DMTC
Agriculture Traceability Application Chain

DMTC Agriculture Traceability Application Chain

White Paper

Preface

"There is no shortcut to success. I am not at home, just in the test field;
Not in the test field, just on the way to the test field."
"The Father of the World Hybrid Rice" by Yuan Longping

DMTC: Demeter (Greek: Δήμητρα)

The goddess of agriculture, grain, and harvest in ancient Greek mythology, one of the twelve main gods of Olympia.

Demeter teaches human cultivation and gives life to the earth. She has boundless magic power, can make the land fertile, the plants flourish, the harvest abundant but can also wilt the earth and wither everything. She can let people have endless wealth but can also impoverish them.

The world's agriculture is vastly distributed. Except for the poles and deserts, all the surface of the earth can be used in agricultural production. Out of about 50.58 million square miles of the actual land area, about 11% is arable land and perennial cropland, 24% is grassland and pastures, and 31% is forest and woodlands. Oceans and inland waters are the sites of aquaculture production. Agricultural natural resources are unevenly distributed. According to FAO, the world's cultivated land area is about 50.44 million square miles. Within 30 years from 1970 to 2000, the world population increased from 3.7 to 6.054 billion, by about 85%. As a result, the world's per capita arable land area has decreased from 0.94 to 0.56 acres.

The development of modern agricultural technology has eased the restriction that limited natural resources such as land impose on the agricultural development. Some typical countries with small land area and high population, such as the Netherlands and Israel, have made remarkable achievements in the agricultural development relying on technological innovation. We learn that people can use capital and knowledge (technology) to replace scarce land, fresh water, and other natural resources and achieve sustainable agricultural development.

Outline of the 13th Five-Year Plan for the National Economic and Social Development of the People's Republic of China proposes to promote agricultural informatization, the integration of agriculture and information technology, and smart agriculture development. Outline of the National Informatization Development Strategy proposes to develop Internet agriculture, establish and improve a smart networked agricultural production and operation system, and improve the information management and service capability of the whole agricultural production process. National Plan for Agricultural Modernization (2016—2020) and the 13th Five-Year National Informatization Plan will also pave the way for comprehensive promotion of agricultural and rural informatization. In order to implement the above plans, promote the comprehensive and deep integration of information technology, agriculture, and rural areas and ensure significant progress in the development of agricultural and rural informatization during the 13th Five-Year Plan period, we must drive the modernization of agriculture.

Contents

1. Agricultural Development

Before the 19th century, global agriculture evolved from primitive agriculture to intensive farming. In China, traditional agriculture was developed greatly. In the 19th century, agriculture developed from traditional to the semi-mechanized modern model. Now, the modern agriculture is evolving.

Modernized agriculture is ecological, information-based, and smart. It integrates the developments of modern technology to build a high-quality, high-yield, and low-consumption agricultural ecosystem.

1.1 World Agricultural Development Overview

Most developed capitalist countries have started agriculture modernization. The following advances were made in the agricultural production technology after World War II:

1) mechanization of individual operation links has developed into mechanization of the whole production process, forming comprehensive mechanization and automation;

2) the application level of fertilizers and pesticides has improved and become more efficient; growing agents, plastic films, and other chemical products have also become more widely used;

3) in addition to the traditional breeding techniques, the use of biotechnologies such as genetic engineering has started in agriculture. Thus, the artificial control of biological genetic characteristics has improved, and it is possible to get more high-yield, high-quality, and stress-resistant biological varieties.

All these, combined with the application of nuclear and electronic technology, have made a breakthrough in agricultural production and labor productivity.

Developing countries in Asia, Africa, and Latin America are mainly agricultural countries. Apart from socialist countries such as China, many have also carried out various land system reforms after gaining independence. Still, not only are they still exploited by the capitalist world, but even China has not yet shaken off the shackles of the pre-capitalist production relations. Most countries still adhere to the traditional agriculture; some preserve primitive nomadic and slash-and-burn farming. Feed, seeds, fertilizers, and other production means mainly rely on self-sufficiency. Except for some special export products, agricultural products are mainly self-consumed; and the commodity rate is very low.

1.2 Continuous Heating-up of Investment and Financing in Modern Agriculture (China)

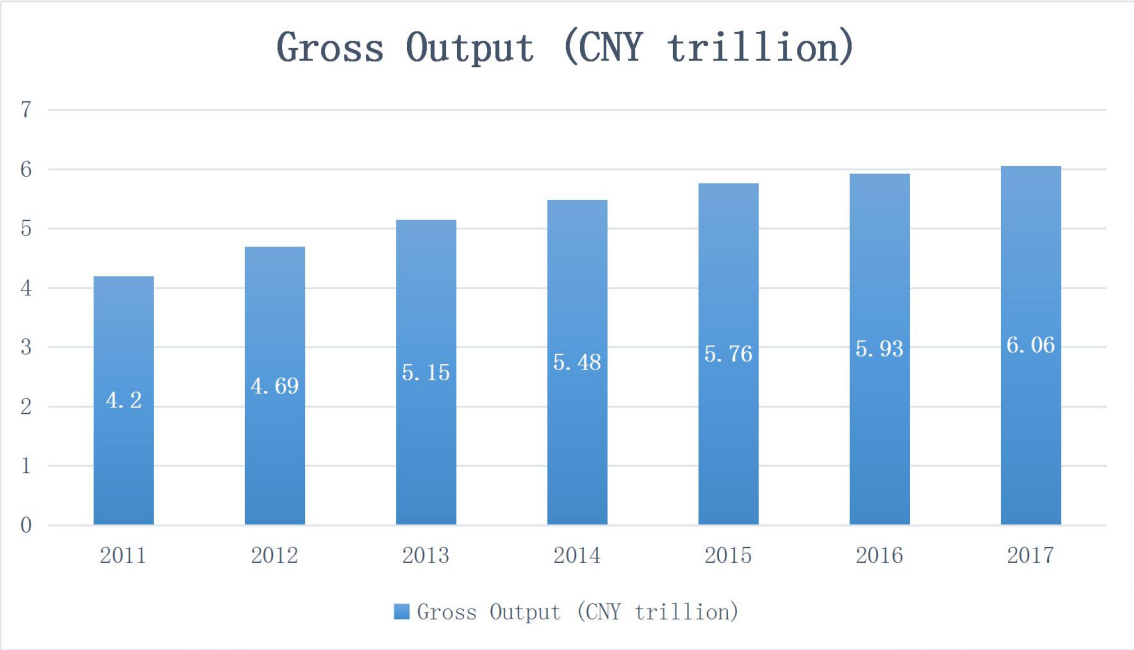


Fig.1:Agricultural Gross Output in China

China's total agricultural output has increased year by year, reaching CNY 6.06 trillion in 2017.

According to Zero2IPO Group's PEData platform, 2013 through 1H 2018, there were 1,100 investment cases in China's modern agriculture, with a total investment amount of CNY 71.14 billion. Within five years, the number of investment cases and investment amount in modern agriculture showed a decline after growth. The investment vehicle has gradually changed from the middle and late stages of traditional agriculture to the early stages of emerging agriculture, showing an impulse transformation. In terms of enterprise mergers and acquisitions, there were 401 events in China's modern agriculture in 2013 — 1H 2018, totaling CNY 378.04 billion. Within the same time frame, 33 modern agriculture enterprises in China successfully launched IPOs with total financing of CNY 17.67 billion.

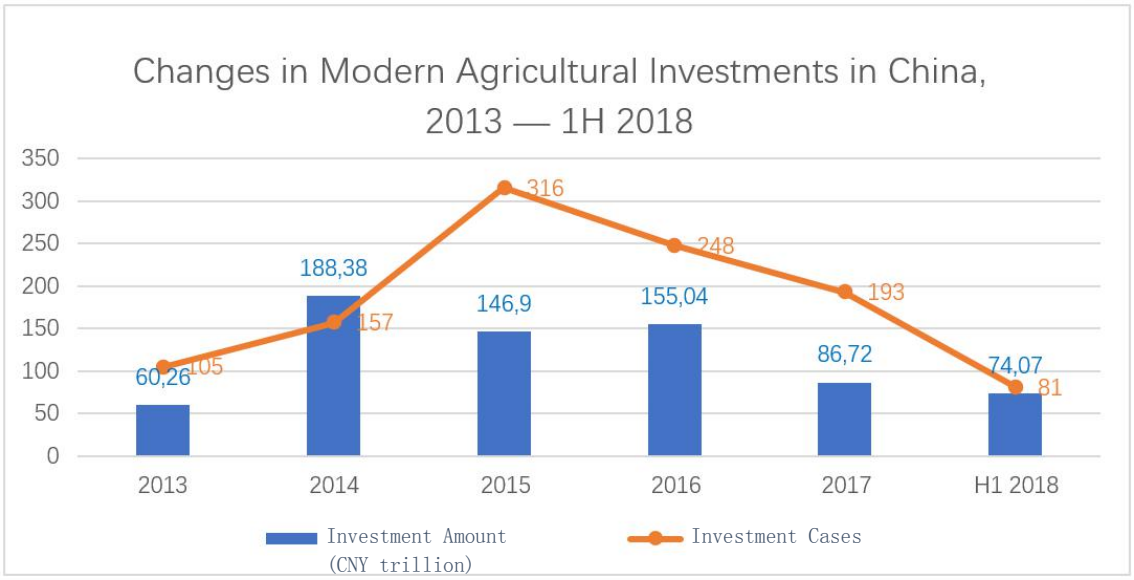


Fig. 2: Agricultural Investment and Financing in China

2. Development Pain Points of the Traditional Agriculture

2.1 Lack of Standardization in Agricultural Production

Acceleration of agricultural standardization is an urgent need to increase the competitiveness of agricultural products on the market and to resolve market risks for agricultural products. After entering the new stage of agricultural development, 'Survival of the Fittest' market competition principle has begun to play a role in the Chinese agricultural market — product competition is becoming increasingly fierce. It has been proved numerous times that market competition is essentially product quality competition; and product quality is determined by product standards. Therefore, competition of agricultural products is, in a sense, competition and practice of agricultural standards.

- Agricultural product quality monitoring means are backward and cannot meet the demand for agricultural standardization;

- Pesticide and veterinary-drug residues in agricultural products have been a major bottleneck for global export of agricultural products and the growing demand for food safety. The current methods for agricultural product quality monitoring are also relatively backward: most of them are still at the stage of visual and hand-touch sensory evaluation; and it is difficult to achieve fast and accurate test results.

2.2 Global Agricultural Data Management Requirements

Global agricultural service institutions, farmers, and seed and equipment manufacturers need a safe and reliable agricultural IT ecosystem to manage agricultural data and thus promote the construction of an efficient agricultural service system focused on farmers and based on value.

Data generated in agricultural production, transportation, sales, and consumption has great value. With complete data, scientific research institutions will be able to adjust and optimize the industrial structure to guide agricultural production, transportation, and sales.

2.3 Traditional Agricultural Production Lacks Data Sharing

Most of traditional agricultural data is not continuous in time and has no mechanism for sharing among all kinds of agricultural institutions. There are no conditions to maintain data integrity. Production lacks guidance on market data, plants blindly, or guesses market demand based on a small amount of data. Situations like this year sugarcane market is scarce and the next year sugarcane fields are fertilized are common. Production also lacks guidance on scientific data. Frontier agricultural research institutions have reasonably arranged crop planting and its scale according to the market and geo-climatic data of China. However, this data has no suitable channel for coordination and instant sharing with planting users.

2.4 Agricultural Product Sales Problem

The existing basic modes of agricultural product sales are: direct sales by farmers, multi-level middleman sales, “processing + sales”, and the emerging network sales.

The following problems exist in sales of agricultural products:

- Marketing channels and trading modes are backward; marketing efficiency is low. Both direct sales by farmers and sales through intermediaries are free from the constraints of non-traditional marketing models. Although more and more modern marketing modes have been noticed, e.g. network marketing, still, due to the influence of traditional concepts, imperfect rural network infrastructure, low computerization of farmers, and other factors, modern agricultural product marketing modes are still less practiced.

- The operating and marketing practices affect farmers; and they get less market profit. At present, scattered operation of small farmers is the main mode of production and operation of agricultural products in most countries of the world. In this mode, farmers are often in an unfavorable position in terms of the ability to obtain information and negotiate compared to the large-scale and powerful middlemen. Besides, due to the serious information asymmetry, farmers are more dependent of middlemen in product sales. They often become passive recipients of prices and have trouble obtaining big market profit by trading agricultural products.

- The marketing channel system of agricultural products is cumbersome and affects the farmers’ enthusiasm for production. At present, multi-level middlemen are the most popular marketing channel for agricultural products in the world. It has too many levels of sales, which inevitably leads to many problems. First, over-circulation hinders the rapid transmission of consumer demand and makes farmers produce blindly, which results in agricultural product overstocking and economic losses for them. Second, over-circulation increases costs, hides the agricultural product price increase and leads to lower sales, thus affecting farmers’ enthusiasm for production.

2.5 Agricultural Product Safety

Recently, agricultural product quality and safety problems have been abundant. People cannot but think hard what to choose for the next meal. Whatever the choice is, there is always a place for insecurity. According to Maslow’s hierarchy of needs, clothing, food, shelter, and transportation are people’s most basic needs and the basis of all other needs. Agricultural product safety has already attracted the public attention as one of the most vital problems.

Overall, the quantity of agricultural products, as well as the quality and safety, has increased steadily year by year. With the development of economy, information technology has been gradually introduced into agricultural production, which improved the producer’s quality. Attachment of great importance to the quality of agricultural products by government and people, and introduction of the respective measures to ensure the quality have been

the favorable conditions for the overall steady increase of the quantity of agricultural products year by year.

More specifically, the incidence of safety problems in different agricultural products and their impact increased. Excessive pesticides in vegetables and fruit have become a common practice. Only accidents like dumping of thousands of dead pigs into rivers and pig feeding with lean meat powder terrify people. Nonetheless, the frequency of quality and safety problems is so high that it has already endangered our lives.

3. DMTC Project Overview

DMTC is a modern organic eco-agriculture development project which emerged as the times require. In line with the future agricultural development trend, DMTC can liberate agricultural productivity and improve agricultural output.

3.1 DMTC: Waltonchain's Child Chain Project

DMTC is an "Organic Food + Smart Micromarket + Blockchain" project and a child chain of Waltonchain implemented in the area of the Internet of Things. It uses the Waltonchain's IoT + Blockchain solution to solve the pain points of the agricultural development.

It integrates Waltonchain's basic platform to solve agricultural problems in production, warehousing, logistics, stores, and after-sales. Using the RFID Chip + Blockchain technology, it ensures source traceability of organic food within the whole process and creates a safe and reliable logistics and information channel for organic food.

3.2 Waltonchain + DMTC

DMTC has a strong economic entity and a first-comer advantage in the modern agriculture development. It owns a joint rice loach organic eco-agricultural production base with the total area of more than 329 acres in Jiangsu Province, China, and the supply chain and marketing channels for organic eco-agricultural products. It has rich experience in organic eco-agricultural planting, production, and marketing. It established product technology R&D cooperation with the authoritative Shanghai Academy of Agricultural Sciences and receives its technical support.

Waltonchain has the advanced hardware and software, RFID system, RFID chip, and blockchain technologies together with rich experience in blockchain utilization.

Waltonchain + DMTC is the combination of real economy and the advanced IoT technology. With its RFID chip, blockchain traceability, and other mature blockchain + IoT solutions, Waltonchain provides strong technical support for DMTC. In the meantime, DMTC's roots in real economy provide implementation scenarios for faster development of the Waltonchain ecosystem in the IoT industry.

3.3 What Can DMTC Bring to the Agricultural Industry?

DMTC transforms the agricultural information management system from agricultural institution-oriented to farmer-oriented with the help of:

- agricultural ecological environment smart monitoring equipment;
- DMTC Smart Micromarket; and
- DMTC agricultural big data.

It achieves the reliability, transparency, and security of information exchange that the existing agricultural information systems do not have. DMTC will be based on agricultural information stored on its platform, will develop various quality traceable tending-related services, and provide blockchain token incentives for all platform participants.

DMTC will affect the agricultural industry in the following ways:

1. Data collection: Through the development of AI + IoT technology, DMTC connects the whole agricultural eco-chain. During agricultural production, the environmental and production process data of agricultural products is recorded automatically. During product transportation, the transportation data is recorded automatically. DMTC terminals represent the Smart Micromarket and collect consumer behavior data. With the popularization of Smart Micromarket, the terminals will be common in residential areas and will collect abundant data for the industry development;

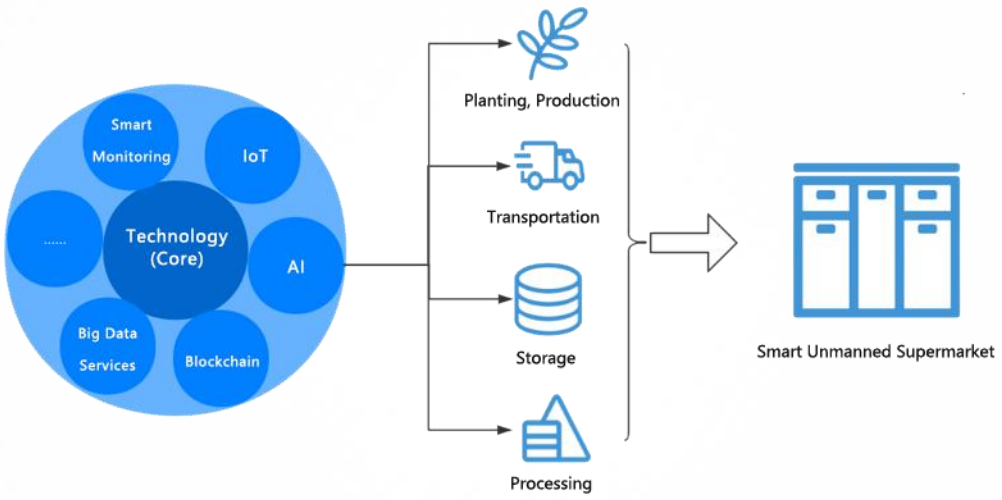
2. Data security: Agricultural data is mostly stored in the traditional centralized way and is vulnerable to malicious tampering with the development of network devices and Agriculture IoT. The existing traceability IT architectures are trying hard to maintain system security. DMTC platform may just become the infrastructure needed to maintain the privacy and security of traceable data as it ensures high stability and validity of data preservation;

3. Data sharing: Data collected during the whole DMTC process can be conditionally shared with users in the whole eco-agriculture supply chain. Consumers can obtain production and transportation data for a traceable product history. At the same time, consumer behavior data can be shared with agricultural producers to let them adjust production direction and improve production efficiency.

With the development of value-oriented agriculture, precision agriculture, and a central agricultural system, the blockchain technology introduced by DMTC will promote the continuous progress of the agricultural industry and carry value and information transmission in the agricultural eco-chain better.

4. What Does DMTC Do?

The essence of DMTC project is to integrate agricultural supply chain resources by using blockchain. Technology is the project's core, Smart Micromarket is central to provide consumers with traceable organic agricultural products.



DMTC uses AI, the IoT, blockchain, and other advanced technologies to integrate the agricultural industry chain, deeply monitor the whole process in agricultural production, storage, transportation, sales, and other links, and build a new agricultural supply chain ecosystem. With Smart Micromarket as a retail terminal, the whole "Eco-agriculture + Smart New Retail + Data Services + Supply Chain Finance" supply chain ecosystem is formed. Starting with the supply side reform, DMTC will improve the efficiency and quality of agricultural production, reduce production risks, lower the financing threshold, improve sales efficiency, promote standardization of agricultural development and diversification of agricultural finance, and enhance the competitiveness of modern agriculture.

4.1 Smart Monitoring and Data Services

4.1.1 Smart Monitoring Equipment for Agro-Ecological Environment

The equipment improves the methods for agricultural product quality monitoring and helps in agricultural standardization.

The smart monitoring equipment for agro-ecological environment refers to the production control system that combines sensors, wireless communication, multimedia, RFID, IoT, and other technologies to achieve interconnection and interoperability.

In the process of crop production, the agro-ecological smart monitoring equipment can not only monitor and control the growth of crops anytime and anywhere, but also record the relevant data of crop growth, such as climate and soil environment change, in the blocks on the DMTC blockchain. It provides research institutions with reliable data as well as downstream consumers with product quality traceability data.

During the processing and transportation of agricultural products, the equipment connected to the DMTC system monitors and records the whole transportation process, which ensures the standardized production and transportation of agricultural products.

4.1.2 Integration of Blockchain for Secure and Reliable Data Services

The decentralized, temper-proof blockchain ensures data security and reliability, allowing for agricultural data traceability.

The smart monitoring equipment in the DMTC system directly communicates with the DMTC nodes, which store the relevant data and upload it to the whole blockchain. The temper-proof nature of blockchain ensures data reliability; and the separation of public and private keys ensures data security.

Through RFID and chips, the traceability of blockchain is used to establish a traceability mechanism for agricultural products and ensure that the goods purchased by consumers are traceable on blockchain.

4.1.3 Promotion of Standardized Production, Storage, Transportation, and Sales Management

Through the smart testing equipment and data interconnection on blockchain, DMTC specifies a standardized production environment, standardizes transportation, and outputs standardized agricultural products, thus enhancing the product competitiveness. DMTC obtained a zero-residue test report from Shanghai Academy of Agricultural Sciences. Its cost of land improvement and production exceeds CNY 60,700 per acre. The combined animal and plant cultivation yield is only about 1,472 lb per acre, therefore the unified national retail price of DMTC's products is CNY 88.9 per lb; and they are targeted at high-end consumer households.

4.1.4 Daoqiusheng Eco-Agriculture

Daoqiusheng is the first applied eco-agricultural traceability project of DMTC, developed in cooperation with Shanghai Academy of Agricultural Sciences and backed by DMTC's standardized agricultural production system and blockchain technology. It is also the first industry-specific agricultural product series on the DMTC Traceability Application Ecosystem, which is the result of more than 10 years of R&D and field cultivation together with Shanghai Academy of Agricultural Sciences.

Rice Loach Joint Base

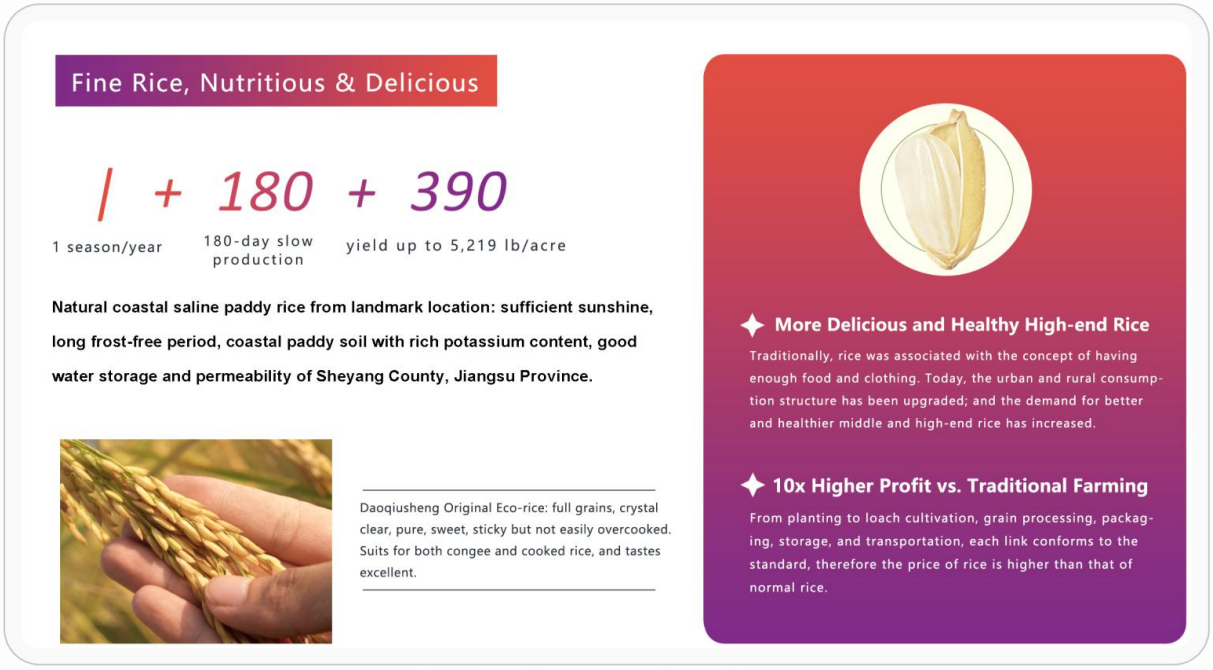
329.49 acres of Land

The Largest Rice Loach Joint Base in China

Full technical guidance by Shanghai Academy of Agricultural Sciences
Grand Prix of the 13th and 14th International Agriculture Expo

Experienced in professional management and project operation promotion, we have developed a 329.49 acres rice loach joint scientific research project base. At the moment, it is the largest loach breeding base in China. We have successfully developed the unique five-in-one Daoqiusheng product series in China, including rice loach, rice shrimp, rice crab, rice snail, and paddy rice.
The first project to run Security Token Offering on UP Token. The first industry-specific agricultural product on the UP Traceability Chain Application Ecosystem. The result of 10+ years of R&D and field cultivation together with Shanghai Academy of Agricultural Sciences.

The natural coastal saline paddy rice originating from the national landmark location has the regional advantages of sufficient sunshine, long frost-free period, coastal paddy soil with rich potassium content, and good water storage and permeability of Sheyang County, Jiangsu Province. The natural climate and geographical position ensure the high quality of rice and create a natural ecology for rice loach co-cultivation.



High value of rice loach co-nutrition: The loach takes in the natural weeds and microorganisms from the water, metabolizes it into carbon dioxide and excreta, and provides natural organic green fertilizer for paddy rice.

Fertilizer-free rice loach co-cultivation: The loach has very sensitive touch and taste, and senses chemical fertilizers and pesticides. Therefore, it is vital for the survival of loach to ensure that no fertilizers or pesticides have been applied to the fields.

4.2 DMTC Smart Micromarket

DMTC Smart Micromarket provides consumers with high-quality agricultural products. It uses the artificial intelligence technology (AI) to make consumption more convenient, safe, and easy.

4.2.1 Market Overview

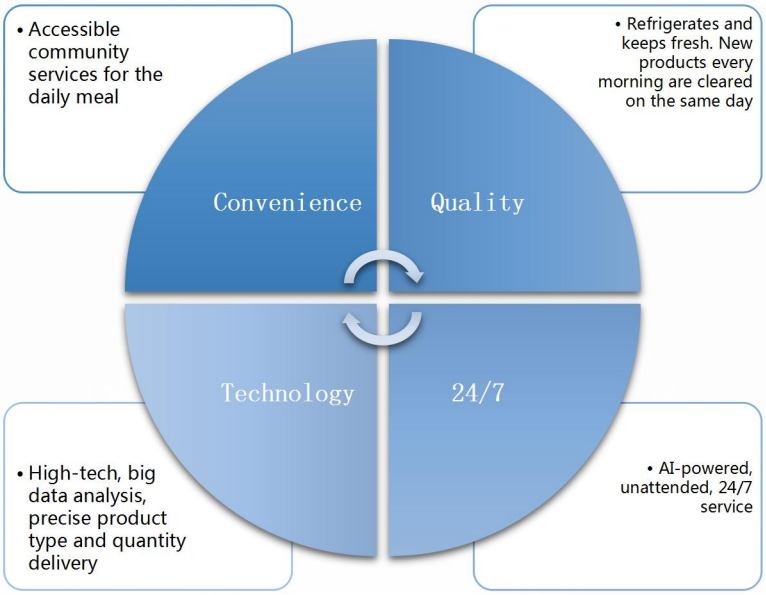
According to statistics, in 2018, the turnover of vegetables and fruit reached CNY 4 trillion in China only. With the continuous improvement of living standards, people's diet has become more rational. The consumer and market demand for vegetables, fruit, and fresh products is increasing continuously; and many companies have seized the opportunity arising out of it. As a result, the fresh product retail has blossomed in many places. However, due to the short shelf life, vulnerability to tear and wear, and deterioration of fresh products, there are high requirements for cold-chain logistics facilities and distribution. Many companies cannot achieve profitability due to the lack of strong technical support and market experience. For consumers, the ability to buy proved fresh food near home is a matter of convenience and expectation. The strategic planning and technology R&D teams of DMTC have a deep understanding of consumers' demand for fresh food and its preservation. Using the latest technology in China and abroad, the DMTC team has developed the Smart Micromarket vending machine, a one-stop solution to buy safe food.

4.2.2 DMTC Smart Micromarket Advantages

Technical advantages: DMTC uses big data to reduce fresh loss; AI to simplify the transaction process; the IoT to reduce labor costs; and blockchain to establish the traceability mechanism. DMTC make consumption more convenient, safe, and easy. Behind its technical advantages, there is an R&D team of more than one thousand members.

Product advantages: DMTC has a strong green vegetable and fruit planting base, a smart storage center, a chilled product distribution system, and a complete monitoring system for ecological green agricultural products, ensuring the quality and safety of food purchase and consumption.

4.2.3 Features of DMTC Smart Micromarket



4.2.4 DMTC Smart Micromarket Transaction Process

DMTC adopts the latest IoT + AI technologies to simplify the transaction process.

4.2.5 Development Target

4.2.6 DMTC Smart Micromarket Development Target in China

2019: cover 1000 communities in Guangzhou

2020: cover Shenzhen, Shanghai, Guangdong Province, and major cities

2021: cover South China, North China, Hong Kong, Macau, and Taiwan

4.2.7 Innovative Profit Model

The DMTC project focuses on Smart Micromarket, digitizes project assets, and promotes itself in the market via the integration of Smart Micromarket and community operations.

Holders of the DMTC project assets, DMTC tokens, may become the owners of DMTC Smart Micromarket. Micromarket operation means promotion of the DMTC project; and Micromarket owners will benefit from sales in the Micromarket.

Meanwhile, the blockchain technology of the whole DMTC project manifests itself in DMTC Smart Micromarket. Transaction and data exchange trigger the transaction mining mechanism, according to which DMTC Smart Micromarket owners will receive relevant token rewards.

4.2.8 DMTC Chip and Implementation Principle

All commodities sold in DMTC Smart Micromarket carry a blockchain accelerometer RFID chip that can sense the commodities. When a commodity inside the Smart Micromarket leaves the vending machine or the chip is torn, Smart Micromarket will automatically deduct the respective amount from the user who scanned the QR code to open the Micromarket.

The chip also has the blockchain traceability feature. Terminals can track the location information of the commodity transportation process through the chip.

RFID tag

Product with RFID tag

4.2.9 DMTC Smart Micromarket Interface

The back-end system of Smart Micromarket independently developed by DMTC can be remotely monitored in the mobile phone client and show the vending machine status in real time. Smart Micromarket investors will be able to get vending machine abnormal status notifications, marketing reports and use other daily operation functions in the mobile phone client.

Back-end management system

Products with a chip

Smart Micromarket vending machines

4.2.10 The Implementation of DMTC Smart Micromarket

At present, DMTC Smart Micromarket is being gradually implemented to bring great convenience to the public. Many customers have come to try out the Smart Micromarket and experience the convenience of the AI + Eco-agriculture + Big Data innovative new retail model. The novel and convenient shopping experience has won wide acclaim from consumers.

4.2.11 DMTC Data for Precision Agriculture

With the convergence of blockchain and big data, user consumption data will make a huge leap in the agricultural field and make precision agriculture possible. The combination of agricultural sciences + data + blockchain will lead the next major technological advancement.

Precision agriculture includes accurate sales, production, delivery etc., analyzes user preferences and sales demand, and controls agricultural planting classification and scale with the help of user consumption data. The data from DMTC Smart Micromarket is the basis for structural adjustment of the eco-chain.

The industry particularity and difficulty in collecting agricultural data leads to poor agricultural data management and communication and makes it difficult to show the value of agricultural data during the agricultural industry development.

DMTC forms a huge data ecosystem by establishing a distributed agricultural data platform and an application system based on Blockchain + AI + Big Data. It systematically realizes the interconnection and interoperability of the underlying technical framework of the whole agriculture and promotes the safe, controllable, and encrypted data sharing among agricultural institutions.

The powerful combination of Blockchain + Agricultural Big Data + AI has reliably solved the difficulty of agricultural data collection, disrupted the pattern, and reconstructed the value of the agricultural industry. DMTC solves the privacy protection and exchange security issues of agricultural data and generates DMTC Agricultural Big Data by building an autonomous application chain and using smart contract, decentralized distributed storage, dynamic encryption, and differential privacy technologies.

4.2.11.1 Agricultural Data Exchange Platform

DMTC has established a distributed agricultural data exchange platform that provides various APIs and SDKs to facilitate access to agricultural data in the system for various applications and services under the premise of authorization and carries out development work based on this. Users get incentives by uploading and sharing agricultural data on it within the scope of permission.

The distributed agricultural data exchange platform meets the requirements for high reliability, ease of use, and data safety, and at the same time realizes the effective data use. DMTC focuses on the new business model and big data system of the future world economy, and applies it to agricultural systems, including third-party testing centers, remote agriculture, and agro-ecological environment intelligent monitoring equipment, to let the platform users become data providers and beneficiaries.

4.2.11.2 Application System Based on Blockchain + AI + Big Data

Agricultural Data Smart Contract Application System is established basing on blockchain, AI, and big data analysis technologies. Users upload agricultural data through the application software based on the DMTC platform system. The DMTC application platform transforms agricultural data into smart contracts and stores it on blockchain. Data stored in smart contracts can be efficiently applied to various agriculture-related scenarios.

The DMTC application platform provides convenient mobile and PC applications where users around the world can upload agricultural data. The software will identify and validate agricultural data and encrypt it using blockchain. Anonymous data will be transmitted to the AI + Big Data system for smart analysis and evaluation to generate accurate agricultural data and analysis results for users and institutions and increase efficiency and quality of agriculture services.

Agricultural data on the DMTC application platform can be used in a variety of application scenarios through in-depth analysis. Individual users can safely store and manage agricultural data in applications. The platform promotes standardization of agricultural data processing and development of fair prices on agricultural products, and forms a global agricultural big data system according to the users' demand.

4.2.12 Smart Micromarket Mining Mechanism

Each Smart Micromarket is a blockchain node on DMTC. The innovative sales model integrates the mining mechanism. When each product is sold in Smart Micromarket, it is processed through mining. Smart Micromarket investors own the mining rewards and transaction fees.

4.3 DMTC Smart Micromarket Implementation: Magic Cat Online AI Green Grocery

Magic Cat Online Smart Micromarket initiated by Guangdong Magic Cat Online Agriculture Technology Co., Ltd. is a Smart Retail implementation project with investment participation from Ginkgo Capital and Up Investment. Magic Cat Online chose the innovative business model integrating Big Agriculture, Big Health, and AI as its development direction. It relies on DMTC's blockchain technology and integrates eco-agriculture, AI, and an innovative retail model. It has solved the pain points of market price increase, information asymmetry, uneven quality, and inconvenient shopping, and is committed to building the No. 1 smart green grocery brand in China.

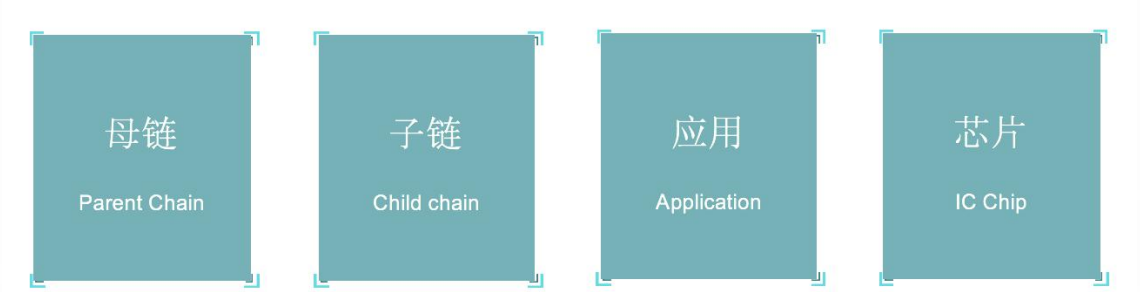
China is the world's largest producer and consumer of vegetables; therefore, Magic Cat Online AI Green Grocery has big prospects in China. In the mid-80s of the last century, since the reform of the vegetable production and marketing system, the planting structure was adjusted and the country's vegetable production developed rapidly. At present, 6 dominant regions have formed in China: hot South and Southwest with winter/spring vegetables, the Yangtze basin with winter/spring vegetables, Loess Plateau with summer/autumn vegetables, Yunnan-Guizhou Plateau with summer/autumn vegetables, northern high latitudes with summer/autumn vegetables, and North China Plain and Bohai Sea vegetable facilities. The dominant vegetables vary across these regions and are in season at different time, thus forming a benign and complementary regional development pattern. In 2018, the turnover of vegetables and fruit in China reached CNY 4 trillion. With the continuous improvement of people's living and consumption levels, the dietary structure has become more rational and the market demand for vegetables, fruit, and chilled agricultural products continues to increase.

5. DMTC Technology Implementation

5.1 The Structure of Waltonchain, DMTC's Parent Chain

The purpose of Waltonchain is to build an underlying public business eco-chain on which merchants can build a variety of child chains according to their needs and monitor the entire process of production, logistics, warehousing, and retail sales for all commodities.

On this blockchain, customers can trace the provenance and circulation of goods. Through this business ecosystem, individuals and businesses can exchange property rights, send gifts, sale, rent, collateralize etc. easily.



The innovative parent-child chain structure lays a solid foundation for cross-industry data communication. Different types of enterprises from different industries can customize an exclusive child chain as per their actual needs and build a Parent Chain + Child Chain + Application + Chip business ecosystem.

System: Waltonchain RFID system. Waltonchain is a public chain; and with the ecosystem development, it will transform into DAO (Decentralized Autonomous Organization) eventually.

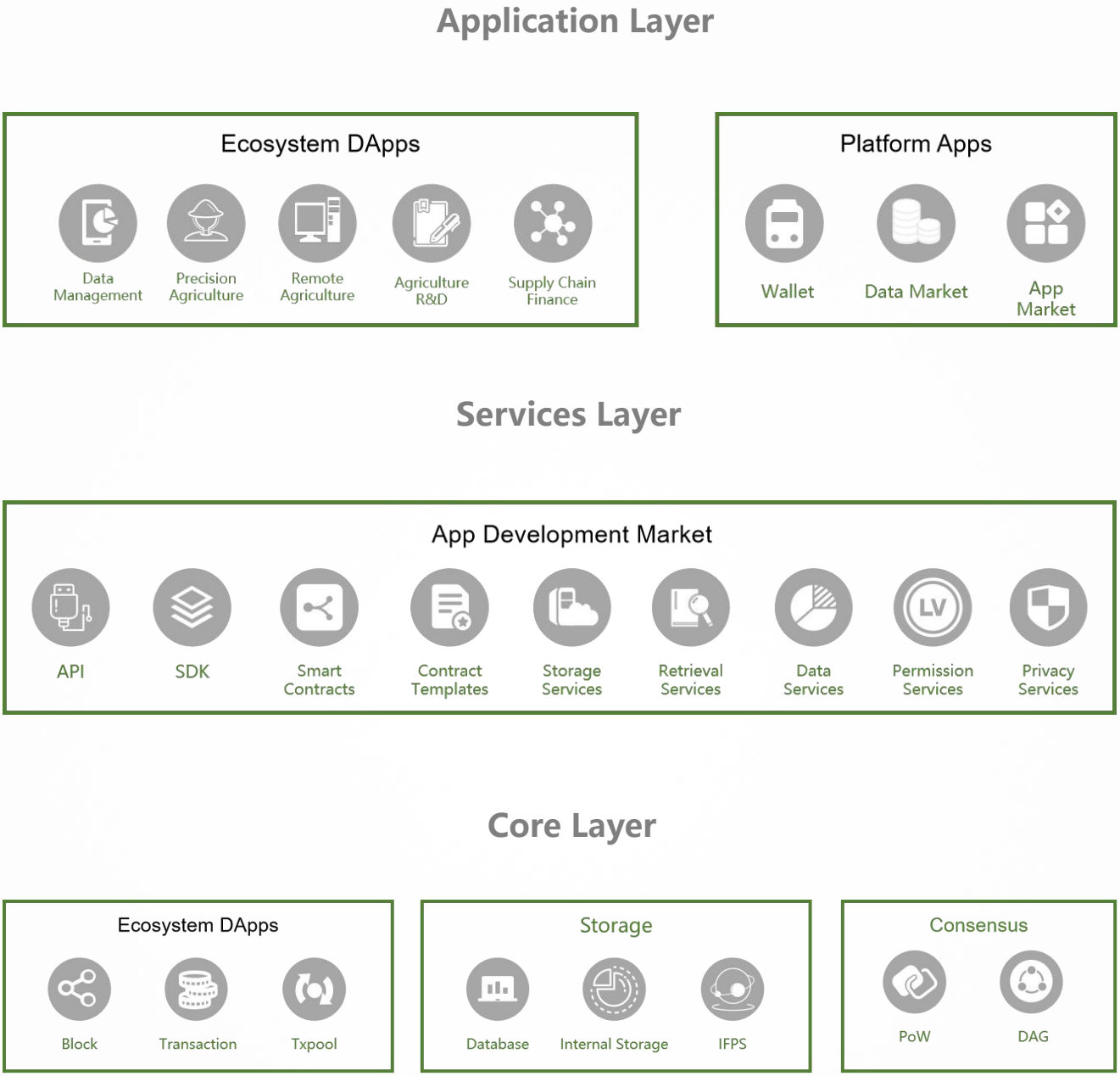
Chip: Blockchain RFID chip. There are two kinds of RFID chips: tag chip and reader chip. When the RFID tag chip and reader chip exchange information, according to the specific consensus mechanism written into the chip, the interaction information of this session is written into the Waltonchain ecosystem (the parent chain or various future child chains).

Software: Waltonchain. The Waltonchain RFID system consists of two major components, the chip and the public chain, which co-integrate.

Waltonchain develops RFID beacon chips with independent intellectual property rights. They innovatively integrate asymmetric encryption algorithms of traditional RFID chips to combine the IoT and blockchain perfectly and solve the traditional industry pain points from warehousing and logistics to storage and after-sales, while consolidating the Waltonchain base platform.

With flexible and powerful smart contracts and transactions, RFID-based identification, tamper-proof blockchain records, and traceability, Waltonchain creates a safe and reliable P2P logistics information channel for child chains, provides an information platform to manage business automation for logistics companies, avoids pain points such as lost or wrong orders, and creates mutual benefit for customers, merchants, and itself.

5.2 DMTC Child Chain Technological Platform Structure



5.2.1 DMTC Application Layer

The DMTC application layer will include both ecosystem DApps and platform applications.

The ecosystem DApps, including web pages, manage the agricultural data built on the platform. The platform provides developers with rich SDKs and APIs to simplify the development process and improve its efficiency.

Platform applications are wallet, data market, and application market. Users can view agricultural data on the platform, perform token transactions, invoke smart contracts, upload relevant agricultural data to receive the corresponding token rewards, and use the consensus mechanism to maintain the entire ecosystem.

5.2.2 DMTC Service Layer

The DMTC service layer connects the application layer, the core layer, and all development services including user information in them. Developers can build applications based on APIs or SDKs in the core service network provided by the DMTC platform. The service layer has built-in common services components required for development, including DMTC user system, DMTC Token system, smart contracts, data authorization services, storage services, license control services etc.

5.2.3 DMTC Core Layer

The core layer of DMTC is a distributed database. Blockchain is used to index and store agricultural data. The hash index value of data is stored on the DMTC network, whereas IPFS is used for decentralized storage of the actual data content. Since the amount of data that can be stored on blockchain is very limited, a separate storage space is needed to efficiently store agricultural data. DMTC agricultural data network utilizes the latest encryption technology to store and protect data. The agricultural data generated and transmitted in DMTC applications is usually transmitted through DMTC SDK after encryption at the application layer. This embodies the data encryption. Except the data holder, no one can decrypt and obtain the original data. The core layer can be accessed through the service layer.

5.3 DMTC Blockchain Design

5.3.1 Smart Contracts

With upgrading of the Ethereum Virtual Machine-based smart contracts to make them more suitable for data licensing control/circulation and application development in agricultural scenarios, the DMTC platform can preset specifications and add them continuously through smart contracts; and each role on the platform can authorize and use data in specific scenarios.

5.3.2 Data Storage

Agricultural crop growth data is stored in files not exceeding 10 MB, while some agricultural images are hundreds of megabytes or more. Some organizations store more than 1 GB of agriculture data per year. Storage of large volumes of data on blockchain is even more difficult. IPFS is a solution. It is a P2P decentralized system which has no storage limitation and meets the requirements with its special network characteristics. The hash index value of the data is stored on the DMTC. The specific data is stored in IPFS system after encryption. After a data user obtains authorization from the data provider, encrypted transmission of the authorized data starts.

5.3.3 Security Mechanism

Data privacy is ensured through smart contract control and homomorphic encryption. Data safety is ensured through encrypted storage, access control for IPFS data licenses etc. Data and information of a transaction between users can only be viewed by the transacting parties and users with relevant permissions.

6. DMTC Advantages

6.1 Reflects the Value of the Real Economy

DMTC is neither a purely technical, nor a purely conceptual project; it roots in real economy. DMTC is an entity project that uses modern technology to serve agriculture. DMTC utilizes technology to create eco-agricultural products such as Daoqiusheng, and has Smart Micromarket as the system cornerstone, which serves as both a sales terminal and a blockchain node.

6.2 Implementation & Serving the Whole Supply Chain of Agriculture

DMTC goes deep into each link of agriculture, including production, transportation, storage, and sales. It collects data in production, performs smart monitoring in transportation and storage, introduces Smart Micromarket in sales, analyses big data of the whole chain, and enters the precision agriculture. DMTC sets standards for the agricultural modernization, enhances the competitiveness of China’s modern agricultural products, provides a more competitive platform for agricultural practitioners, and creates a convenient and reliable agricultural production and sales supply chain for consumers.

6.3 The Innovative Model: Acquire Tokens & Open a Store

DMTC adopts an innovative business model: acquire DMTC tokens to become a member, open a store, and own a Smart Micromarket. DMTC supply chain will provide technical services and organic eco-agricultural products at cost price; and DMTC team will provide all the distribution services. Users only need to perform community operation of the unmanned supermarket and view their income through a DApp.

The DMTC unmanned supermarket generates three types of income:

1. DMTC token appreciation: with the rise of popularity of DMTC Smart Micromarket, the value of DMTC will increase;

2. Sales revenue of the unmanned supermarket: a user owns a Smart Micromarket through tokens. The income generated by the Smart Micromarket completely belongs to the token owner. Different personal operating and promotion capabilities will result in different income;

3. Smart Micromarket transaction mining: users will receive mining rewards for each transaction.

6.4 Cooperation with Agricultural Institutions

DMTC Foundation maintains good communication and cooperation with most agricultural research institutes in Shanghai and Southern China. It cooperates with Shanghai Academy of Agricultural Sciences to build the Rice Loach Joint Agro-ecology Research Base and explores the green agro-ecology development. DMTC researches and collects agricultural data, breaks the information island of the agricultural systems, and promotes the progress of the Blockchain + Agriculture model.

7. Changes Brought by DMTC to Modern Agriculture

7.1 Changes in Production Structure

DMTC's development enables agricultural informatization. The informatization data will promote the structure adjustment of the modern agricultural industry and make its production structure more reasonable and standardized.

7.2 Small Scale and Scattered Operation of Land are No Longer a Problem

DMTC interconnects the entire industry data and transforms scattered land into data. Through big data, it carries out unified online planning, enhances the vision and increases the revenue of operators.

7.3 Changes in Agricultural Production Methods

DMTC's AI, smart equipment, IoT, and other technologies can further enhance agricultural productivity and realize smart and high-tech agricultural production.

Sales will change: combination of the advanced blockchain technology and smart equipment will create a new agricultural retail model. It will enable seamless communication between agricultural producers and consumers, data interconnection, and will make sales no longer difficult for producers.

7.4 Solution to Food Safety Issues

Consumers won't need to worry whether cucumbers are ripened by contraceptives, pork is from sick pigs, or milk contains melamine etc. DMTC will solve these problems by using the blockchain technology. Each commodity bought from DMTC Smart Micromarket can be traced. From seed to sale, each link is recorded by the chip and published on DMTC through blockchain.

7.5 Low Level of Agricultural Standardization Will Be in the Past

DMTC's big data digitizes agricultural production, transportation, storage, and packaging standards. Production and operation will be based on the data; and each agricultural product will be standardized.

7.6 Further Development of Diversified Agricultural Finance

Diversified finance will be further developed in the modern agriculture. DMTC's innovative operating method has broken the traditional agricultural financing methods and promotes the development of agricultural investment.

8. DMTC Agriculture Application Prospects and Future Planning

8.1 Realization of Data Sharing

The era of information agriculture has arrived. Agricultural systems began to collect unstructured, real-time, and comprehensive data. Equipment for smart agro-eco environment monitoring can play an important role in many fields. Computers are now able to use machine learning; natural-language processing and advanced text analysis programs parse these heterogeneous data. The groundbreaking changes brought about by big data enable the generation of new assumptions through processing of loosely related things. With the help of blockchain, after the validation of the original data of the traditional agricultural industry, DMTC can protect and share it and make the agricultural development more scientific, reasonable, low-cost, green, and safe.

8.2 Planting Experiments

The land that can be monitored by each smart monitoring device of the DMTC project is the most authentic experimental site. Smart monitoring devices collect large amounts of experimental data, directly transmit it to the laboratory, and enable remote management, fertilization, and temperature and climate regulation.

8.3 Integration of the Scattered Agriculture

Due to scattered operation, farmers are active in different agricultural fields and systems. Structure adjustment and realization of large-scale production are the major agricultural problems. Blockchain + AI is a possible solution as it creates a data system. With big data as the foundation, with research results of AI and research institutes as the framework, it directly provides planning for planting users. Having the overall interests as the driving force, it adjusts the structure of agricultural production and allows natural scaling of planting according to the data and research results under the scattered farmer operation model. In fact, blockchain can be used as a binder to integrate highly scattered agricultural records and select the most appropriate way to arrange planting reasonably and increase the farmers' income.

8.4 Future Planning

DMTC spreads to other industries based on its technology, uses the mature IoT technology to provide services for forestry, animal husbandry, and fishery to solve their pain points, and provides suitable data services for other industries to realize the diversified economic development. When DMTC expands its scope in the real economy, it will further expand the value of DMTC token.

9. DMTC Foundation

The DMTC project (DMTC FOUNDATION LTD.) is a foundation-driven Blockchain + Smart Agriculture open protocol.

9.1 Establishment of DMTC Foundation

DMTC FOUNDATION LTD.(hereinafter referred to as DMTC Foundation) is an internationally-oriented non-profit organization headquartered in Singapore. The Foundation is committed to the maintenance and operation of the DMTC open source community, as well as the development and construction of the DMTC application chain platform. It advocates transparent governance and DAO management, and promotes the maturity and sustainable development of the DMTC open source eco-community.

9.2 DMTC Foundation Governance Structure

The first Decision-Making Committee of DMTC Foundation consists of three core founding members appointed for a term of three years. The core founding members have extensive experience in the blockchain field. After the term expires, the DMTC Community Decision-Making Committee will elect 30 community representatives according to the share and age of DMTC token holdings. These representatives will elect three members of the Decision-Making Committee. The DMTC Foundation governance structure sets operating procedures and execution rules for daily work and special cases. The DMTC platform advocates the decentralized DAO governance model; all DMTC project participants share the development value and decision-making power. All members may vote together to decide on DMTC's major issues. The voting scope is limited to the DMTC platform and does not include the DMTC Foundation. Any DMTC participants can organize community members to jointly initiate an offer on promotion of DMTC's development. Meanwhile, the rights of DMTC token holders are limited to DMTC platform-related matters and do not extend to the composition and decision-making of DMTC Foundation.

9.3 DMTC Audit

DMTC Foundation will maintain a high degree of integrity and business ethics, comply with the relevant laws and regulations and industry ethics. Every year, DMTC Foundation invites internationally renowned third-party auditors to perform regular audit and evaluation of the use, cost expenditure, profit distribution and other aspects of DMTC token operated on the DMTC application chain. DMTC Foundation will publicly release the full token information to third-party auditors for audit and evaluation.

10. DMTC Token and Its Allocation

10.1 DMTC Token Issue Plan

DMTC Token or DMTC Coin referred to as DMTC is the original cryptocurrency token issued by DMTC. At the first stage, the token will be generated via a smart contract on Ethereum. At the second stage, the token will be self-generated on the DMTC application chain. As the only basic token on the DMTC application chain, it will serve for community rewards, forum credits, settlement, transactions, and smart contracts.

After the DMTC application chain is successfully released, the first-stage token will be swapped for the second-stage token at a 1:1 ratio.

A total of 1 billion DMTC Token is issued by DMTC Foundation. The total number is set and cannot be changed; no additional tokens may be issued. According to certain rules and proportions, DMTC Token will be allocated to different appropriate holders, including for parent-child chain token exchange, the construction of the bottom blockchain layer, product and module development, application ecosystem layout, and overall operation and maintenance of the DMTC application chain.

DMTC is the first implemented “Organic Food + Smart Micromarket + Blockchain” application project of Waltonchain. **All** the **parent-child chain token exchange** is carried out with **WTC**.

10.2 DMTC Token Allocation

a) Cornerstone parent-child chain token exchange (100 million): for the qualified blockchain investors at the project launch phase, locked for 10 months, released by 10% each month.

b) Parent-child chain token exchange (150 million): allocated for the bottom blockchain layer construction, product and module development, application ecosystem layout, and overall operation and maintenance of the DMTC application chain, locked for 8 months, released by 30% in the first month and 10% in the next 7 months.

During this token exchange, 15 extra Smart Micromarkets will be given in chronological order. Whenever the number of exchanged token reaches 10 million DMTC, a Smart Micromarket is given. In the future, the Smart Micromarket will become a DMTC node with mining income.

The users who exchanged tokens within the given time period jointly own the given Smart Micromarket according to the exchange proportion and enjoy 10% of the daily actual turnover of the Smart Micromarket, which is converted to DMTC Token and returned to the respective users.

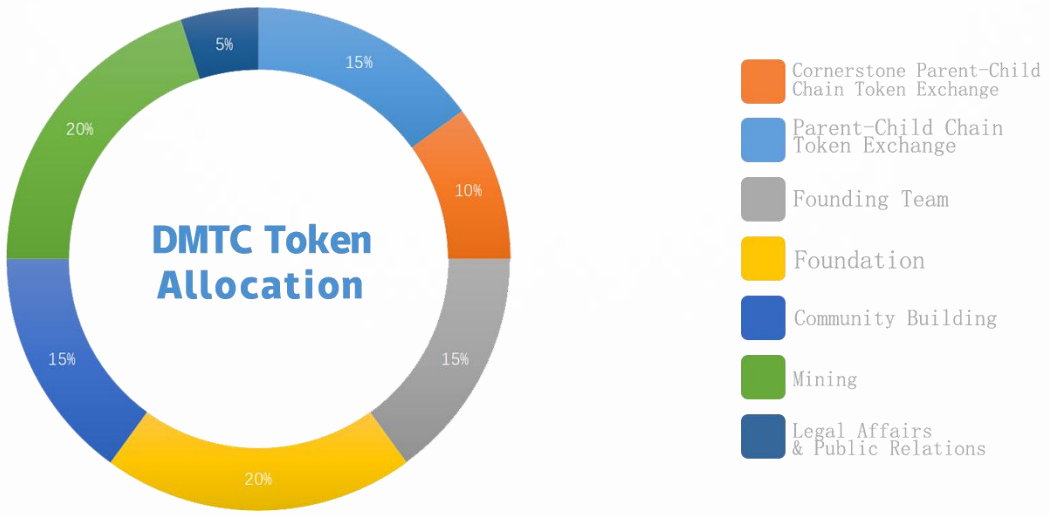
c) Founding team (150 million): 15% is incentives for the existing team members, 5% is incentives for new team members to ensure the development and operational strength (locked for three years);

d) Foundation (200 million): reserved for further DMTC application chain development, marketing, operations, and blockchain research;

e) Community building (150 million): for community building, promotion, and channel joining;

f) Smart Micromarket mining rewards (200 million): DMTC Smart Micromarket is a node; consumption in it is processed through mining;

g) Legal affairs & public relations (50 million).



11. Development Roadmap

Q1 2019

Stage 1

Foundation Established
Core Team Established
DMTC Project Founded

Q2 2019

Stage 2

DMTC Early Cornerstone Investment
DMTC Project Parent-Child Chain Token Exchange
Smart Micromarket Application Implementation
DMTC Token Listing on Exchanges

Q3 2019

Stage 3

Smart Micromarket Sales Data Uploading to Blockchain
DMTC Application Chain Traceability Development
Smart Micromarket RFID Chip and Hardware Upgrade

Q4 2019

Stage 4

DMTC Smart Micromarket Payment
DMTC Agricultural Monitoring Equipment Development

Q1 2020

Stage 5

DMTC Agricultural Supply Chain System Construction
DMTC and Waltonchain Cross-chain Data Transmission

Q2 2020

Stage 6

Agricultural Institution Data Sharing
DMTC Agricultural Product Traceability AI Big Data Platform Construction

Q3 2020

Stage 7

Smart Agriculture Client-to-client Data Interconnection
Integration of Agricultural Equipment Providers and DMTC

Q4 2020

Stage 8

DMTC Application Chain Release

12. Disclaimer

The project shall be managed by DMTC Foundation, a non-profit organization registered in Singapore and regulated under the Singaporean law and ACRA. The Foundation's mission shall be to promote and support the development of the DMTC decentralized project, make it a more globally accepted and trusted smart agricultural application chain. DMTC Token shall not be used as a security in any jurisdiction. This white paper shall not constitute an offering memorandum or any type of offer, shall not be intended to constitute a security offer or investment solicitation, and shall not in any way involve public offering of shares or financing, nor shall it be in any way involved in any sale of securities under any jurisdiction. DMTC Token shall not be intended for promotion, presentation, purchase, sale, or trading in any jurisdiction that prohibits the above activities by applicable law or that requires further registration by any relevant government department. DMTC Token shall not a loan from the Foundation. DMTC Token shall be neither a debt instrument nor bond of any nature, nor any other form of loan advanced to the Foundation. The acquisition of DMTC Token by token sale or other means shall not imply that any DMTC Token holder shall have the right of claim for financial or any other assets from the Foundation.

DMTC Token shall not grant the right to participate in the Foundation or its assets. The DMTC Foundation shall not provide any ownership or other benefits of the Foundation to DMTC Token holders. Acquisition of DMTC Token shall not mean that cryptocurrency may be exchanged for any form of the Foundation's shares or assets (including intellectual property). DMTC Token holders shall not be entitled to any guaranteed interest, income distribution, or voting rights. DMTC Token shall not be refundable. The Foundation shall not provide DMTC Token holders with refund related to DMTC Token for any reason; and DMTC Token holders shall not receive money or other compensation in lieu of refund. Regarding the future performance or value of DMTC Token, there is no commitment at present and there shall be no commitment in the future, including commitment to intrinsic value, commitment to continue to pay, and guarantee of any particular value of DMTC Token.