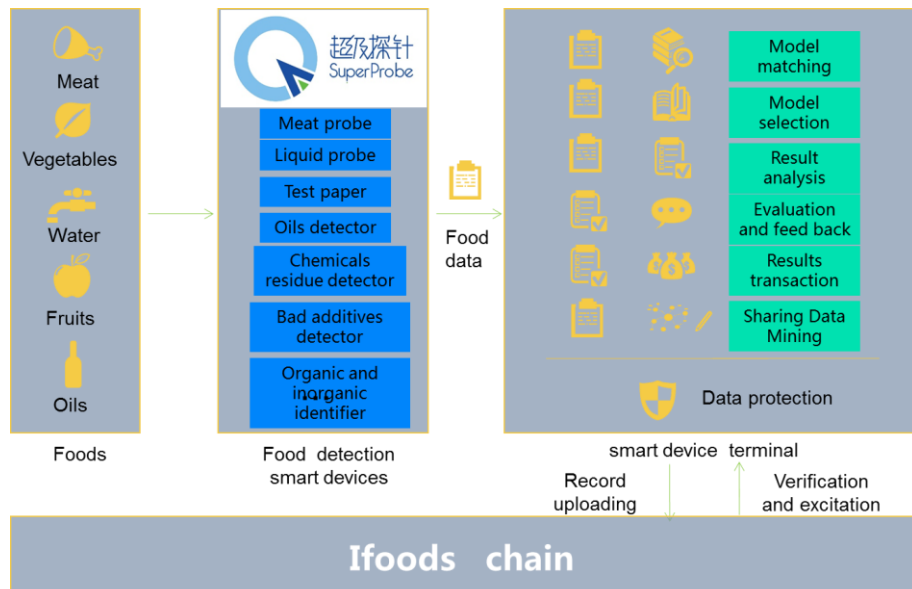

Fig 4.1 Smart food detection and mining device

The food detectionsmart device includes meat probe, liquid probe, detection paper, oil detectingdevice, pesticide residue detecting device, bad additive detection instrument, organic and inorganic identification instrument, etc. The data is transmitted to the DAPP of the mobile

phone by Bluetooth, and then is showed to the users. The user confirms and uses the mobile APP's wallet module signature, and uploads the data to the Ifoods chain block chain system for permanent storage, and the smart device triggers the back end detection system of the Ifoods chain. Using the uploaded data as input, combined with the tools provided by our food experts, the results and conclusions of the detection are feed backed to the user's mobile APP, and the user can choose to upload the detection conclusion to the block chain. This conclusion can be used as an open and non-tamper able detection conclusion. For valuable data,users can query the detected data and conclusions through the block chain browser.

Mining

The participants in the Ifoods chain eco include food detecting experts, regulators, food enterprises, merchants, inspector and consumers, all of which can share the desensitization data and get IFOOD awards.

With smart hardware such as super probe, participants share the desensitization information such as consumption information, food detection information, location information and so on with the premise of privacy protection, and obtain IFOOD rewards through smart contracts.

4.2 Distributed data value protection and delivery

Based on block chain technology, the data of individuals and organizations will be protected by Ifoods chain. At the same time, data models will be paid for data transmission and data transactions value delivery.

Data model usage and protection

Traditional centralized detection method cannot effectively protect expert model data. Ifoods chain can guarantee the security of expert data model using DAI technology. For the expert institutions uploaded standard data, Ifoods chain will be classified reasonably and smart matching. When consumers have demand for data detection, they can choose to pay IFOOD to data experts using DAPP display through smart contracts, and then carry out the data detections.
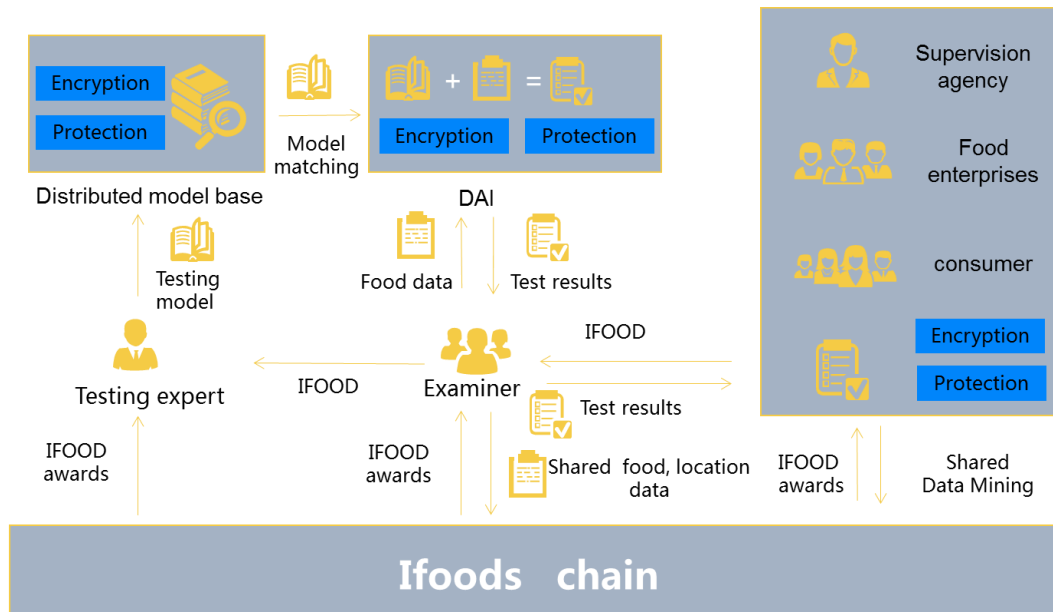
Fig 4.2 Distributed data value protection and delivery

Measurement and sale of data

Consumers are the sole owners of their own data and can provide data to others for IFOOD return. It includes food data either currently detected by consumers or obtained in different places in the past. Meanwhile, based on smart contracts, purchasers can only have the right to use data, by which purchasers can get food data statistics more cheaply and rights and interests protected.

Shared data masking and daggering

Ifoods chain eco effectively protect the data of all the participants including food data, consumption data, detecting data and location data. The participants can obtain awards by sharing their own data masking

4.3 Distributed food detection network

The distributed food detection network, based on the shared, open and distributed consensus of the block chain, is not only the central detecting organization, but also the thousands of super probes and other smart device owners. Food detection experts, supervision regulators, food enterprises and school canteen are included in. it truly participates in food safety and quality detecting, and create a win-win and sustainable distributed food detection network. At the same time, every participant can share regional food quality data and get

IFOOD award. By usingsmart contract transaction and DAPP display, consumers can get valuable regional food quality information across regions and time zones athome.
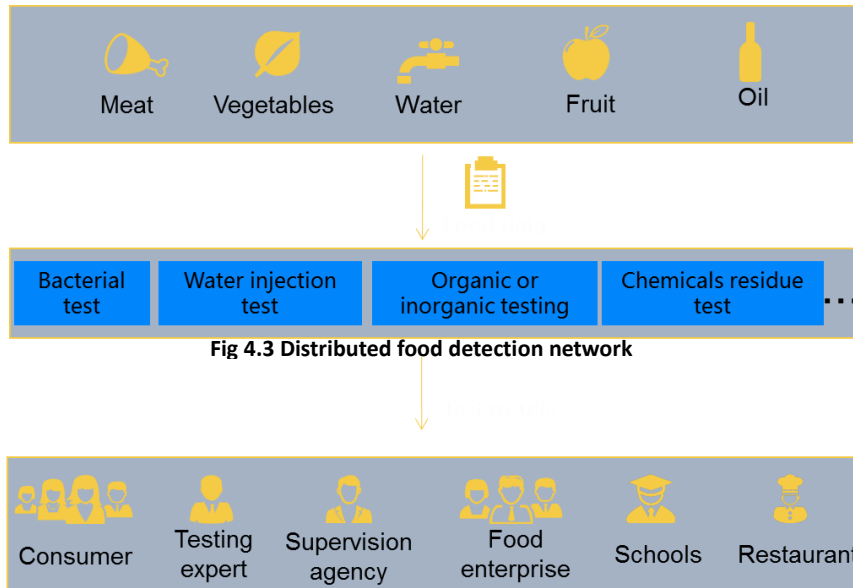
Fig 4.3 Distributed food detection network

Consumers participation :

Consumers quickly and conveniently detection the foods, such as beef, pork, mutton, vegetables, bacteria etc. Use smart hardware to collect data, match transactions in Ifoods chain, pay by smart contract, and feed back the analysis results of DAI to DAPP.

Food detecting experts (agencies) eco participants :

Food detection experts (agencies) eco participants, such as pork detection experts, bacteria detection expert, and vegetable detection expert etc will upload their data-based of research achievements and patents to Ifoods chain, and improve the whole Ifoods chain eco public chain.

Ifoods chain will protect the core interests of data detecting experts, and encourage experts to provide more food data security detection models. From vegetables to meat, from organic to inorganic, from pesticide residues to heavy metal pollution, the distributed network of food detecting will gradually cover the whole food industry.

Supervision agencies participation :

Distributed food safety and quality detection network, the supervision agencies can

collect or purchase credible data for analysis, and quickly get regional food quality data. It can also use smart hardware to supervise food safety and on-site collect the food data of the vendors to be monitored and feedback the results in 2 minutes to improve the efficiency of supervision and the credibility.

Food enterprises participation :

The relative food purchasing enterprises can use smart devices to detection large quantity of the purchased foods. The cost of usage can be reduced by using Ifoods chain quick detection, and get results immediately and increase sampling coverage.

Schools and restaurants participation :

Public institutions such as schools and restaurants can use smart equipment, carry out food safety and quality detecting, ensure the safety of the material and reduce the cost of purchasing.

4.4 Distributed eco maintenance and administration

The distributed food safety and quality detection eco is guaranteed by using Ifoods chain trade matching mechanism, payment mechanism, evaluation feedback mechanism, and according to the super node voting governance, and the whole people participation.
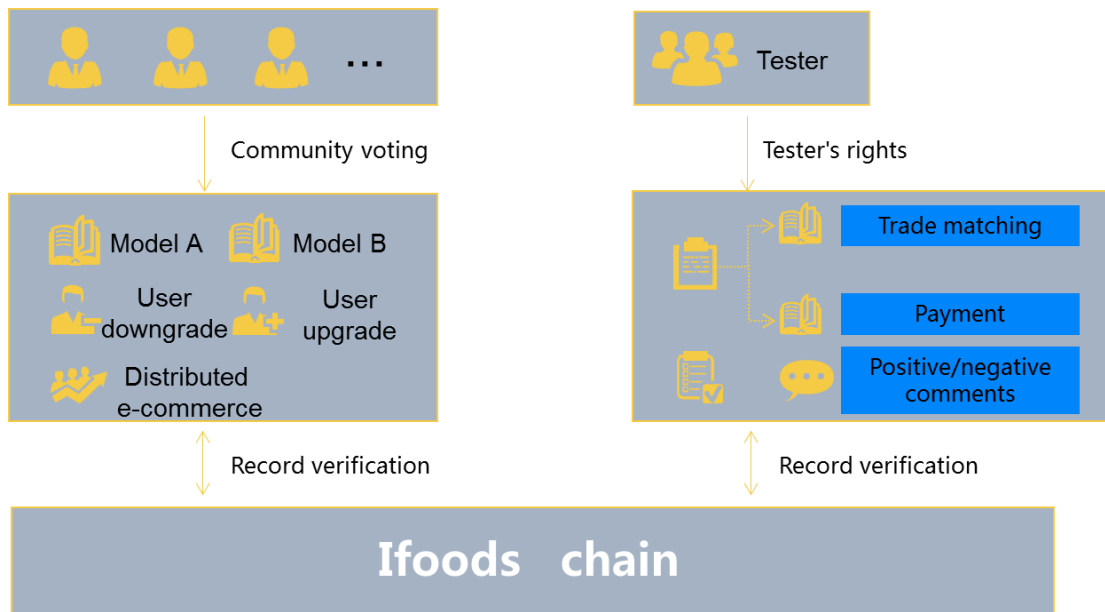
Fig 4.4 Distributed eco maintenance and administration

Transaction matching and payments

Ifoods chain will classify the standard data to ensure that the detection data match the corresponding model. Participants choose the model freely based on DAPP and pay by smart contract, by which the safety of transactions is guaranteed and the cost of the third party is reduced.

Evaluation feedback

All participants who use standard data can feedback the evaluation results after use, and the block chain will ensure that the evaluation cannot be changed. At the same time, the cumulative evaluation results are smartly detected.

Community voting

Ifoods chain uses community voting to make decisions and votes according to super nodes, (1) community voting data (standard data of experts, institutions, etc.)

(2) community voting for malicious data uploaded and processing of malicious accounts.

(3) community voting selection of enterprise distributed e-commerce

4.5Distributed e-commerce network

Ifoods chain based on the large data obtained by the probe system, block chain technology, and AI to establish the Distributed E-Commerce DAPP, to ensure the safety, high quality, and verifiable of the distribution of electric business food. Entering e-commerce DAPP requires other nodes to vote on its block chain data to ensure a fair access to the platform and to jointly build a distributed security and high quality food sales eco.
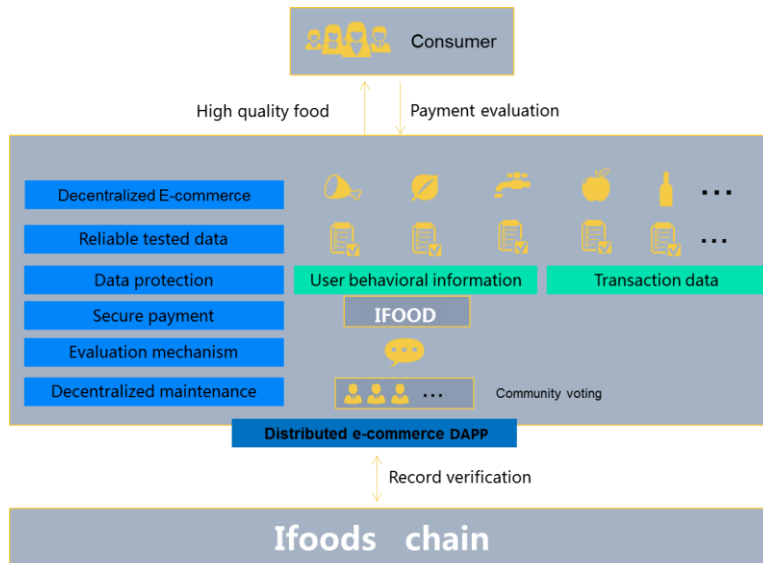
Fig 4.5 Distributed e-commerce network

The distributed e-commerce network will select high quality food suppliers through community voting. The merchants of the distributed e-commerce network record and upload food safety detection data to Ifoods chain, users choose to purchase food information, and feedback the evaluation information in real time. Distributed DAPP will protect consumers' behavior data and transaction data such as click, browse and purchase. The transactions in the distributed electricity supplier use IFOOD to settle accounts, reduce the cost of the third party, and ensure the safety of the transaction.

Ⅴ. Ifoodschain technological models

Ifoods chain requirements for block chain: support high frequency trading, support TPS >3k, block time between 6 seconds and 8 seconds; with the storage capacity of general

data, can customize and expand the data structure of the transaction; have a better storage function for large files; can provide complete and easily editable smart contract platform. Ifoods chain will build its own public chain system to better create a distributed food safety detecting eco.

5.1 Ifoods chain technological structure

Ifoods chain builds a secure, trustworthy and shared food safety and quality detection network that is based on block chaining technology,protection of consumers, inspector, and detecting experts through smart contracts and DAI technologies; It is capable of quickly detecting the food quality and safety by food detectionsmart devices with incentive mechanisms and block chain sharing technology features, whichattracts multiple parties to participate in the eco; guarantee the security of transaction information through block chain storage and distributed storage; and develop a variety of distributed applications in the field of food quality and safety through a series of DAPP development.
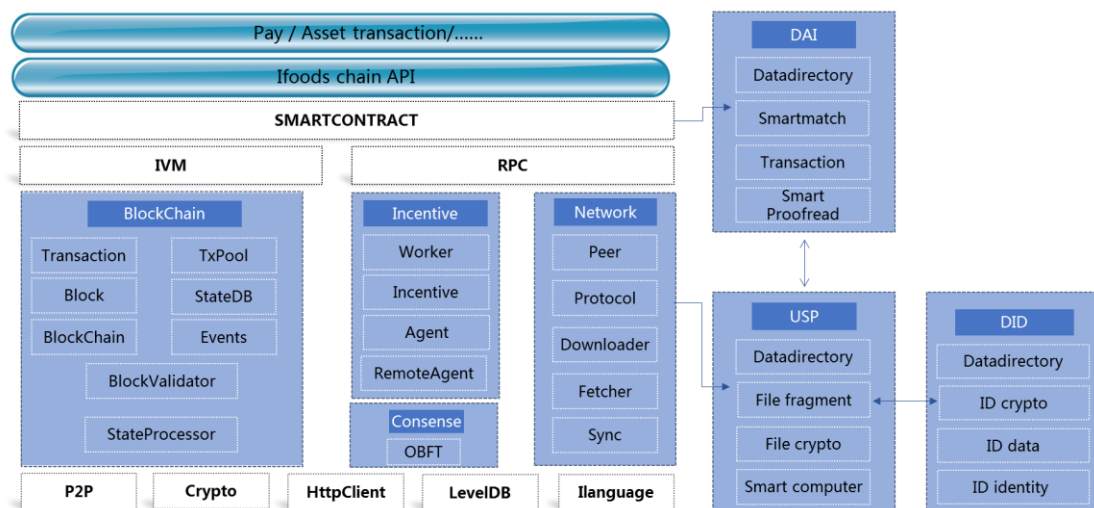

Fig 5.1 Ifoods chain technological structure

5.2 Core technology

Ifoods Chain public chain

Ifoods Chain is committed to realizing the value circulation of food safety detection information, and building a rapid, real-time and safe food safety detection ecosystem that involves all people while protecting food safety detection information and food safety detection model data, thus providing knowledge protection and trading means for the food safety detection business. Based on the ecological needs of the Ifoods Chain, we will develop the Ifoods Chain public chain based on the OBFT consensus mechanism:

1.Supporting high-frequency trading; supporting the transactions per second (TPS) above 5k; generating a block in 6 to 8 seconds;

2. Storing general data; customizing and expanding the transaction data structure;

3. Storing large files properly; and

4. Providing a Turing-complete smart contact platform which is easy to compile.

The public chain of Ifoods chain is consisted of value agreement and value network. The Ifoods chain public chain value agreement includes smart devices, asset wallets, and data evaluation mechanisms. Ifoods chain public Chain Wallet provides personal or institutional tools for exchanging, paying and settling accounts. At the same time, the Ifoods chain public chain maintains the entire Ifoods chain public chain self development and incentive system through effective participation and trusted data analysis services, as well as the needs of food safety detections. At the same time, based on DAI and consensus mechanism, a distributed direct supply platform is established to provide safe and high-quality food.

The Ifoods chain public chain value network is composed of functional service area and function module. With the underlying protocol of block chain, all transaction data of Ifoods chain public chain are recorded and written into each node by verifying the data sharing mechanism, by which real data can be more simple and reliable through the smart contract. With the involvement of everyone in the activity, their own smart contract executors and data sharing, and ensure the fairness and reliability of participation through the common data verification mechanism is accomplished. Through the sharing and writing mechanism of

block chain, we form a callable and verifiable functional service network parallel to the real world.

Distributed account book is an important infrastructure of Ifoods chain reliable storage. Distributed account book technology's features of decentralized, un-tempered with, and common accounts are the keys to realize reliable distributed multi-party network of Ifoods chain. Distributed account technique is a foot stone of Ifoods chain operation, which can guarantee the data and secure transaction of Ifoods chain eco.

OBFT consensus mechanism

Ifoods Chain proposed the OBFT consensus mechanism based on the needs of food safety detection for ecological, fast, instant information value transmission and detection method transactions. The OBFT consensus mechanism includes:

Trusted verification nodes are selected from a lot of nodes by community voting, and the verification nodes may be added or deleted at any time based on ecological requirements. Verification nodes are governed through distributed community governance, verification nodes are used, and through the verification node mechanism; a consensus is reached in Ifoods Chain on the information value transmission of food safety detection and the detection method transaction information.

In each round of block generation of Ifoods Chain, a verification node is selected by a random algorithm to record the information data block, to meet the ecological requirements of rapid block generation without bifurcation and tampers. The OBFT consensus mechanism can generate a block in 6 seconds to meet the real-time requirements in the detection scenario.

The OBFT consensus mechanism consumes no resources for mining and supports high-frequency trading. Based on the OBFT consensus, the TPS in the Ifoods Chain ecosystem can exceed 5,000.

USP infrastructure

The core structure of Ifoods chain is based on block chain technology and distributed storage technology, and provides a massive data storage service for the food industry.

In the Ifoodschain infrastructure, a USP (universal service platform) system is designed that serves the needs of different users of the Ifoodschain block chain system in the food field.

We incorporated the core function of the Ifoodschain block chain and the USP of various service systems. After incorporation, the whole structure is used as the middleware of the Ifoodschain block chain system. The USP system to be used by different users will be reserved for the front-end application of the open API interface and SDK. The USP system designed by Ifoodschain has the following advantages:

(1) Simplify and unify the docking of Ifoods chain system;

(2) Enable users, developers and other vendors to access and accept Ifoodschain services anytime, anywhere, using various devices and accesses.

DAI

The application scenario of Ifoods chain involves related technologies such as transaction matching, model selection, data analysis and so on. The use of these technologies, including model training, is based on artificial intelligence with depth learning algorithms, and will consume massive computing power. Therefore, we introduce distributed artificial intelligence (DAI).

DAI is the combined product of artificial intelligence and distributed computing. The proposal of DAI has met the needs of designing and building complex smart systems and computer supported cooperative work (CSCW). The purpose is to study the behavior and methods of the distributed smart group agent in logic or physics, and to study the knowledge and skills and planning of coordination to operate it, and to complete the multitask system and to solve all kinds of problems with clear goals.

DID

Ifoods chain uses DID to identify and manage entity's user identity on the chain. DID is user's digital ID on the Ifoods chainto realize the identity authentication based on the Ifoods chain, in which, for ID generation, ID management and user authentication, we use data encryption algorithm, data signature algorithm and data Hash algorithm to ensure the security of the user and the whole chain.

As one of the core protocols of the Ifoods chain trust network, the physical identification verification system integrating diversity, distributed layout, scalability and real-time protection of data privacy supports distributed and diversified identification and

authentication of all kinds of entities in the Ifoods chain trust network, including people, organizations and articles.

Firstly, identity label and multidimensional authentication:

The Ifoods chain identity label uses a distributed digital identity scheme. The digital identity itself is not related to a specific business and specifically how to use it will be defined by a practical application scenario. The identity of each entity (human, object or organization) in the digital identity scheme can possess a series of distributed sources of trust to choose different authentication methods in different scenarios.

Secondly, identity entities and identity labels:

In Ifoods chain, an entity (person, organization or object) can correspond to a digital identity, but different specific identities based on Ifoods chain digital identity can be generated in different application scenarios. Before authorized by the ID entity licensor, no third party can clarify the identity label used in another system of an entity according to its identity label used in one network system. Therefore, the privacy security and identity information rights can be well protected by isolating the operations of different entities from different systems through different identity labels.

Super probe system

Super probe is a mature application of Ifoods chain smart device for meat detection. The super probe system is a MEMS food detection DAPP block chain application system designed by Ifoods chain for consumers, businessmen and food enterprises. The super probe is easy to carry and can be used to detection food related data quickly and instantaneously. Compared with the standard database of eco chain such as experts, it helps consumers choose.

Mobile terminal is the main feedback channel after consumer detection.

(1) Displaya consumer's detection data and its deviation from the normal value.

(2) Displaythe detecting data of shops: display a period

data detected and analysis.

(3)Display location detecting data:display the detection

data in a location area in a certain periodandanalysis.

In view of the actual supermarket purchase scenario of

consumers, the super probes designed by Ifoodschain have the following advantages:

(1) Fast immediacy

The detection duration of the super probe is designed currently in the 120S, which enables consumers to obtain the reference information of food thickness in a very short time.

(2) Easy to carry

Considering the actual use of the scenario, the design of su **Fig 5.2 Super probe** consideration to the convenience of the consumer. The parameters of the super probe are designed at present: length <20CM; width <10CM; thickness <5CM; weight <0.5KG

(3) The inviolability of data ownership

Every detection data belongs to the data creator, and user has the absolute privacy of the data, and the benefit also belongs to the data creator.

Ifoods Chain will match the data of smart food safety detection instruments such as super probes, pesticide residue detectors, and organic and inorganic identification instruments to the corresponding detection expert's professional data model via DAI technology. The inspector can freely select models for food safety information analysis. The results of food safety detection analysis will be recorded in the distributed safety storage of USP system via the OBFT consensus mechanism and presented in the DAPP application. The inspector can obtain intuitive food safety detection data and is the only owner of the data.

Smart contract

Smart contract is featured as an event driven, state, multi-party recognition, running on the block chain, and automatically process assets according to the preset conditions. The great detection advantage of smart contract is to use program algorithm to replace the decision and execution of a contract depending on people. When ansmart contract is assignedto a block in a block chain and the external data and events are entered into an smart contract, the corresponding actions will be automatically output according to the internal preset response conditions and rules, and the results will be recorded on the block. In essence, smart contracts are also a section of the program, but unlike the traditional IT system, smart contracts inherit 3features of the block chain: transparent data, no tampering, and permanent operation.

Block chain certificate

Block chain certificate is an important technical point of Ifoods chain block chain platform.

In ecoconstruction, data cannot be tampered with is the key. The traditional proof of evidence is not strict, because these evidences are easily forged and destroyed. To complete the proof, it is necessary to rely on a strong chain of evidence. It is impossible for anyone to forge and destroy it, or to say that the cost of forgery is almost impossible. The block chain technology extracted from Bitcoin system has such powerful data protection ability.

Block chain certificate ensures that food safety and quality detection information is recorded on the block chain. The information stored on the block chain eventually forms an effective chain for food safety. Because the whole chain of evidence is composed of multiple links and multiple nodes, it also somehow ensures the reliability of product information. Once the food is in the hands of consumers and they want to know the information about the food, it is easy to get relevant information by querying block chain.

VI. Ifoods chain digital token

6.1 IFOOD introduction

IFOOD is a decentralized digital token of Ifoods chain eco.

6.2 IFOOD advantages

IFOOD is the only currency circulating in Ifoods chain for food safety and quality technological detection. IFOOD is a centralization of digital assets, transaction security can be querying. There is no third party intermediary cost to protect the interests of participants.

6.3 IFOOD circulation model

In the Ifoods chain eco, IFOOD will carry out two levels of liquidation to safeguard the common interests of investors and eco participants. IFOOD is only one way flow from the exchange to the applied eco.
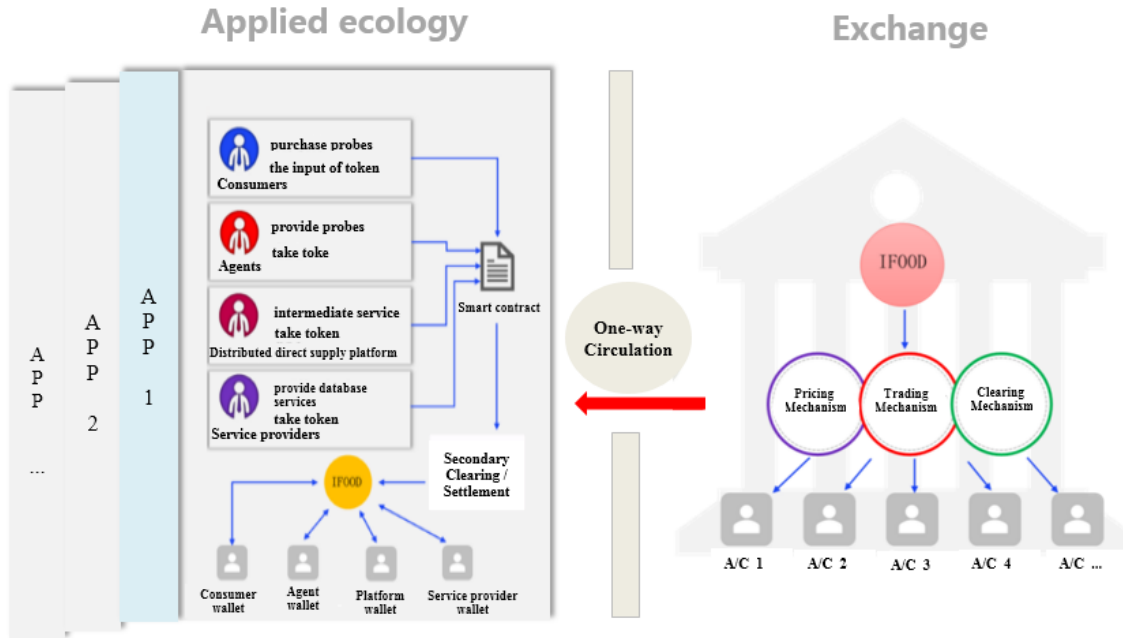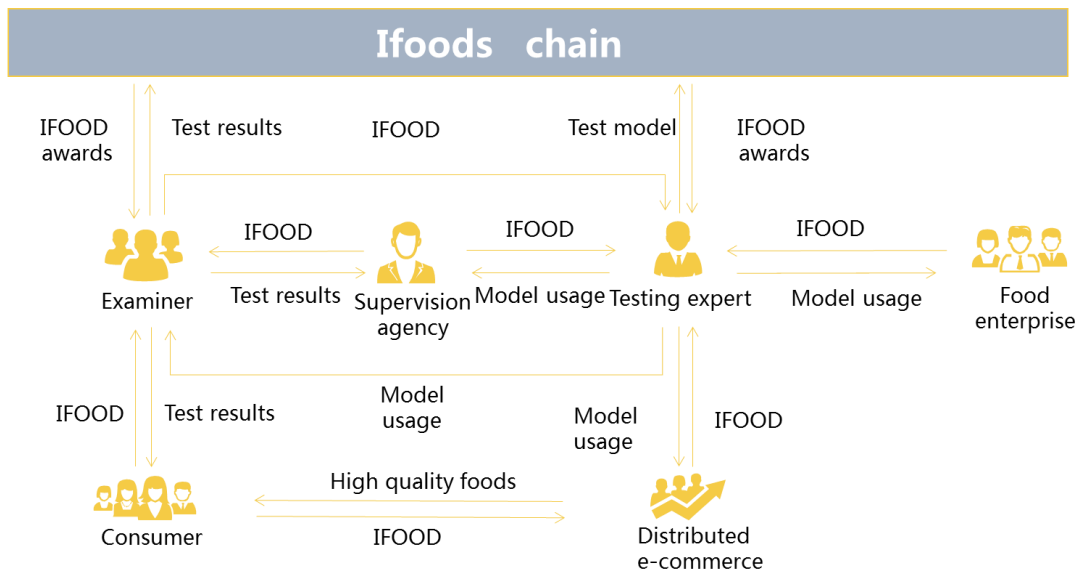

Fig 6.1 IFOOD one-way circulation

In Ifoods chain eco, IFOOD is connected with examiner, consumer, food detecting experts, food enterprises and distributed e-commerce.Ifoods Chain will create a food safety

detection information protection and transaction ecosystem with the participation of all people.

1. Consumers can obtain simple, easy-to-understand and credible food safety data quickly through Ifoods Chain and truly gain a sense of participation in food detection. Meanwhile, consumers can use IFOOD to purchase safe, high-quality foods directly on distributed e-commerce platforms.

2. Ifoods Chain will select the food detection expert's professional detection model by distributed community voting to ensure the accuracy of the model. Participants in food safety detection need to pay to the detection expert' IFOOD analyzes food data using a professional detection model.

3.The   food

safety   **Fig 6.2 Eco circulation model**

detection results obtained by the inspector by consuming IFOOD and using the food detection expert's detection model belong to the inspector. Consumers and testing organizations can consume IFOOD to purchase the required food safety data from the tester.

4. IFOOD rewards can be obtained by experts' provision of models and consumers' sharing of desensitization data.

5.Food vendors, food companies and regulatory agencies can consume IFOOD to quickly obtain food safety detection information, and build reliable trust relationships for food companies and consumers based on the block chain technology.

Ⅶ.Ifoods chain digital token distribution

The fund raised by Ifoods chain is all used for platform development. The total number of IFOOD certificates is 10 billion, and the total volume is constant. IFOOD is currently based on the standard digital token of the chain of ERC20 in the Ethernet block. In the future, the public chain Ifoods chain will be developed and the IFOOD based on Ethernet will be replaced by 1:1.

7.1Foundation administration

We have established a foundation in Singapore, and the Ifoods chain platform is administrated and developed by the foundation.

7.2 Pass-through offer plan

Fund-raising involves 2 billion 500 million IFOOD certificates, accounting for 25% of the total project, which is effective in promoting the operation and development of the project. The overall distribution is as follows:
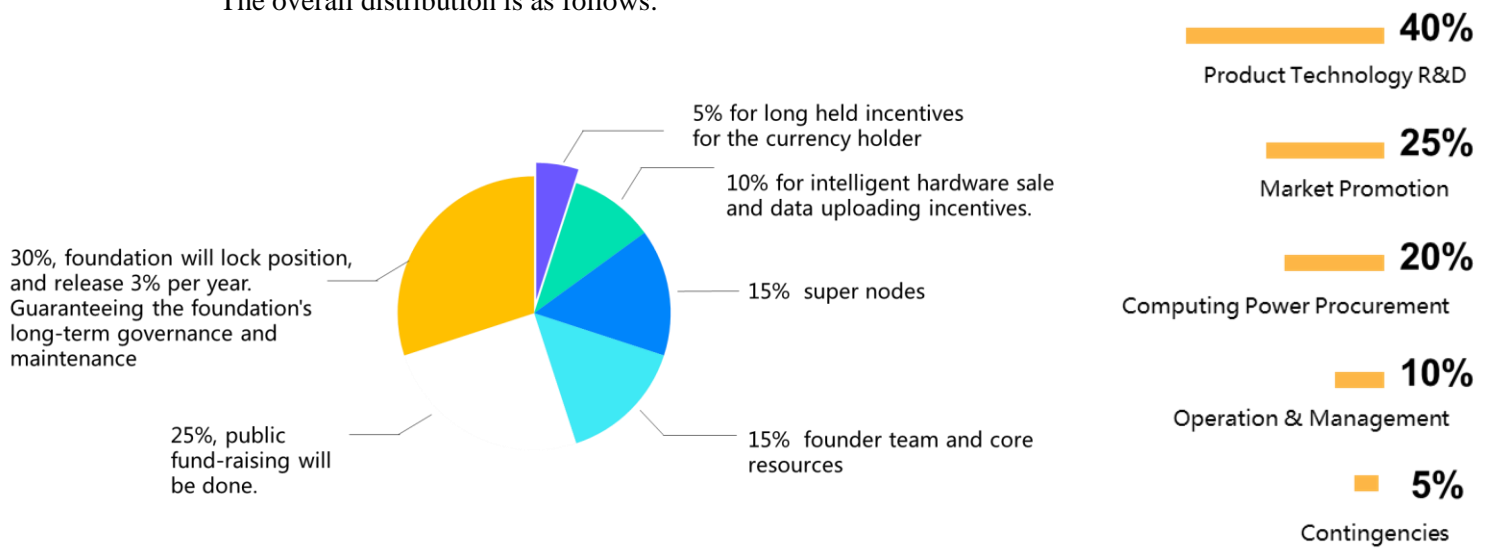
7.3 D **Fig 7.1 Ifoods chain Token distribution plan**   **Fig 7.2Fundraising Purpose**

The total fund-raising involves 2 billion 500 million IFOOD, accounting for 25% of the total, and can be exchanged for ETH.

All the certificates raised will be deposited in the multi-signed purse to be used by multiple signatures. The specific use and administration will strictly follow the rules of the Ifoods Chain Foundation's administration mechanism.

The Ifoods chain core team and the resource parties involved in the platform are 15% IFOOD certificates, which will be all frozen after the first stage of the collection, the first release of 4.5% after a year on the platform, and the release of 10.5% in second years. IFOOD certification will be open to trading on the stock exchange according to compliance requirements.

Ifoods chain built the project team

2017.08

Big Data Lab was set up

2017.10

Analyzed Intelligent Hardware Research Laboratory Algorithm

2018.01

Released White Paper 1.0 version, official website online

Early 2018.03

Data analysis of 900 beef groups worldwide completed by the Big Data Analysis Laboratory

Late 2018.03

Opened Super probe TOP100 plan

2018.04

Completed the Ifoods chain test.

2018.05

2017.09

public chain built technology architecture, started USP System Architecture Design

2017.11

Smart Hardware Laboratory was set up

2018.02

Big Data Analysis Lab collected data on global beef.

Middle 2018.03

Block Chain Platform Test Edition Online, Browser Released, Desktop Edition Wallet Released

Late 2018.03

The research and development of Super probe analysis was completed

Late 2018.04

Completion of TOP100 recruitment

7.4 Project schedule

Fig 7.3   Project schedule 2017.08-2018.05

Release of the promotion plan for super probes in Europe and America

Signing event for large-scale super probe institutions

Launch of super probe DAPP data asset package

Release of intelligent hardware for oil inspection

2019.05   2019.08   2019.11   2020.06

2019.07   2019.10   2019.12   2020.12

Release of DAI test function

The sales volume of super probes reaches 10,000 sets (expected).

Launch of Ifoods Chain Main Network

The sales volume of super probes reaches 30,000 sets (expected).

Fig 7.4   Proiect schedule 2018.06-2019.03

Fig 7.5Project schedule 2019.05-2020.12

Ifoods chain will Land Exchange

Super Probe Designs will be released

Will be Releasd the Super Probe DAPP DEMO Edition

Will be tested the Super probe prototype on a global scale.

Global release of super probes

2018.06   2018.06   2018.08   2018.10   2019.01

2018.06   2018.07   2018.09   2018.11   2019.03

IOS version wallet will be online

Ifoods chain's USP system will be online

Will be Releasd the Super Probe Smart Hardware DEMO Edition

Ifoods chain's distributed community will be online

Release of the promotion plan for super probes in China

Ⅷ. Ifoods chain team introduction

Ifoods chain core team is consisted of experienced experts who have committed to the relative industry for many years.

8.1 Core team

Lin RooJee （U.S.）, Founder & Director of the foundation

Ph. D. in food science, University of Georgia, USA;

Served as a senior manager of science & technology, CTO, a member of M & A.

Adviser to the national food safety & technology center of the United

States;

The honorary director of the China Meat Research Institute;

Chairman of the new China food group, China; chairman of the food company (Beijing) Limited.

Owns a number of patents in food technology, research, production, detectioning , and technology optimization.

Deeply studied the application of artificial intelligence.

Liu Yuan, CTO

A believer and early preacher of the block chain industry, proficient in the principle of P2P network, consensus algorithm, asymmetric encryption, block chain data structure, smart contract and so on, and have a comprehensive study on representative public chains such as BTC, ETH, NEO, EOS and so on. Deep application scenes of the public chain, the alliance chain and the private chain. Carried out the block chain infrastructure solution design and landing for many industries, multiple applications, such as Trinity based on NEO, ETH based color system, and block chain solution for power industry.

11 years of experience in the R & D of Internet infrastructure products, once served in China Telecom, NOKIA, HUAWEI and so on, several core exchange products, wireless communication base stations and controller products, and KVM virtualized cloud computing products have created the era of 100GE core exchange, mobile Internet era and cloud computing era. Firmly believe that with the development of block chain industry, we will enter a new era of revolutionary value transmission.

Feng Lishuang, Chief hardware scientist

Beijing University of Aeronautics and Astronautics, doctoral supervisor, deputy director of micro and nano measurement and control center;

Won the national "863" advanced collective and individual commendation;

Focus on MEMS sensor research;

It has won 1 provincial and ministerial level technological invention awards, 2 technological progress awards and 18 Chinese invention patents. More than 100 academic papers have been published in journals and conferences at home and abroad, including more than 20 in SCI.

Jesus Garia (Spain) , Global strategy officer

The founder of the Spanish GTS investment company;

The founder of the Arroyo chain restaurant & President;

DEIMOS technology company strategic advisor;

8.2 Consultant team

Li Yanbo, block chain technological consultant

Block chain technical expert, On-chain co-founder;
NKN founder;
Linux Kernel network layer core code contributor;
At Stanford University, he studied cryptography and worked in Qualcomm for many years. He specializes in distributed system architecture design and network protocol implementation;
DNA core R & D and designer of open source block chain platform.

David (Li Yiling) , block chain operation consultant

Trinity founder;
FourierPR co-founder;
China's top encryption economic project PR and consulting company, Fourier's customers;
List the top one hundred of coinmarketcap and cooperate with FBG.
Founder of base stone technology;
Media website inwecrypto.com, multi asset wallet InWeWallet founder 。

Yi Fengping, block chain municipal affair consultant

Trinity co-founder;
The district chain industry expert of government affairs, with rich government background and senior block chain project channel development experience; at the end of 2015, entering the Tai Fang fan community, has been responsible for the expansion of the application and technology of the block chain in the social and government fields; once served as the director of government affairs and Tongji of Shanghai distribution information technology company. Vice Dean of the Research Institute of thawing science and technology block chain;
To participate in the compilation of the Ministry of industry's block chain reference framework and government related block chain policies.
Presided over the cooperation and landing of the Guiyang municipal government's first honest peasant project in China.

Bieito (Spain) , global strategy consultant

President of Spain's largest ABC newspaper group.
Adviser to the Spanish government affairs

Chai Weizhong, food safety consultant

Ph.D. in nutrition (after), Professor, college of public health, Peking University.
Engaged in research and teaching of food hygiene;
The European food safety system, the development report of China's nutrition industry, public nutrition and social and economic development, etc., and dozens of professional articles in international professional conferences and periodicals

ZhongWeike, food detectioning technology consultant

Director and researcher, South detection center, China Academy of detection and quarantine.
In 2000, he graduated from the eco environment research center of the Chinese Academy of Sciences. It has been engaged in the detection and research work of chemical contaminants in food and environmental samples for a long time; 3 National Natural Science Foundation and 3 projects by the Ministry of science and technology. 5 national standards and bank standards were formulated, and more than 40 papers were published in core journals both at home and abroad. Good at dioxin and pesticide residues analysis in food.

IX. Cooperative organization

At present, participants in Ifoodschain global food detecting and sharing eco construction includes:

Food safety block chain laboratory, China Meat Research Institute, China Detection and Quarantine Institute South detecting center, Photoelectricity Technology Institute of Beijing University of Aeronautics and Astronautics, Chinese People's Public Security University, fufu brand agricultural business school, VUB-VrijeUniversiteit Brussel (food detecting), Horqin cattle industry, and Fude food

Investment institutions & partners:

GTS capital (Spain), Horqin cattle industry, Shanghai pin Shang, Trinity, intrinsic capital, digital torch technology, star chain capital, VNBIG,

Spain ABC newspaper industry, currency world, vernacular block chain, ear finance and finance, fire coin (Singapore), American society, block chain Chinese network, currency,

BCfans.com, Jinniu finance, Kcash, fusion media block chain center.

Ⅹ．Disclaimer

This document is for information purposes only. The above information or analysis does not constitute an investment decision. This document does not constitute any investment advice, investment intention or investment in education.

This document does not constitute, nor should it be construed as providing any buying or selling behavior, or inviting to buy or sell any form of securities, nor is it any form of contract or commitment;

The Ifoods chain Foundation believes that there are numerous risks in the development, maintenance and operation of IFOOD and other encrypted currency and block chain systems, many of which are beyond the foundation's control. In addition to the other contents described in the white paper, each IFOOD purchaser should carefully read, understand and carefully consider the following risks.

Investors should clearly understand the risks of IFOOD tokens. Once they participate in the investment, they understand and accept the risk of the project, and are willing to personally bear all the corresponding results or consequences;

Ifoods chain team does not assume any direct or indirect loss of assets caused by participation in the IFOOD project.

The eachbuyer of IFOOD should pay special attention to the fact that IFOOD exists only in the virtual space of the network, and does not have any tangible existence, so it does not belong to or involve any particular country.