BCAChain

BCAChain White Paper

—— 2018 revision ——

Build A New Retail Business Credit Econmic Ecology Based On Blockchain

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1. MARKET OVERVIEW

New retail can be defined as the reliance of enterprises on the Internet to upgrade and transform the production, circulation and sales process of goods using advanced technologies such as big data and artificial intelligence, thereby reshaping the business structure and ecosystem, and serving online services. A new retail model of offline experience and deep integration of modern logistics. With the rapid development of science and technology, innovative technologies represented by big data, cloud computing, Internet of Things, and virtual reality have gradually played a vital role in the new retail sector, causing earth-shaking changes in the retail industry and bringing people an unprecedented consumer experience all over the world. In 2017, the scale of new retail stores in China has reached 38.94 billion yuan and will reach 1.8 trillion yuan by 2022. The compound growth rate will reach 115.27%. This shows that the next five years will be represented by unmanned racks and unmanned retail stores. The new retail model is transforming people's original understanding of the retail industry!

The core of new retail must be big data, and the efficient processing of big data is inseparable from artificial intelligence. Artificial intelligence will effectively replace some of the labour in the production, supply and distribution links. According to Goldman's forecast, by 2025, artificial intelligence will save the global retail industry $54 billion/year in costs, while generating $41 billion/year in new revenue. CIC consultants believe that the above forecasts are still relatively conservative, and the profits and benefits that artificial intelligence brings to the retail industry in the future are far more than that. Taking Jingdong's customer service robot JIMI as an example, in 2017 alone, it saved billions of labour costs for Jingdong. For example, Baidu Big Data has specially developed artificial intelligence + big data promotion plans for Chaoyang Joy City, which are more targeted and accurate than what was possible

previously. This personalised promotion program has greatly increased the sales of Chaoyang Joy City, its member sales increased by 12%, the conversion rate of unpurchased brand recommendation increased by five times, and the attendance rate of non-active members increased by 53%.

In 2018, artificial intelligence accelerated the penetration of the retail industry. The more mature landing scenarios can be divided into five categories: smart unmanned stores, smart warehousing and logistics, intelligent marketing and experience, intelligent customer service, and intelligent virtual experience. For example, smart warehousing also has huge market demand. It is estimated that by 2020, the scale will exceed 95.4 billion yuan.

2. INDUSTRY KEY AREAS OF CONCERN

2.1 New Retail Business Key Areas of Concern

Every industry will face certain areas of concern, business bottlenecks, customers, management, customer churning, employee turnover and other issues, new retail is no exception. At present, the key areas of concern in the operation of new retail are as follows:

2.1.1 New retail offline points of sale have a need to upgrade their technology

Compared to online giants, the offline sale volume of new retail is limited, making it difficult to match the capacity of online giants for bearing technical costs amounting to hundreds of billions. Furthermore, enterprises desiring to pursue new retail have little experience with Internet development, which results in the improvement of their offline-online capabilities being far behind those of online giants. In general, offline new retail needs more improvement than the online giant in terms of the depth and breadth of technology.

2.1.2 Online and offline facing integration issues

Online and offline retailing are superior and inferior, and there are two advantages of online e-commerce, one is big data, and the other is monopoly advantage. As a result, the ability to integrate and mobilise resources is quickly concentrated. The new offline retail is the "Seven Heroes of the Warring States". Without such a strong market share, its integration ability is naturally weak. It is quite difficult to develop and acquire a piece of the online market.

2.1.3 Reducing costs is a problem that cannot be avoided

Besides offline physical stores, online retailing also faces the challenge of cost control. In terms of retail layout of offline stores, online stores are experienced in the utilisation of online interaction, while offline stores still require a large amount of offline operation. If data such as POS machines and computing systems are kept in sync, the whole system and architecture will also pose a great challenge to the new retail at the beginning.

2.1.4 Distribution and inventory issues

Traditional retail only supports door-to-door purchases and lacks a distribution mechanism. The new retail needs to accept online orders and offline delivery requirements. This requires a good inventory management of commodity sales. As the scale expands, the optimal matching of big data is needed, otherwise there will be huge cost pressure.

2.1.5 Troubles in centralised management

New retail sales products, with only their surface supply and demand relationship with customers, cannot truly turn customers into the internal resources of the enterprise. Once the market changes or the views of the customer base shift, it is easy to lose customers. In the Internet era, the sales scene has become more and more diversified. From their original position of passive acceptance, consumers have become active in seeking, active in choice, and active in purchasing. With the development of the mobile Internet, decentralisation should be the trend of new retail, just like the system WeChat wants to build - everyone acting as a central node, both producers and consumers.

The new retail will ultimately compete with valuable business experience,

which means consumers can receive a better consumption experience in every scenario, point of time, and state.

2.2 New Retail Credit Pain Points

The operation of the new retail system is inseparable from the support of credit. As a key link in the credit system, credit information laid the foundation for new retail credit risk management. With the advent of the era of big data, the rise of Internet finance is facing a new situation. The problems of asymmetric credit information, limited data collection channels, and weak data privacy protection in the traditional credit information industry are becoming more and more serious. As of the end of June 2016, the Central Bank Credit Information Centre included 21.2 million enterprises and other organisations and more than 900 million natural persons, of which only 5.77 million and 410 million natural persons had credit records. The data of the global credit giant Experian has covered 103 million companies and 890 million people worldwide. Compared with the market demand in the United States and the scale of the credit information market, there are still many loopholes in China's credit information market.

New retail in the era of big data has higher requirements for privacy protection and data security. The central bank is very cautious about issuing personal credit information licenses, indicating that the regulatory authorities still have doubts about the formal release of personal credit information. The protection of private information and the inconsistency of personal credit evaluation indicators are still the main concerns of the central bank. In addition, the grey industrial chain of personal information transactions in the "dark net" has become the key concern and difficulty of the supervision departments due to its diversity, concealment and complexity. To

this end, the People's Bank of China Credit Information Administration clearly instructed to strengthen privacy protection, requiring credit reporting agencies to collect and use user information should be approved by the information subject, and clearly inform the possible impacts and other matters, the information subject has the right to request the credit reporting agency to Its inclusion is denied for marketing purposes. However, the traditional credit information system technology architecture pays less attention to users and does not guarantee the user's data sovereignty from the bottom of the technology, and it is difficult to utilise it to meet the new requirements of data privacy protection.

2.3 Blockchain Redefinition of New Retail

The retail market is mixed, fakes are rampant, and news of buying fakes at big prices is not uncommon. The new retail is based on the Internet, and this process is more likely to lead to uneven product quality. Blockchain is a technology that uses distributed ledgers to record transactions through a decentralised computer network. Its decentralised, non-tamperable features allow the technology to be applied in the new retail industry. After the blockchain technology is applied to the new retail industry, it truly realises the trust sharing between merchants, consumers and regulatory authorities, and comprehensively improves the efficiency, experience, supervision and overall benefits of the supply chain. The blockchain redefines the entire sales model of new retail to a certain extent.

How to apply blockchain in new retail?

First, the blockchain technology is used to connect the supply chain of the participating entities of different commodity circulations with the blockchain storage system. These include origin, producers, distributors, retailers, brands, and consumers. Each participant's information will be made available in the blockchain system.

Lastly, the retail industry naturally has the distinctive features of transaction data fragmentation, transaction node diversification, and transaction network complexity. The collection, storage and integration of information such as commodity production, circulation, and delivery are the core propositions of end-to-end retail supply chain management. The credibility, reliability, checkability and security of the whole process information are the most concerned by consumers, regulatory authorities and e-commerce malls.

Blockchain technology has many basic technologies such as consensus mechanism for integrating multiple transaction entities, distributed data storage, point-to-point transmission and encryption algorithms, and is naturally applicable to end-to-end information management in retail supply chains while caring for the needs of consumers.

3. SOLUTION

3.1 Business Credit Chain Introduction

Business Credit Alliance Chain (BCAC) builds a new retail commercial credit economy based on blockchain;

Through blockchain technology, it creates a supply chain traceability, credit quantifiability, data transparency, collection of consumer shopping, membership services, precision marketing, centralised procurement and other scenarios to form an online e-commerce transaction, offline shopping experience to build a new retail ecosystem with multi-participation and multi-party benefits. The overall structure of the BCAChain is as follows:
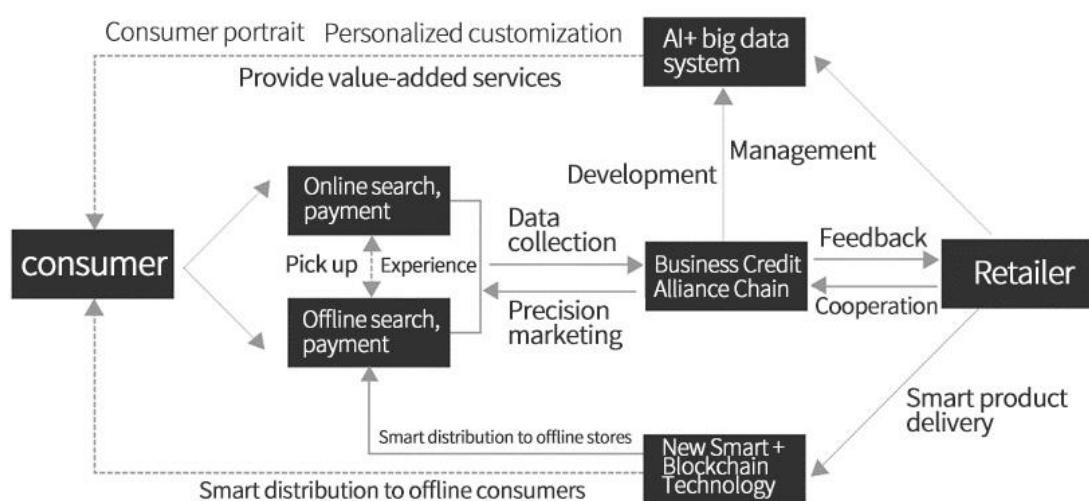
3.2 Solutions For New Retail Key Areas of Concern

Reuse the blockchain to reshape the new retail system and reduce costs

The BCAChain will fully launch the retail traceability plan, using blockchain

technology, Internet of Things technology and big data to track the entire link of retail goods, bringing together information on production, transportation, customs clearance, inspection, third-party inspection, etc. "Identity card", the product information is fully displayed in front of the user, enhance the user's shopping experience, and strengthen the authenticity of services on the platform.

Use blockchain technology to build retail trust

Blockchain uses distributed storage, peer-to-peer transmission, consensus mechanisms and encryption algorithms to shield the underlying complex connection establishment mechanism, strengthen the privacy protection of user data through peer-to-peer direct connection, and establish consensus trust at a low cost. Inspire the new business and new impetus in the new model. The specific performance is as follows:

Decentralised/intermediary trust system intrinsically ensures its authenticity, does not require external trust endorsement subject intervention, and has is high in security.

Open: The system is open. In addition to the private information of the parties to the transaction being encrypted, the blockchain data is open to all and the information is transparent.

Autonomy: Any artificial intervention does not work, reducing external adverse intervention.

The information cannot be tampered with: the comprehensive information package that cannot be tampered with as the blockchain ledger recording the

behaviour of the wallet determines its transparency and unchangeability of the transaction.

Anonymity: The counterparty does not need to divulge their identity to let the other party generate trust, which is very helpful for the accumulation of credit.

The enterprise establishes its own visual credit score system by extracting data packets and managing the internal data and users of the enterprise.

Establish a smart credit quantification platform to break the barrier of commercial data

Through artificial intelligence + data sharing + cloud computing, break the data islands between the various outlets, and accelerate the convergence of credit data in various industries.

Create a big data system

The in-depth use of big data systems is the biggest feature of the BCAChain, and it is also an important difference between the BCAChain and other similar shared chains. With the big data system, from the customer registration onwards, the system will pay attention to the customer's gender, age, occupation, consumption habits, product and brand preferences, consumption cycle and time. Through in-depth analysis of each customer, one can gain knowledge of each customer's needs, even the consumption power and consumption habits around the area where each store is located can be analysed and adjusted when business problems arise.

3.3 Introduction of Application Scenarios

The application scenarios of The BCAChain are as follows:

Figure 3.2 - Business Application Scenario

New retail: product supply chain traceability, inventory management, smart commerce, user value management, and panoramic integration of data resources.

Personal credit system: Individuals can be quantitatively analysed in terms of identity attributes, credit history, performance ability, behavioural traits, daily life status, social influence, etc., and establish personal credit information to determine whether an individual has credit risk.

Commercial credit system: from the brand valuation, brand management, corporate mutual trust, intelligent ecological value interaction, form various reports such as financial credit report, deep credit report, customer group credit risk analysis report, customer credit monitoring report, customised credit report, risk management solution, various forms of reporting such as business account management and collection. It mainly provides comprehensive and accurate credit reporting reports for enterprises and improves the management of customer groups and databases.

3.4 Application Scenario

3.4.1 Introduction to Amoy

Amoy is the leading innovative retail model in China that combines online shopping and offline experience. Currently has more than one million registered active users.

3.4.2 Application of BCAC in Amoy

The native digital cryptographically-secured utility token of BCAChain (**BCAC token**) is a major component of the ecosystem on BCAChain, and is designed to be used solely as the primary token on the network. BCAC token is a non-refundable functional utility token which will be used as the unit of exchange between participants on BCAChain. The goal of introducing BCAC token is to provide a convenient and secure mode of payment and settlement between participants who interact within the ecosystem on BCAChain. BCAC token does not in any way represent any shareholding, participation, right, title, or interest in the Foundation, the Distributor its affiliates, or any other company, enterprise or undertaking, nor will BCAC token entitle token holders to any promise of fees, dividends, revenue, profits or investment returns, and are not intended to constitute securities in Singapore or any relevant jurisdiction. BCAC token may only be utilised on BCAChain, and ownership of BCAC token carries no rights, express or implied, other than the right to use BCAC token as a means to enable usage of and interaction within BCAChain.

(1) Payment transaction

Online payment: The full line of products and applications in the Amoy Mall system are all paid using BCAC tokens, including: online payment for retail groups such as retail malls, investment placements, entertainment sections, and daily bills;

Offline payment: BCAC token can be used for the payment of the new retail system under the Amoy line, which can be used for making payment in the stores under the Amoy partner line.

(2) Credit rating

According to multiple dimensions, the credit system is established for BCAC users. Through credit evaluation, one can apply for loans, obtain more BCAC token, obtain more commission income, and enjoy more associated benefits.

4. APPLICATION FRAMEWORK

4.1 New Smart New Retail

4.1.1 Product supply chain traceability

The traceability and anti-counterfeiting system of the commercial trust chain fully exerted the respective advantages of the Internet of Things and the blockchain technology and realised the complementary advantages of the technology. The Internet of Things can collect information on the origin of retail products, production company information, and information on warehousing, logistics, and transactions to ensure the authenticity of the original data. The distributed storage structure of the blockchain can ensure the traceability and tamper resistance of the data. Using such a model can not only facilitate consumers to understand the authenticity of goods, but also avoid the influence of the information level existing in the traditional information traceability process on the authenticity and integrity of product information.

4.1.2 Traceability and anti-counterfeiting process

When the retail goods are shipped from the factory, the records will be made on the ledger of the BCAChain. The first record will include the origin of the retail product, date of manufacture, and quality. If the retail product distributor B has not placed an order with the supplier A, the warehouse goods storage information for goods stored in the warehouse should be recorded in the block. When the distributor B places an order, the time when the supplier A takes the product out of the warehouse also needs to be recorded in the block.

In addition, all information from Retail Vendor A to Warehouse F needs to be filled in the blockchain and cannot be changed. When shipped to warehouse F, retail merchandiser A should record the warehousing time and location information of the retail merchandise into the blockchain ledger, as shown in Figure 4.1.
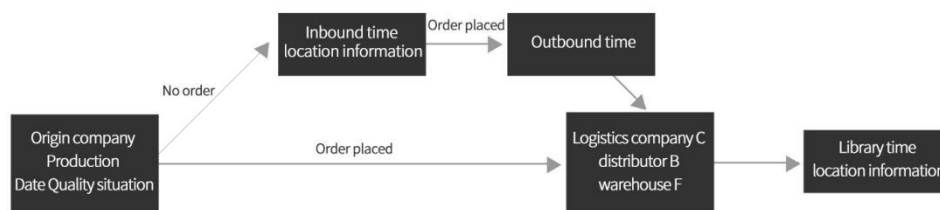
Figure 4.1 - Retail merchandise product storage

Each node of the blockchain is responsible for finding and verifying the workload information of the retail commodity transaction information between each two trading nodes, ensuring that the transaction information maintains final consistency and consensus in most of the authentication nodes, and finally Save it to the blockchain after confirming it to correct. Therefore, only when the next customer retail merchandise order information data arrives, can the smart contract continue to unlock the blockchain and record the next block book data.

Consumer E purchases retail merchandise from distributor B through the

merchant chain e-commerce platform. At this time, the retail goods are discharged from the warehouse F, and the corresponding time is recorded on the block. When the logistics company D is loading the vehicle, the logistics company information and the corresponding consumer personal retail product pickup information such as address, and telephone number should be recorded in detail in the block. Since the distributor B and the consumer E usually trade in the commercial chain e-commerce platform, in order to ensure that the consumer E's retail merchandise pickup information is not recognised by outsiders and the retail merchandise is lost, the commercial trust e-commerce platform A corresponding asymmetric encryption algorithm technique will be implanted in the blockchain.

4.1.3 Traceability and anti-counterfeiting framework

The traceability and anti-counterfeiting of retail commodity information in the BCAChain includes the following parts:

Retail merchandise merchants settled and retail merchandise product information collection. The BCAChain will invite the world's major retail goods merchants to settle in and build retail goods to track the Internet of Things. The Internet of Things collects the origin, production company and transportation information of retail goods through state sensors and radio frequency identification (RFID) equipment. And stored in the blockchain system, the retail commodity product data entering the blockchain system is safe, reliable, tamper-proof and can be traced back to the data, ensuring that the retail product information is truly and reliably input into the product traceability and anti-counterfeiting system.

Retail merchandise information is traceable and anti-counterfeiting. The BCAChain can realise the information integration of various types of multi-retail commodity supply chain links and give full play to its advantages of possessing

massive data, abundant supply chain, perfect infrastructure and large number of active users, and realise multi-country, multi-origin, multi-enterprise traceability and anti-counterfeiting of retail commodity product information.

Regulatory mechanism. Improving the ethics and legal literacy of consumers and producers, strengthening market supervision, and clarifying the market supervision bodies in all aspects of the transaction process are also important factors influencing the traceability and anti-counterfeiting of retail commodity products.

Consumption and trading. By logging into the merchant's trust chain e-commerce platform account, the consumer queries the information of the purchased retail product and verifies the authenticity of the product and selects the appropriate retail product for the transaction.
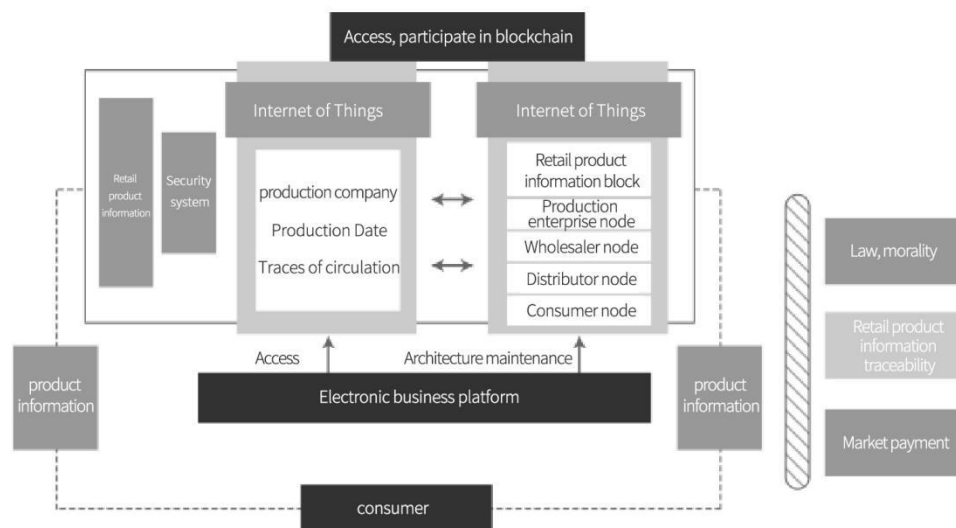

Figure 4.2 - Retail Information Traceability and Security

4.1.4 Inventory management

The BCAChain adopts the technology of intelligent warehousing for inventory management. It uses information technology such as RFID radio frequency identification, network communication and information system application and advanced management methods to realise the information of warehousing, delivery, library and transfer management. Automatic crawling, automatic identification, automatic warning and intelligent management functions to reduce storage costs, improve storage efficiency, and improve storage management skills. At the same time, the use of big data, robots, can achieve automatic forecasting, procurement, replenishment, sub-sector, adjust inventory according to customer needs, accurate delivery, thus achieving automated, precise management of massive retail commodity inventory.

The BCAChain discards the goods and stores the barcodes one by one, but through the inductive reading of information through scientific coding, it is also convenient to manage the batch and shelf life of the stocked goods. These functions will have the following characteristics:

The automated warehousing system utilises an automated van system, automatic access arm and bar code scanning equipment.

Inductive reading of information, the maximum distance of up to 10M into the warehouse to automatically read data, up to 1700 pieces of goods can be sent out at the same time, completed in 3 seconds.

Based on RFID IoT technology, the customised warehouse management system WSA, real-time 3D display of the quantity of goods in the warehouse, the location of the warehouse and the status of the goods, can timely grasp the current location of all

inventory goods, which is conducive to improving the efficiency of warehouse management.

Easy tally: The intelligent warehousing management system can quickly query the cargo information on the warehouse, quickly submit the tally action, and easily solve the tally problem.

With the help of the BCAChain solution, the cold storage utilisation rate increased by 27%, and the profit increased by 32%.

With the help of the BCAChain solution, the labour cost is reduced by 30% and the efficiency is increased by 50%.

4.1.5 Smart business

The intelligent business of the BCAChain will be based on big data analysis, measuring the true value of business through four main indicators: First, financial analysis; Second, customer analysis; Third, internal business analysis.

Financial analysis: standard financial report analysis, income analysis, profit analysis, budget analysis, EVA analysis, DuPont analysis, audit analysis, financial risk early warning analysis.

Customer Analysis: After-sales analysis, customer satisfaction analysis, market share analysis, etc.

Internal operation analysis

Production analysis theme: production quality management analysis, production process link analysis.

Cost Analysis: Product cost analysis based on activity-based costing, product profitability analysis, product cost composition analysis, etc.

Sales analysis topics: revenue analysis, channel analysis, regional analysis, sales force performance analysis, sales expense analysis, etc.

4.1.6 User value management

In the marketing system, the customer is an important resource for the profitability and development of the enterprise. The BCAC team believes that managing the customer value perception is key to doubling the profit from the same product. With its own big data system, BCAChain grasps regional consumer demand and customer data, and the entire market is therefore firmly in hand. Through analysis of customer preferences, combined with changes and trends throughout the entire market, one can also accurately understand the future consumer demand of customers, inventory replenishment becomes accurate, and the system can recommend the most suitable products for customers, cultivate customer spending habits and increase consumption stickiness.

After the business chain is subdivided into stock users, it is necessary to obtain sticky users with different qualities according to the obvious personality characteristics and consumption levels of the subdivided users, and formulate short, medium and long-term marketing strategies based on the actual situation of sales.

For low-viscosity users, develop strategies to optimise the consumption structure of users and enhance the substantial consumables of the users, both physical and non-physical. At the same time, in line with the characteristics of the users, capture

and control the timing and atmosphere of marketing efforts, and keep the user as a sticky user.

For medium-viscosity users, actively cultivate user spending habits, mainly from online content marketing such as Internet content marketing and offline strategic partner marketing such as insurance, banking, retail, etc., utilising all aspects to bind consumer spending habits, allowing strategic partnerships. This ultimately promotes good marketing and ultimately obtain highly viscous users.
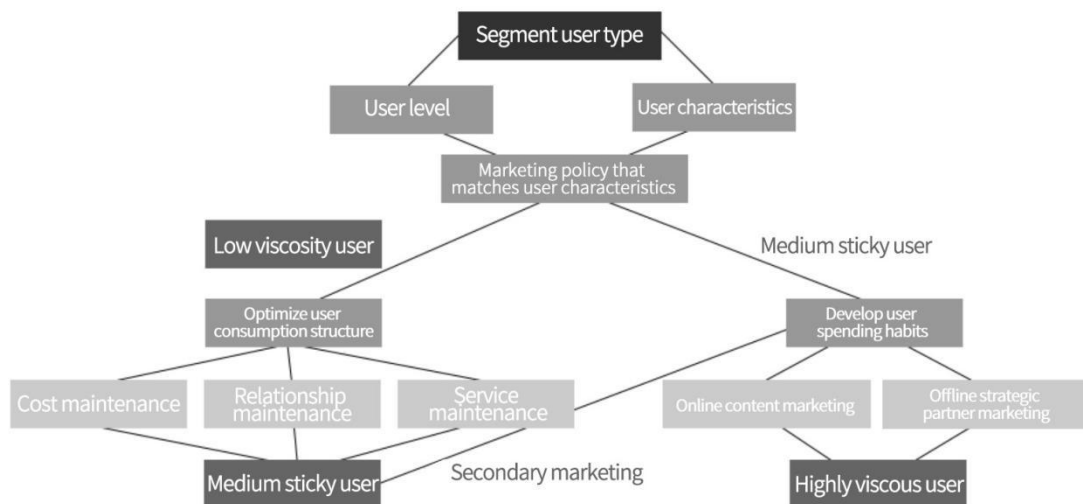
Figure 4.3 - User Maintenance Operation

4.2 AI+ Big Data System

In more than half of the world's surveyed companies, business executives use data insights to build stronger relationships with their customers: 31% of them strive to increase their ability to win customers through the use of data and analytics, while the other 22% focus on improvements in customer experience. Big data is responsible for collecting and analysing consumer behavioural information, providing basic support for enterprise reverse customisation and retailer precision marketing; Internet

of Things forms a rapid linkage and cooperation between offline outlets, offline and online outlets, and promotes production and sales. Seamless and docking and logistics at the logistics end. And these technologies are always centred on one core: artificial intelligence (AI) - "intelligence" runs through all technologies, all technologies to achieve and serve "intelligence" as the ultimate goal, and jointly promote new retail goals.

The "AI+ Big Data System+" of the BCAChain is a platform for the BCAChain to develop big data for various industries, including data fusion, insight into users, intelligent models and matching capabilities, and stereoscopic portrait rendering of group users based on data fusion. Online and offline user behavioural analysis identifies users from "multi-screen" to "multi-screen".

The business chain has a decision model, a recommendation model, and a green model. In addition, seven service modules have been developed, including industry insights, marketing decisions, social sentiment analysis, customer segment analysis, store analysis, recommendation engines, and data gas stations.
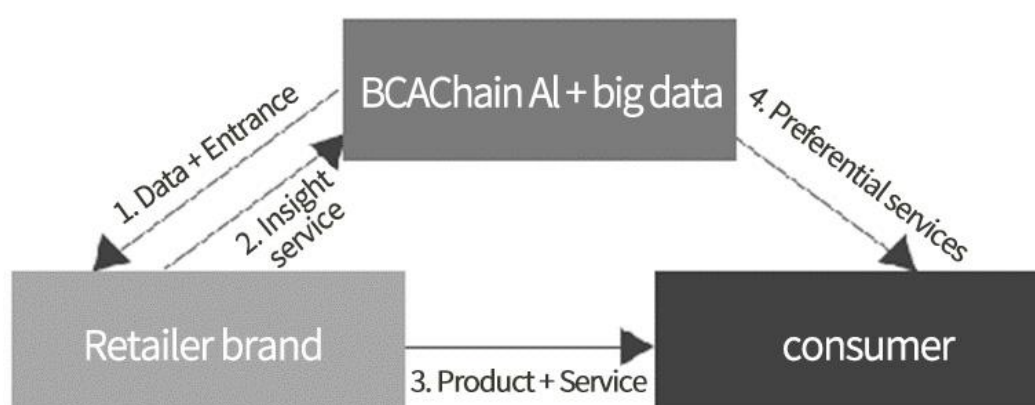

Figure 4.4 - AI + Big Data Operation Process

4.3 Comprehensive Credit Scoring System

The BCAChain uses AI learning algorithms and big data related technologies to innovate in a comprehensive credit rating for companies and individuals.

4.3.1 Enterprise credit system

In the corporate credit system, the risk model is used to identify fraud risks and credit risks, and the integrity system is transformed into quantifiable indicators, including the following major indicators:

Enterprise main credit information. It mainly refers to the credit information of the business owner provided by the Credit Information Bureau, including the personal credit score of the business owner, the proportion of accounts overdue by the business owner, debt information, and repayment behaviour.

Corporate credit information. Mainly refers to the information obtained from the corporate credit bureau, such as the payment records and payment index of the company, operating conditions and corporate family relationships.

Corporate financial information. Mainly refers to the information in the company's financial statements, including the balance sheet, income statement and cash flow statement.

Trading account information. It mainly refers to the transaction behavioural data information of the enterprise in the bank asset class account, such as deposits, owner's savings account, etc. Specifically, it includes the length of time for the enterprise to establish an account with the bank, and the cash flow payment status of upstream and downstream enterprises.

Customer relations. It mainly includes the customer's overall rating of product

quality, customer complaint rate, bad evaluation rate and so on.
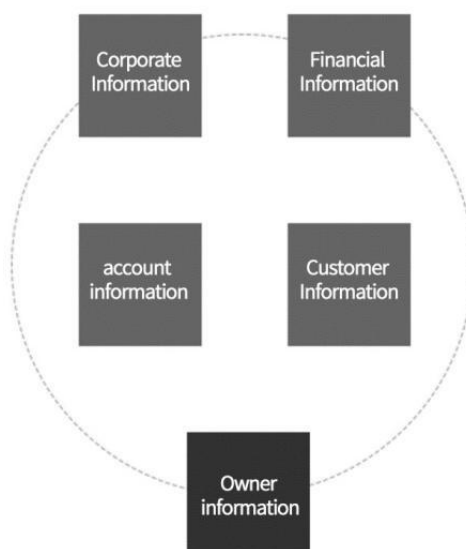
Figure 4.5 - Enterprise Credit System

The BCAChain divides corporate credit into four levels. A-level credit enterprise can enjoy service priority, loan priority, product recommendation priority, marketing cooperation priority and so on.

4.3.2 Personal enterprise credit system

The BCAChain combines traditional modelling with big data modelling, scoring personal credit information and integrating and analysing data from different dimensions to form a comprehensive personal credit report. The credit score mainly includes more than 40 key points such as citizen qualifications, work units, bank loan records, social security records, mobile phone owed fees, and water and electricity arrears. Among them, financial credit information such as repayments and credit card overdrafts have a significant impact on the score.

The credit scoring standard ranges from 320 to 800, and is divided into 6 levels from A to F. Each 80 is divided into one level. The A-level credit rating is up to 720-800 points. It belongs to good credit, and the bank has a class A rating. One can be assured of loans, diminishing scores, and lower credit ratings. Class F is 320-400 points, the lowest level, indicating that almost 100% of such people will default.

Through the independent credit scoring system, the BCAChain has launched a personal credit report, delineating a group of A-level credit holders, and integrating the online and offline data of these people to provide personalised consumption services for customers and retailers.

5. TECHNICAL DESCRIPTION

5.1 Technology Infrastructure

The technical infrastructure of the BCAChain can be easily divided into three levels: the user service layer (referred to as the user layer), the network layer, and the storage layer, which are all independent but inseparable. Figure:

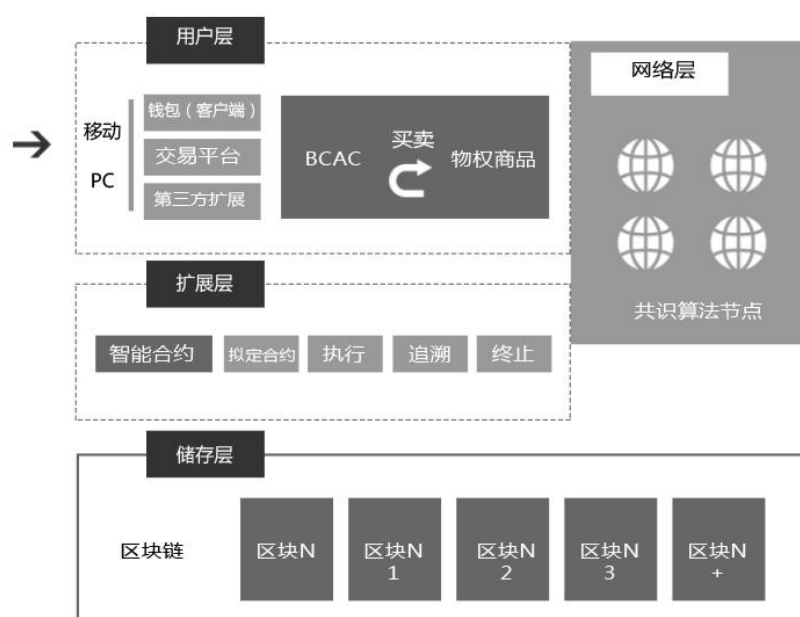Figure 5.1 - Blockchain Architecture of the Business Chain

5.2 User Service Layer

5.2.1 Account

Each customer who trades in the BCAChain can receive their own special account, and an identity certificate is required after registering the account. The BCAChain allows traders to store, trade and extract more than seven legal currencies in the international mainstream, or to convert more than 20 mainstream digital

currencies (such as Bitcoin and Litecoin) into commercial trust tokens. The user can deposit the business trust token into his account and then make a purchase and sale payment on the e-commerce platform on the BCAChain.

5.2.2 Wallet

The blockchain wallet is a software program that stores cryptocurrencies. Each registered user of the merchant chain has a private key (secret number) leading to their wallet. This key is the only way to access their digital currency address and is therefore the only way to receive or send credit. In the wallet, users retain their digital currency assets, which is the "ordinary" money in a regular wallet. However, users do not put all their money in a wallet because they do not feel that it is very safe. In this case, the user needs to use a backup copy and a secure password. In addition, the user can think of the wallet as a passbook (paper wallet). This has no Internet access, so it is less vulnerable to hackers.

The essence of managing digital assets is to manage private keys, which has always been a major key area of concern for users. Once the private key is lost, there is almost no chance to recover it, so most users will choose to host the assets on the exchange, but this will face the assets being the risk of theft and running the centralised platform is contrary to the original intention of decentralisation. The BCAChain hopes to create a decentralised digital currency storage management system for users, encrypt and store the private key locally, and improve asset security by means of backup anti-loss systems and offline signature. Specific means include:

The first is to adopt the "cold wallet" mechanism. The cold wallet is to put the private key in the offline mobile phone, and the transaction authorisation is performed by offline signature pairing, and other applications cannot read it.

The second is to let the user set the password again based on the private key, generate a stronger password through hundreds of thousands of hash function operations, encrypt the plaintext private key into a ciphertext, and then deposit it into the file system. User authorisation is required for each access, the password is unlocked, and the transaction signature is used. When not used, the cipher text state increases the security of the private key and the asset.

5.2.3 Privacy protection

In order to solve the problem of information inequality, various falsehoods, whether it is a product transaction seller or a buyer (consumer), KYC certification must be carried out before using the merchant trust chain. The BCAChain will encrypt and store the identity information in the commercial chain system through asymmetric encryption technology. To ensure that the information on the chain is valid, authentic and secure. The specific application principle of the BCAChain is as follows: Users in each link of the BCAChain need to register on the system, and the registered users each have a unique private key to prove the true information of the identity. Each user with a private key can record information on the blockchain or view the information within the permissions.

The mechanism for privacy protection on the BCAChain platform is as follows:

Public key and private key generation

The user first needs to generate a 256-bit private key for the ciphertext through

the SHA256 (Security Hash) algorithm. When the HASH function is used, the Data length changes and the hash value length does not change; each Data character corresponds to a unique hash value, which can be used as a data fingerprint.

This private key is modified by an elliptical encryption algorithm to generate a public key. This public key can be known to everyone. Everyone can obtain the user's address through the HASH function through this public key.

Due to the unidirectional nature of the HASH function, ie: Hash(x) = y, it is difficult to find x by y. It is almost impossible to crack the public key by address or to crack the private key of a user with a public key.

Encryption and decryption

Encryption: If someone (such as a user) wants to encrypt data, it is encrypted with a public key.

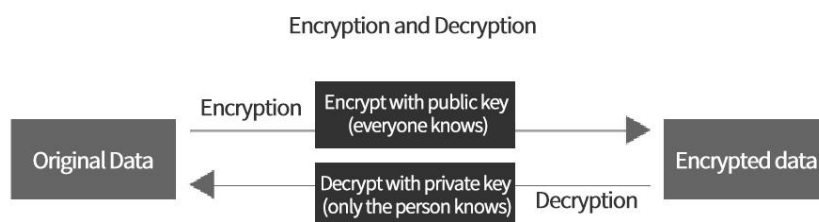Decryption: A private key is required for decryption, which is only known to the user.

Figure 5.2- Encryption and Decryption

5.3 Storage Layer

In the storage layer of the BCAChain, the main purpose is to realise the release, save and share of the transaction data storage record, and realise the following three main functions.

5.3.1 Data storage release

The transaction data store (M) is generated when the user trades in the merchant chain. After the data storage is generated, the BCAChain generates a hash for the data storage, and the digest of the data storage record (Di-gest) and the hash are signed by the private key of an issuer (sk isser) and then posted to the commercial chain. At the same time, the data storage record is encrypted with a symmetric key (k), and the encryption key is encrypted with the user's public key (pk patient) and sent to the user together, as described in Algorithm 1.

Algorithm 1: Data Storage Record Release

Procedure Issuing(M)

Input: M

Output: Data Storage Record Transaction

Begin

The data storage data issuer generates a data storage record M;

Generate data {Digest;H(M);Sig(Digest|H(M))} that needs to be stored in the business chain and create a data storage transaction broadcast to the network;

The original record and its hash value are signed and then encrypted with a symmetric key, and the encryption key is encrypted with the user's public key to form a message { Enck(Digest| M | H(M) |Sig(Digest| M | H(M))); Enc(k)} is sent to the user together;

End

5.3.2 Data storage record

After receiving the transaction data of the user, the BCAChain will generate a new encryption key and store the data storage and its signature encryption in the cloud storage. The specific process for this is described in Algorithm 2.

Algorithm 2: Data Storage

Procedure Storing(M)

Input: Encrypted data storage record {Enck(Digest|M|H(M)|Sig(Di-gest|MH(M))); Enc(k) }

Output: Data storage location

Begin

The user decrypts the symmetric key k from Enc(k) with his private key;

Decrypting Digest, M, H(M), Sig(Digest| M| H(M)) with symmetric key k;

Verify the correctness of the signature based on the public key;

If the signature is correct

Calculate its hash value according to M and compare it with H(M);

If hash consistent

Data storage records data is true;

Else

Simple discarding process;

End

Else

Simple discarding process;

End

If verify the data is true

The data record and its signature will be re-encrypted and stored in the cloud storage, and the encryption key and storage location will be recorded;

End

End.

5.3.3 Data storage record sharing

The BCAChain shares all transaction records, and writes the location, usage rights, usage period, and public key secret decryption key of the shared record in the cloud storage to the blockchain. Users can read the data shared on the BCAChain by query. The specific process for this is described as Algorithm 3.

Algorithm 3: Data Storage Record Sharing

Procedure Sharing(M)

Input: The public key of the requesting merchant chain and the required data storage record

Output: Generate an access control transaction

Begin

Receiving a data requester request, extracting the requester public key and the data demand; according to the requester's data demand, finding the relevant data storage location URI recorded in the cloud storage and the response encryption key k;

Create an access control transaction and write the response information to the transaction {URI;permission;pko;

Expiration;Sig(URI;permission;pko);Epko(k)}

Broadcast the transaction to the commercial chain network;

End.

5.4 Consensus Mechanism

Commonly used consensus mechanisms in blockchain technology are: Pow (workload proof), Pos (stake proof), DPos (share authorisation certificate), distributed consistent algorithm, and so on. In view of the high efficiency and simplicity of the RAFT distributed consensus algorithm, the implementation of the second-level consensus verification can greatly accelerate the execution of the transaction, and the business chain uses the RAFT consensus algorithm.

However, the RAFT consensus algorithm belongs to the non-Byzantine algorithm. It does not consider the existence of Byzantine node malicious operations. For the application of digital asset trading, the BCAChain draws on the idea of Byzantine consensus algorithm, adds the message signature verification mechanism to the RAFT algorithm, and uses the improved RAFT consensus. The algorithm is in the digital asset security transaction method. The improved RAFT consensus algorithm verifies that the node has three states: leader, follower, and candidate. The process is shown in the following figure.
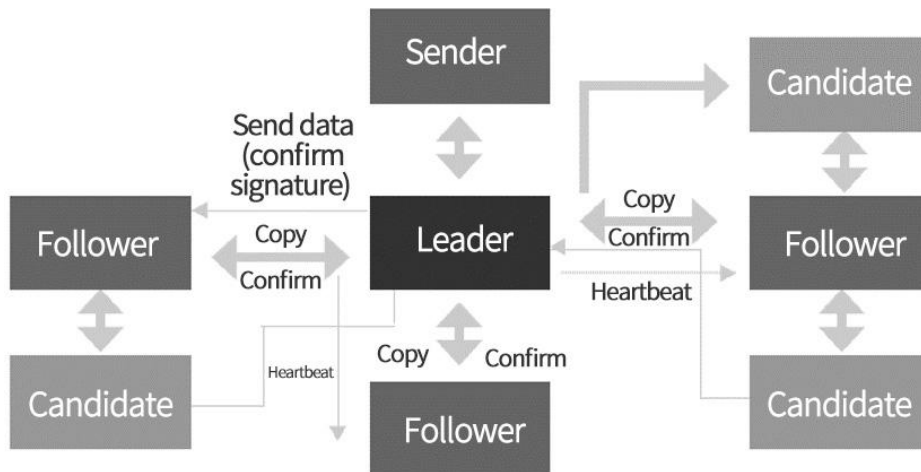
Figure 5.3 - Consensus algorithm

The algorithm is described as follows:

Input: Message signature x+p Message number h

Begin

(x+p, n)→leader

Leader→(Verfication)(x+p, n)

(x, n)→Follower/*Leader copy to follower*/

Leader←Verify from follower

If leader is bad/* If the leader is down, re-election*/

Leader→Candidate

Follower→Candidate

Voting(follower)→New leader

The /*follower node verifies that the leader node is down due to the leader's timeout. For example, the leader node is down, all nodes are in the candidate state, and the new leader is re-elected. */End

5.5 Unique technical description

5.5.1 Security encryption algorithm

Encryption technology is mainly used in the process of digital asset trading, and the signature of transaction information is encrypted. Traditional digital asset trading methods usually use symmetric encryption technology. The symmetric encryption technology requires the same key to be used in the encryption and decryption process. The encryption technology is implemented based on the mutual security of the keys.

The commercial chain uses non-intelligent encryption technology, and different keys are used in the encryption and decryption process, which is suitable for the mutual completion of the transaction process by mutually untrusted parties. In the digital asset security transaction method proposed by the BCAChain, the dual HA256 hash function is used in combination with the RSA encryption algorithm to verify the authenticity of the transaction information and prevent tampering. In this method, the double SHA256 hash function of the Bitcoin blockchain system is used to convert the original data into two 256-bit (32-byte) binary digits after two SHA256 hash operations. The hash algorithm is applicable to the verification mechanism because of its irreversibility. The RSA encryption algorithm belongs to the asymmetric encryption technology. Compared with the symmetric encryption technology, the encryption and decryption processes use different keys, which are public key and private key. The public key and the private key work together. If user A encrypts the data using its public key, only the corresponding private key can be used for decryption; if the private key is used to encrypt the data, then only the corresponding one is used. The public key can be decrypted. The public key can be disclosed to others, the private key is not disclosed, and the private key cannot be derived from the public key, ensuring the security and integrity of the transmitted data.

The RSA encryption algorithm generates a public-private key flow as shown in

the following figure.
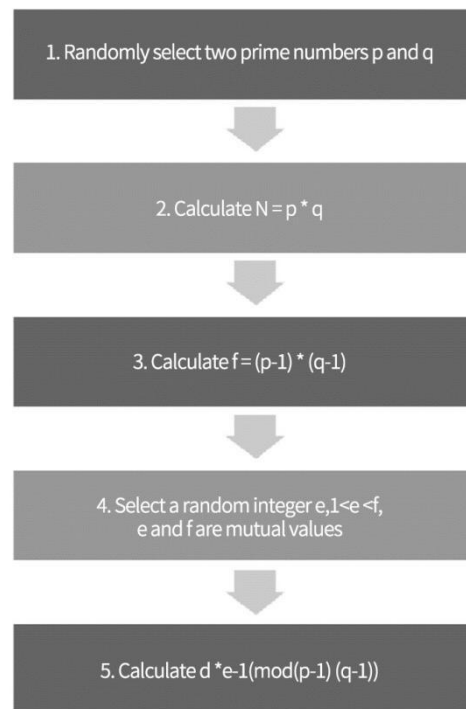
Figure 5.4 - RSA generated public and private key flow chart

In the actual application, the transaction sender A initiates a new transaction, for example, transferring digital assets worth 5 bitcoins to the user B. At this time, the SHA256 hash algorithm is called to sign the message, and a segment after the hash is obtained. Summary. The RSA asymmetric encryption algorithm generates a pair of public and private keys. The signature is encrypted using the public key, and the sender sends the RSA-encrypted signature and message to the receiver. The receiver decrypts the signature using the sender's public key, restoring a hash value. Check whether the hash value is consistent with the result of the message processed by the SHA256 hash algorithm and verify whether the message is from the sender and whether the information has been tampered with. The specific process is shown in the following figure:
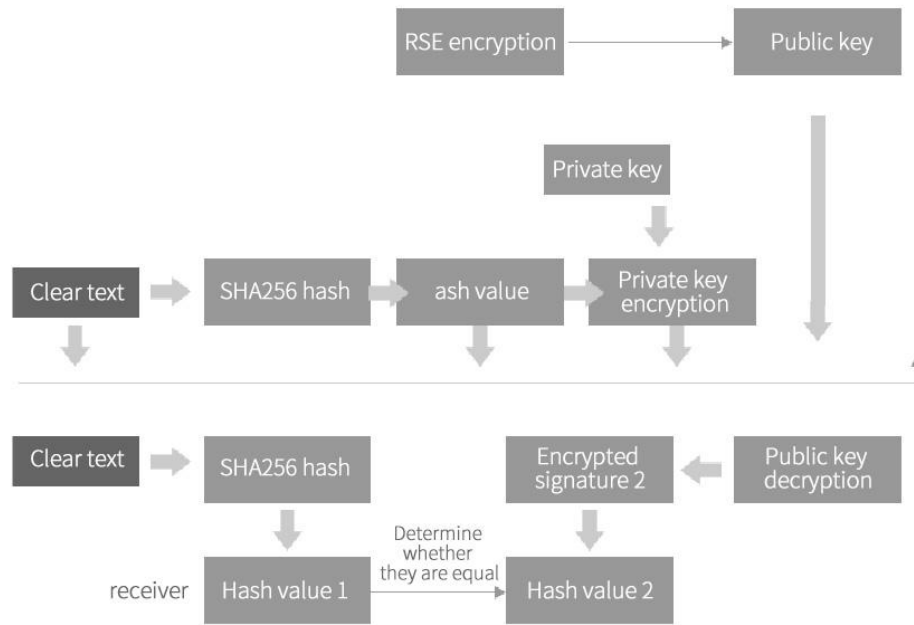
Figure 5.5 - Transaction Information Encryption and Verification Process

5.5.2 Smart contract agreement

Through the "smart contract", the BCAChain stipulates that all parties can implement the promise and can realise the transparency of retail sales and transactions. At the same time, the contract can automatically transfer the agreed upon funds to the seller or other stakeholders.

The BCAChain contract transaction process is as follows:

1) Contract drafting. This part is contracted by the retail seller to write the retail goods that they want to sell into the smart contract to form the contract code, and then the buyer checks the original regulations, and then stores the blockchain after the consensus is negotiated. The future iterations of the blockchain of the BCAChain intends supports multiple languages   for writing smart contracts.

2) Contract triggering. Contract triggering is the process of triggering contract execution through the external conditions of the business chain after the contract is stored, supporting the timing trigger, event trigger, transaction trigger and other contract triggering methods. Timed triggering is the process of automatically triggering a contract call after the node triggers the time consensus after the delivery time preset in the contract is met. Triggering events, transactions, and other contract calls are all triggered by a new request consensus process.

3) Contract execution. Contract execution is the complete process of running contract code in a separate environment, including a contract development environment, code execution, consensus on state changes in the execution code, and consensus exception handling.

4) Contract cancellation. The contract cancellation is to clear the settlement contract that has been executed, expired or if the business needs are no longer needed. The cleanup process requires a multi-node consensus before it can be completed.
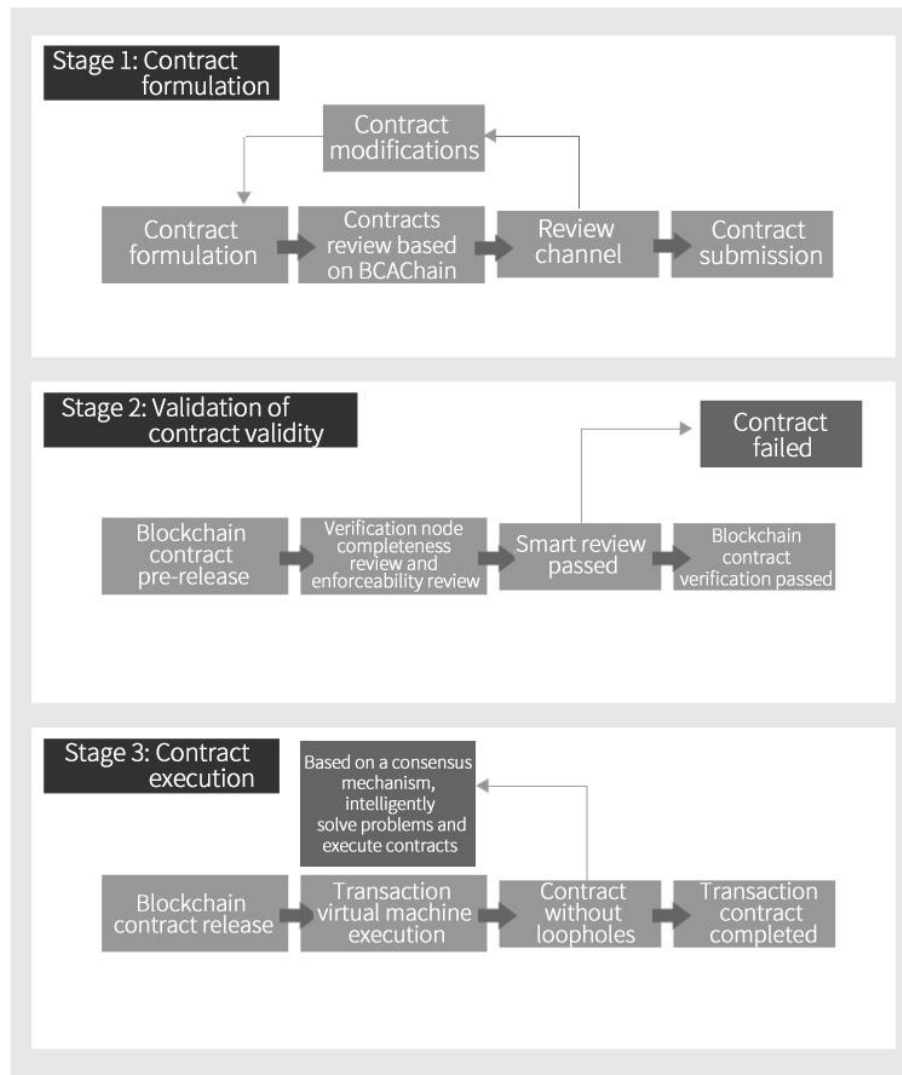
Figure 5.6 - Smart Contract Registration, Triggering, Execution and Deregistration

5.5.3 Traceability and anti-counterfeiting algorithms

Algorithm 1. Traceable data storage

Input: The generation P of a retail product and the traceability information M1, M2, ... Mn of each source department. There is no information on the retail product in the private chain and the public chain.

Output: For each retail product, the private chain stores the production P of the product and the traceability information Mi of each department, the signature Sig(i) of each department, and the hash value H of these information (Mi, Sig(i) The public chain stores the hash value H (H(M1, Sig(1)), H(M2, Sig(2)), ...) of the above information. The location of each piece of retail merchandise in the private chain is stored in a link Lpr, HPR=H(H(M1,Sig(1)), H(M2,Sig(2)),...) The location in the public chain will be stored in another link Lpu.

Procedure 1. Store traceability data

```
BEGIN
Pl.generrate(P);
Sig(pl)=Pl.sign(P);
hP=H(p);
Pl.send(p, Sig(pl), hP, Pr);
//The sender is the producer and the recipient is the private chain.
For(i = 0 ; i<D. size(); ++i ){
Di.generate(Mi);
Sig(i)=Di.sign(Mi);
hMi=H(Mi)
Di.send(Mi,Sig(i),hMi,Pr);
}
h=H(ΣhMi|Sig(pl));
Pr.send(h,X);
X.generate(ID);
hID=H(ID);
X.send(ID, Lpr, Lpu, Tag);
X.send(ID, h, Sig(x), Pu);
Sa.genrrate(S);
Si=Sa.sign(S);
Sa.send(S, Si, Pu);
```

END

Algorithm 2. Traceability data query

Input: The tag of a retail product includes Lpr, Lpu and ID

Output: Detailed traceability information for this product

Procedure 2. Traceability Information Query

BEGIN

Get(Lpr , Lpu , ID, Tag);//Get Lpr , Lpu , ID from Tag

Cl.send(Lpr ,Pr);

Pr.send(M1,M2,...,Mn,P,Cl);//Get information from the private chain

Cl.send (Lpu , M1 , M2 , ..., Mn , P, ID, Pu); / / send information to the public chain verification

IF(! HPR=H(ΣH(Mi, Si(i))+H(P, Si(c)))

Return error; //data tampering or counterfeiting

Pu.send(S,Cl); //Get sales information from the public chain

END

5.6 Dispute Resolution System

5.6.1 Equity authorisation certification mechanism

In the course of a new retail transaction, there may be disputes between the buyer and the seller of the retail product. For example, the buyer feels that the true quality of the retail product is not up to standard. This has happened before. In a centralised platform, the platform is often used as a coordinator and arbitrator. On the one hand, the platform needs to incur high operating costs for this. On the other hand, both parties to the transaction may think that the platform is making unfair arbitration.

The dispute resolution system designed by BCAChain based on the Rights of Attorney Certification Mechanism (DPOS) solves the above problems well through

the blockchain. First, in the service registration phase, the retail seller can clearly indicate the amount of warranty costs that he or she is willing to pay. After the transaction begins, the trading funds and margin will be locked into the designated blockchain wallet. If there is a dispute in the course of the service, either party can file an arbitration request.

5.6.2 Dispute resolution process

The workflow of the dispute resolution system is as follows:

I. The party making the dispute triggers the initiation of the dispute resolution system through a smart contract. The claimant is required to pay a dispute resolution service fee (for example, 0.5 BCAC token).

II. Both parties to the dispute upload evidence to the IPFS file system and the hash of the evidence is recorded in the blockchain.

III. The system automatically sets up the appropriate number of arbitration committees (minimum of 5) based on the amount involved in the dispute.

IV. The choice of the Arbitration Board will be based on the arbitrator's activity and credit score.

V. The notified arbitrator votes based on the evidence and the vote will eventually be published in the blockchain. The arbitrator will receive the corresponding BCAC token as an incentive.

VI. If any party to the dispute is dissatisfied with the outcome of the arbitration, an appeal may be filed. The disputed service fee for each appeal will double, and the number of arbitration committees will double, until the disputed service fee exceeds the amount of compensation for the appeal.
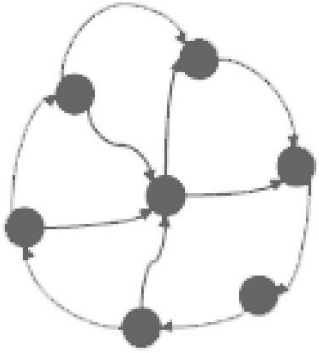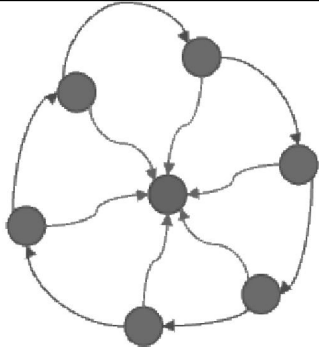
VII. The Dispute System will allocate funds to the appropriate parties in

accordance with the results of the last final vote and arrive at the results.

6.TOKEN ECOSYSTEM INCENTIVES AND APPLICATIONS

6.1 Value loop principle

There are three kinds of value loops in human social organisations.

	① Reasonable value loop: There is no singularity in the system, and any role is equal. Each character can accept the value of others and give back to others.
	② A short-term, but unsustainable value loop: The system has a value singularity, that is, there is a role, the value only flows in and out, and the surrounding characters can only flow around the core role and "support" the core role.

③ Unreasonable value loop: The system has a singular value, that is, there is a certain role, the value only flows out and does not flow in, and the surrounding characters flow out to "support" by the core role.
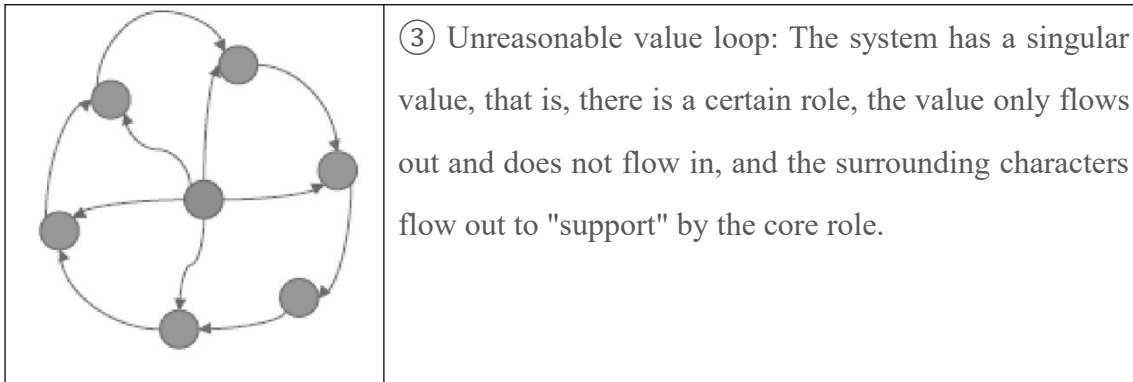
Singularity trap case: China's Northern Song Dynasty, Southern Song Dynasty, Yuan Dynasty, and the early Ming Dynasty all issued banknotes (payers, banknotes), but they failed after running for a period of time. An important reason was that the central government issuing banknotes became a singularity, this is a short-term viable but unsustainable value loop.

The realistic world economy often has multiple allocations:

Zero-time distribution: After the currency has just been created, it is distributed according to the principle of equality. Although monetary growth itself does not increase wealth, but because of the order of distribution of new currency, zero distribution can change the distribution of real wealth.

First time distribution: the natural wealth distribution of the market by free trade according to the principle of efficiency first

Second time distribution: the redistribution of wealth by the government in accordance with the principle of fairness through taxation, subsidies, etc.

Third time distribution: the distribution of wealth by individuals through donations, charities, etc. in accordance with the principles of morality

The value loop principle clearly states that a successful trading group must have a value to enter and exit, forming a reasonable value loop, which is also the design principle of the commercial chain incentive mechanism.

6.2 Incentive Mechanism Design

Based on the value loop principle, the incentive mechanism of the BCAChain is designed as follows:

0 time distribution: Users and retailers receive BCAC tokens based on the value of their contribution to the network.

1 time distribution: Users and retailers would consume BCAC tokens for trading transactions. BCAChain would charge various fees and service fees in BCAC tokens.

2 time distribution: The Foundation incentivises actively participating users and companies with BCAC tokens for various contributions, such as reviews of retail products, quality, users and corporate integrity.

3 time distribution: Retailers can purchase BCAC tokens from the market and then use BCAC tokens to incentivise groups of users who frequently purchase their own retail items.
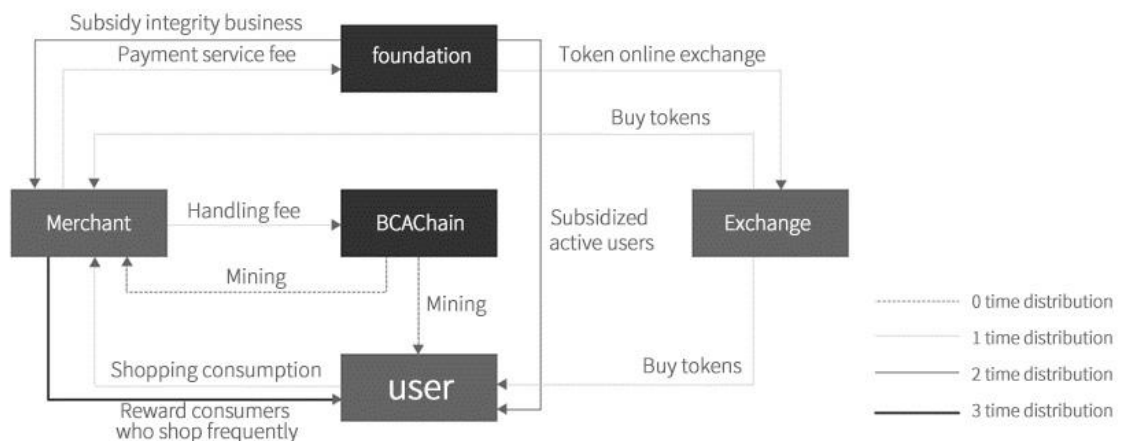
Figure 6.1 - Design of incentive mechanism for BCAChain

Critically, users of BCAChain and/or holders of BCAC token which did not actively participate will not receive any BCAC token incentives.

6.3 Incentive Mechanism Implementation Plan

Public incentive pool

At the beginning of the listing of the commercial trust chain, a certain proportion of income will be put into the public incentive pool, and as the system operates, the public pool incentive pool always maintains a certain number of tokens for issuing incentives to reward users for participation. The main source of tokens in the public incentive pool: service fees and handling fees.

The incentive pool will distribute incentives according to their priorities. The incentive pool will be settled in real time through smart contracts to the wallet address that matches the behavioural incentives, and the currency incentives will be settled periodically.

The transaction will generate a 1% commissioning fee as a basic friction fee to prevent spam transactions, and the friction costs will be collected by the system into the public incentive pool for the public incentive pool to incentivise all roles.

Behavioural incentive

Behavioural incentives include but are not limited to the following:

Users on BCAChain may obtain a certain percentage of BCAC token incentives from the BCAChain through actions such as wonderful comments, number of likes, and number of comments.

BCAC tokens can be received if the monthly purchase amount is sufficiently large.

By authorising online merchant data collection, users will also receive BCAC token incentives. By promoting sharing, they will also receive more BCAC token incentives.

When an online merchant advertisement is accurately placed, the consumer has the right to accept the advertisement information, and the consumer who accepts the advertisement information can obtain BCAC token incentives for viewing of the advertisement.

6.4 Community + Shopping App

Each user can easily create a "themed shopping community" without the need for coding and deploy it on BCAChain, depending on the point of interest and hobbies. These "themed shopping communities" are generated by smart contracts that are laid out on BCAChain. Each successful "themed shopping community" has a unique entry card for community members to access and remember. The ownership of the community will be recorded through the blockchain account to ensure that it is not tamperable.

The "Themed Shopping Community" adopts a similar multi-modality model, and the founders of the community invite community members to join the group shopping activities. Initiators, participants need to pay a certain amount of BCAC tokens, and the best-running community will also receive token incentives. Incentives using BCAC tokens can promote online user alliances and form autonomous shopping communities.

In addition, merchants can also form alliances, to focus on a certain holiday to launch "** product promotion communities", and a class of similar products can launch a centralised promotion for some of its best-selling products.

6.5 Ad serving application

6.5.1 Advertising

The biggest problem with online advertising is that it is almost impossible to judge whether the statistics are accurate. For example, is the calculation of the number of clicks on the number of real users or even real people? Or is it just a calculation robot or a hired ad clicker, mobilised so that the corresponding ad distributor can charge a higher fee. In fact, this is really difficult to judge. Studies have shown that in 2016 alone, there was more than $7 billion being spent on robot clicks.

Blockchain technology is about to change this. The reason is that the blockchain is transparent and encrypted, and companies can easily determine whether the person viewing the ad is their target user, which means that millions of additional advertising expenses can be saved each year. In a layman's terms, companies can effectively ensure that the ads they pay are valid. Forrester analysts estimate that if publishers remove intermediary agents, they can better optimise the price per thousand (CPM).

Through blockchain technology, ads on BCAChain can accurately target users. After using blockchain technology, advertisers have the ability to build user portraits directly from users, collecting all the desires of users.

Information that is intended to be shared can be classified and shared. This also gives the market a stronger ability to meet the needs of users and to advertise only to those who are most likely to buy a product.

6.5.2 Advertising algorithm

BCAChain uses blockchain technology to create a decentralised advertising regulation and incentive distribution system. In terms of advertising flow, information is sent directly from the publisher to BCAChain, and there is no third-party intermediary. At the same time, the data will be transmitted directly from the device of the user to the network of BCAChain, and the timeliness will be greatly improved, and the user will also have a token incentive for watching the advertisement, which greatly enhances the enthusiasm and forms a virtuous circle. The advertiser wins the distribution channel through bidding, and the BCAChain advertising system provides various payment methods such as CPA (effective activation) and CPC (effective click).

The BCAChain advertising system optimises the advertising budget delivery rate according to the pacing algorithm. The pacing algorithm learns to compete for other advertisements of the same target audience and tries to provide the optimal bid. The algorithm rules are as follows:

Final bid (per impression) = optimal bid (per impression) * CTR

Where optimal bid <= max_bid

CTR is the clickthrough rate, but this formula also applies to the view rate (VTR) that reflects impressions and the conversion rate (CVR) that reflects conversions.

7. TOKEN ECONOMIC MODEL

7.1 BCAC Release Plan

7.1.1 Purpose of the token sale

By raising the digital currency required for project operation through the first token issue, the digital currency obtained through the token sale will be invested in product development, team expansion, community operation, marketing, etc. according to the agreed proportion. As the project progresses, the team will gradually release the reserved tokens to invite and motivate high-level blockchain developers to join the community.

All proceeds of the token sale will be applied towards the advancing, promoting the research, design and development of, and advocacy for the innovation of blockchain technology, industry, university and research, as well as industrialisation and application of blockchain technology in new retail, through distributed ledgers, smart contracts, asymmetric encryption and authorisation technologies, and consensus mechanisms. The Foundation, the Distributor and their various affiliates would develop, manage and operate BCAChain.

7.1.2 Details

BCAC has a total circulation of 2,200,000,000 (2.2 billion) and has been locked out by contract. According to the plan, 30% of the total initial supply (660 million pieces) will be used for the first sale. This sale does not accept any form of legal currency transactions, only accepts the digital assets BTC / ETH participation, distribution rules and sales rules will be announced through the official website and the official media platform.

In particular, you understand and accept that BCAC token:

(a) is non-refundable and cannot be exchanged for cash (or its equivalent value in any other virtual currency) or any payment obligation by the Foundation, the Distributor or any affiliate;

(b) does not represent or confer on the token holder any right of any form with respect to the Foundation, the Distributor (or any of its affiliates), or its revenues or assets, including without limitation any right to receive future dividends, revenue, shares, ownership right or stake, share or security, any voting, distribution, redemption, liquidation, proprietary (including all forms of intellectual property or licence rights), or other financial or legal rights or equivalent rights, or intellectual property rights or any other form of participation in or relating to BCAChain, the Foundation, the Distributor and/or their service providers;

(c) is not intended to represent any rights under a contract for differences or under any other contract the purpose or pretended purpose of which is to secure a profit or avoid a loss;

(d) is not intended to be a representation of money (including electronic money), security, commodity, bond, debt instrument or any other kind of financial instrument or investment;

(e) is not a loan to the Foundation, the Distributor or any of its affiliates, is not intended to represent a debt owed by the Foundation, the Distributor or any of its affiliates, and there is no expectation of profit; and

(f) does not provide the token holder with any ownership or other interest in the Foundation, the Distributor or any of its affiliates.

7.1.3 BCAC token distribution scheme

BCAC token allocation plan
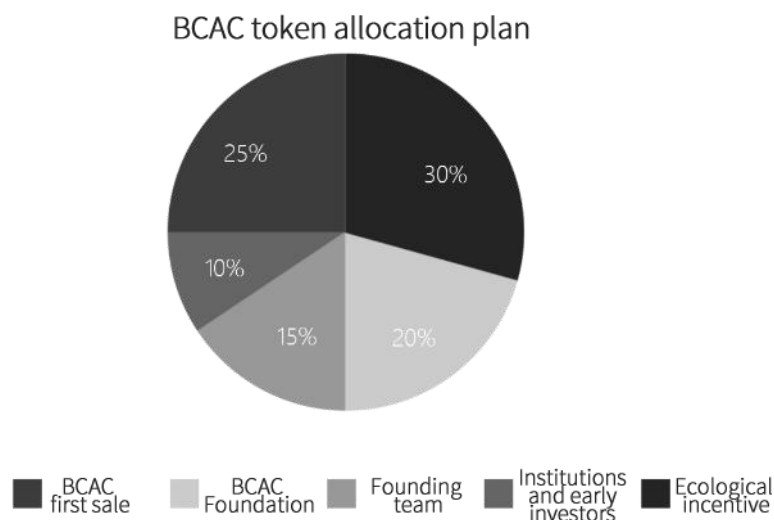
The Distributor which issues and sells BCAC token shall be an affiliate of the Foundation.

● BCAC initial token sale: 660,000,000 (660 million) BCAC, accounting for 30% of the total circulation;

● BCAC Foundation: 440,000,000 (440 million) BCAC, accounting for 20% of the total circulation;

● BCAC founding team: 330,000,000 (330 million) BCAC, accounting for 15% of the total circulation;

● Institutions and contributors: 220,000,000 (220 million) BCAC, accounting for 10% of the total circulation;

● Ecosystem incentives: 550,000,000 (550 million) BCAC, accounting for 25% of the total circulation;

7.1.4 BCAC token utilisation schedule

The contributions in the token sale will be held by the Distributor (or its affiliate) after the token sale, and contributors will have no economic or legal right over or

beneficial interest in these contributions or the assets of that entity after the token sale. The plan for the use of sales of digital currency: The digital currency obtained through the sale of tokens will be used in the following aspects:

1) Team building: 30% of the budget. This fee will be used by BCAChain to strengthen the technical team to optimise the cost of existing technology design and development of new technologies;

2) Computational Capability Purchase: 10% of the budget. This budget will be used to purchase the computing power provided by the shared cloud or distributed cloud to support the development and development of the BCAChain initial application layer.

3) Operation management: 20% of the budget, which will be used for the expenses of BCAChain in related operations, security, accounting, personnel and other operational management.

4) Marketing: 30% of the budget. This fee is for the promotion of applications of BCAChain. It mainly includes: traffic purchase, business promotion, docking with entrepreneurs' communities, major platforms, and various types of advertising resources.

5) Other expenses: 10% of the budget. This fee will be used for unforeseen incidental expenses.

7.1.5 BCAC lock-up description:

1) The tokens held by the BCAC founding team will be subject to the following lock-up: As of the end of the first sale, the assigned BCAChain will constitute all of the tradable applications. Among them, the token assigned to the BCAC founding team will be subject to the longest lock-up period, which will be gradually unlocked within 24 months;

2) The tokens held by the institutions and the early contributors will be gradually

unlocked in 12 months:

3) Considering the needs of technology development, community operation and platform promotion, the BCAC Foundation is established. The tokens held by the Foundation are not subject to restrictions. The BCAC Foundation Management Committee establishes rules and incorporates them into a unified management system.

7.2 Application scenarios of BCAC

BCAC will be widely used in the retail sector of payments in people's daily lives, especially in the new retail market. In the future, it will accelerate penetration into other fields, including applications in various industry sectors, including tourism, finance, medical industry, and insurance industry. Through in-depth cooperation with merchants to further meet the various needs of users.

7.3 Circulation

The BCAC token itself will be issued by the Distributor as ERC-20 standard compliant digital tokens on the Ethereum blockchain and supports native mobility based on smart contracts. This means that users do not have to go to the traditional exchanges to buy and sell BCAC tokens, but instead can use the decentralisation of the protocol itself. This is due to the flexible charging model of the agreement.

For the avoidance of doubt, to the extent a secondary market or exchange for trading BCAC token does develop, it would be run and operated wholly independently of the Foundation, the Distributor, the sale of BCAC token and BCAChain. Neither the Foundation nor the Distributor will create such secondary markets nor will either entity act as an exchange for BCAC token.

8. ABOUT US

8.1 Foundation

BCAC Foundation: BCAC Foundation Limited. The BCAC Foundation is dedicated to advancing, promoting the research, design and development of, and advocacy for the innovation of blockchain technology, industry, university and research, as well as industrialisation and application of blockchain technology in new retail, through distributed ledgers, smart contracts, asymmetric encryption and authorisation technologies, and consensus mechanisms. The core technology areas of blockchains are exerted, especially focusing on creating new models such as "blockchain+new retail", "blockchain+tourism" and "blockchain+life" to achieve industrial integration and technological innovation. The new ecosystem.

8.2 Team

<div align="center">

Creative Team

BCAChain

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Yang Rongtian (Tim)
BCAC Creator

Graduated from the Auckland University of Technology, Auckland University of Technology, Master of Professional Business Studies (Finance) Master of Finance. He has worked for Fortune 500 companies and is involved in global channel expansion and supply chain finance related to cross-border e-commerce. At the same time, he has many years of experience in overseas investment and cross-border retail industry. In recent years, he has focused on the research and practice of blockchain technology to solve new retail industry problems.

Cai Zhuang (Max)
BCAC Creator

Member of the Blockchain Professional Committee of China Communications Industry Association.Master of Business Administration. He founded Chongqing Siwei Technology Co., Ltd., Chongqing Fun Push E-Commerce Co., Ltd. has been committed to social e-commerce, enterprise digital currency multi-level application exploration and practice; the country's most new retail promotion and leader, but also token Pioneer in the integration of economy and real economy

Wen Pei (Tommy)
BCAC
Technical Master

Master of Computers, former senior engineer of the IBM Big Data team, member of the IBM Predictive Analytic committee, and an architect/project manager in numerous big data projects. He has been selected as a researcher at the IBM Blockchain Lab, and has in-depth research on distributed computing and blockchain technology. He is also an active contributor to the IBM Big Data open source project.

Yang Chengwu (Dufren)
BCAC Creator

Graduated from Sichuan University of Foreign Languages, has double degree, proficient in English and Spanish. In 2013, he translated into the ETH white paper and became involved in digital currency. An early investors IOTA, BYTEBALL, NXT and have participated in the top-level design and implementation of multiple blockchain projects.

Consultants

BCAChain

Yang Chao
BCAC (Business Credit Chain) Consultant

Master of Computers, former senior engineer of the IBM Big Data team, member of the IBM Predictive Analytic committee, and an architect/project manager in numerous big data projects. He has been selected as a researcher at the IBM Blockchain Lab, and has in-depth research on distributed computing and blockchain technology. He is also an active contributor to the IBM Big Data open source project.

Yang Li
BCAC (Business Credit Chain) Consultant

The original co-founder of DadxChain, almost 8 years of experience in the Internet industry, 5 years of experience in digital marketing in the financial industry, providing digital marketing solutions for nearly 10 large banking institutions including Bank of China, China Construction Bank, Industrial Bank, and China CITIC Bank. And served as a new media marketing consultant. In 2017, he was co-founder of DadxChain, the earlier decentralized digital advertising trading platform based on blockchain in China.

Supporters

BCAChain

Supporters

Yan Minghui
Blockchain Early Contributor
Hui Ke Capital founder

Main holdings:

HILC, ODIN browser, market station (HQZ.COM), fire and finance, chain finance, BCAChain, etc.....

Mainly focused on the ecosystem layout of blockchain projects for early contribution. Currently, the investment blockchain project involves areas: Internet of Things, big data; at the same time, it maintains strategic partnership with a number of blockchain project contribution departments, focusing on blockchain ecosystems. The sector provides financial or ecosystem investment in resources that contribute to project application and sustainability.

Strategic Partners

Crypto Capital

Relying on the strong resource advantages of the blockchain field and the professional investment research team, since 2016, it has participated in the investment of Cybermiles, Abra, only chain, and the original chain Bytom. As of March 2018, the net income of Bitcoin in the first phase of Crypto Capital's encrypted capital was 592%. Involved in mines, wallets, exchanges, blockchain technology industrial parks, etc., focusing on the incubation of high-quality blockchain technology projects, the layout of a complete blockchain ecosystem. Crypto Capital's encryption capital is based in the whole world, and the core members of the team are the financial, blockchain, and industry leaders in artificial intelligence.

Cryptonord

Europe's famous blockchain cornerstone fund in Zurich, Switzerland. Has invested in a number of European blockchain projects, including trueChain, the well-known European consortium Wallenberg family company Joors and joorsChain project Cryptonord as a cornerstone fund to participate in the early investment of BCAChain, while providing the necessary resources for BCAChain to enter the European market.

Supported by:

Supporting units: Jane Group, **The YAP Centre for Blockchain Studies (Dubai)**, Chongqing Siwei Co., Ltd., Hash Finance, Ltd., Chongqing Fun Push E-Commerce Co., Ltd.

9. PROJECT ROUTE

9.1 Initial planning: platform construction

The specific plan is as follows:

April 2018	Project starts
July 2018	BCAChain publishes white papers and publicises marketing activities;
At the end of July 2018	Completed the design and development of the underlying architecture of the application model;

August 2018	Improved RAFT consensus algorithm released in Yellow Book;
September 2018	BCAChain smart contract is online;
November 2018	The BCAChain new retail platform test was launched, and suppliers, retailers and consumers were invited to conduct platform testing and start supply chain data integration;
December 2018	The BCAChain developer community established, improved the credit quantification system, and began to build the ecosystem of BCAChain;

9.2 Medium Term Planning (2019-20)

In order to make the BCAChain relevant to users in all aspects of the retail commodity field, to realise its value. Therefore, it is necessary to further increase the promotion of the platform, for example, in the traditional retail goods field, the consumer market for target users to promote, to find more retail goods buyers and sellers, retail goods production, sales, retail goods, other related companies settled in the BCAChain.

Q1 2019	The BCAC wallet goes online and completes the initial version iteration;

Q3 2019	The IOT hardware platform is released and open sourced;
Q4 2019	AI + retail supply chain big data platform released;
2020	Realise the data and standardisation of the ecosystem of BCAChain and develop standard industry solutions to promote the rapid development of the new retail industry and empower the actual economic development.

9.3 Future Planning (2021 and beyond)

The future business chain will integrate the upstream and downstream of the retail industry, from production to sales to the shopping habits of users. Through blockchain technology, supply chain traceability can be created, business and user credit can be quantified, data transparency and transparent set consumer shopping, membership services, precision marketing, centralised procurement and other scenarios in one, forming online e-commerce transactions, offline Shopping experience, build a new retail ecosystem that has multiple participants and benefits from multiple parties. The goal is to transform the BCAChain into a new retail commercial credit economy with a blockchain-based global network of hundreds of millions of merchants, hundreds of millions of users, and a market value of 100 billion.

10. Risk warning

Insufficient information creates risk. As of the release date of this white paper, the BCAChain is still in the development stage, and its philosophy, consensus mechanism, algorithms, code and other technical details and parameters may be updated and changed frequently and frequently. Although this white paper contains the latest key

information in the business chain, it is not completely complete and will be adjusted and updated from time to time for specific purposes. The Foundation and its affiliates are incapable of and have no obligation to inform participants of every detail in the development of the chain (including its progress and expected milestones, whether delayed or not), so it does not necessarily give buyers timely and full access to the business chain development. Information generated from time to time. Insufficient disclosure of information is inevitable, and participants are to take that into account.

Entrepreneurial risks: The risk involved in entrepreneurial projects is high, and there are many situations that can lead to a complete failure of the BCAChain project. If you cannot afford the full loss of the contributions, you should not contribute any monies.

Income risk: Blockchain derived income is variable and difficult to estimate. Some start-ups can obtain huge successes, but many will fail. The derived remuneration may vary in amount, frequency, and time of acquisition. If you expect a predictable, regular, and stable remuneration, you should not contribute any monies.

Liquidity risk: If the project is unsuccessful or some other unintended reason, it may cause your token to be difficult to sell. In addition, due to the emergence of new regulations or other reasons, it may also make your tokens difficult to resell. If you need to cash out tokens for a certain period of time to obtain funds, you should not participate in the BCAChain project.

Platform Risk: You should consider the risks of the technology, regulations and the infrastructure of the business chain itself, because the token is based on a third-party decentralised platform solution, which is not controlled by the project party. You should consider the utility of the token and the platform before contributing. Take time to get an understanding of the platform.

Project Failure Risk: Participation in entrepreneurial projects is a speculative behaviour that often fails. This is different from investment in mature projects. The revenue of mature projects can be referenced by past performance records. The

success of entrepreneurial projects often depends on whether the new products or services developed can develop a sufficient market. In extreme cases, you should be prepared for loss of the entire contributed amount.

Capital risk: The project may require a large amount of funds to pay for operations, development, marketing, etc. In a certain market environment, if additional funds are required, the project may not be available in time. In this case, it is likely as the project development is postponed, the market expansion is unfavourable and continues, and the project may stop operating.

Failure to develop: There is the risk that the development of BCAChain will not be executed or implemented as planned, for a variety of reasons, including without limitation the event of a decline in the prices of any digital asset, virtual currency or BCAC token, unforeseen technical difficulties, and shortage of development funds for activities.

Security weaknesses: Hackers or other malicious groups or organisations may attempt to interfere with BCAC token and/or BCAChain in a variety of ways, including, but not limited to, malware attacks, denial of service attacks, consensus-based attacks, Sybil attacks, smurfing and spoofing. Furthermore, there is a risk that a third party or a member of the Foundation, the Distributor or its affiliates may intentionally or unintentionally introduce weaknesses into the core infrastructure of BCAC token and/or BCAChain, which could negatively affect BCAC token and/or BCAChain.

Other risks: In addition, the potential risks briefly mentioned above are not exhaustive and there are other risks (as more particularly set out in the Terms and Conditions) associated with your purchase, holding and use of BCAC token, including those that the Foundation or the Distributor cannot anticipate. Such risks may further materialise as unanticipated variations or combinations of the aforementioned risks. You should conduct full due diligence on the Foundation, the Distributor, its affiliates and the BCAC team, as well as understand the overall

framework, mission and vision for BCAChain prior to purchasing BCAC token.