



# Digitalized Wine Chain and Operation Platform Based on Blockchain

White Paper for the Project

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## 01 Market Analysis of Global Wine Industry

In 2020, the United States will remain the world's largest wine market, and Italy will remain the world's largest wine producer.

In the past 20 years, China's beer output has been the highest in the world, for 15 years in a row.

On December 15th, 2021, Kweichow Moutai's share price exceeded 2,000 yuan, and its market value approached the 2 trillion mark, making it the highest wine company in the world.

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From the second half of 2016 to 2021, after a five-year adjustment period, the global wine industry is recovering. In the next few years, it will enter a relatively stable development period. At the same time, the rise of concepts such as "new consumption", "new retail", "internet plus" and "blockchain" has made people see the possibility of stepping up in the wine industry. Once it has landed, the wine industry will embrace another ten years' development.

### 1.1 Spirits Industry

Spirits are high-concentration spirits, also named distilled spirits. Spirits in the world are usually divided into eight categories: Gin, Whisky, Brandy, Vodka and Rum, Tequila, China's white liquor(Spirit), Japanese Sake.



Local spirits such as China's white liquor and Whisky in India currently account for 47% of the global consumption, and it is expected that the number of cases will increase by 25 million from 2022 to 2023, accounting for more than half of the global increase. Vodka consumption reached 731 million cases in 2021, which is the highest consumption of spirits in the world, but it is expected to decline by 4.3 by 2022. The main reason for the decline is that the consumption of spirits in CIS countries has decreased, among which door-grade vodka is the most affected. On the contrary, high-end vodka is expected to grow strongly in the international market. This Whisky and Whisky in Scotland will grow by 3.9 and 10.4 respectively from 2020 to 2021. The export volume of Cognac reached a record high in 2021. According to the research report of VINEXPO/IWSR, the consumption of Cognac/Armagnac is expected to continue to increase in the next five years, from 12 million boxes to 13 million boxes.

The consumption of tequila will continue to grow in the next few years, mainly driven by the growth of consumption in the American continent; Margaret cocktails made of tequila are becoming more and more popular locally. The United States will become an important growth market for international spirits such as Bourbon Whisky, Cognac and Tequila.

In particular, the top four spirits in the international market share are all China brands. With its unique manufacturing technology and taste, white liquor has a long history and a wide range of customers in China, and has formed a unique wine culture in China, which is irreplaceable. Although Whisky, vodka and other spirits are gradually recognized by people in the market, their status still cannot be compared with that of white liquor.

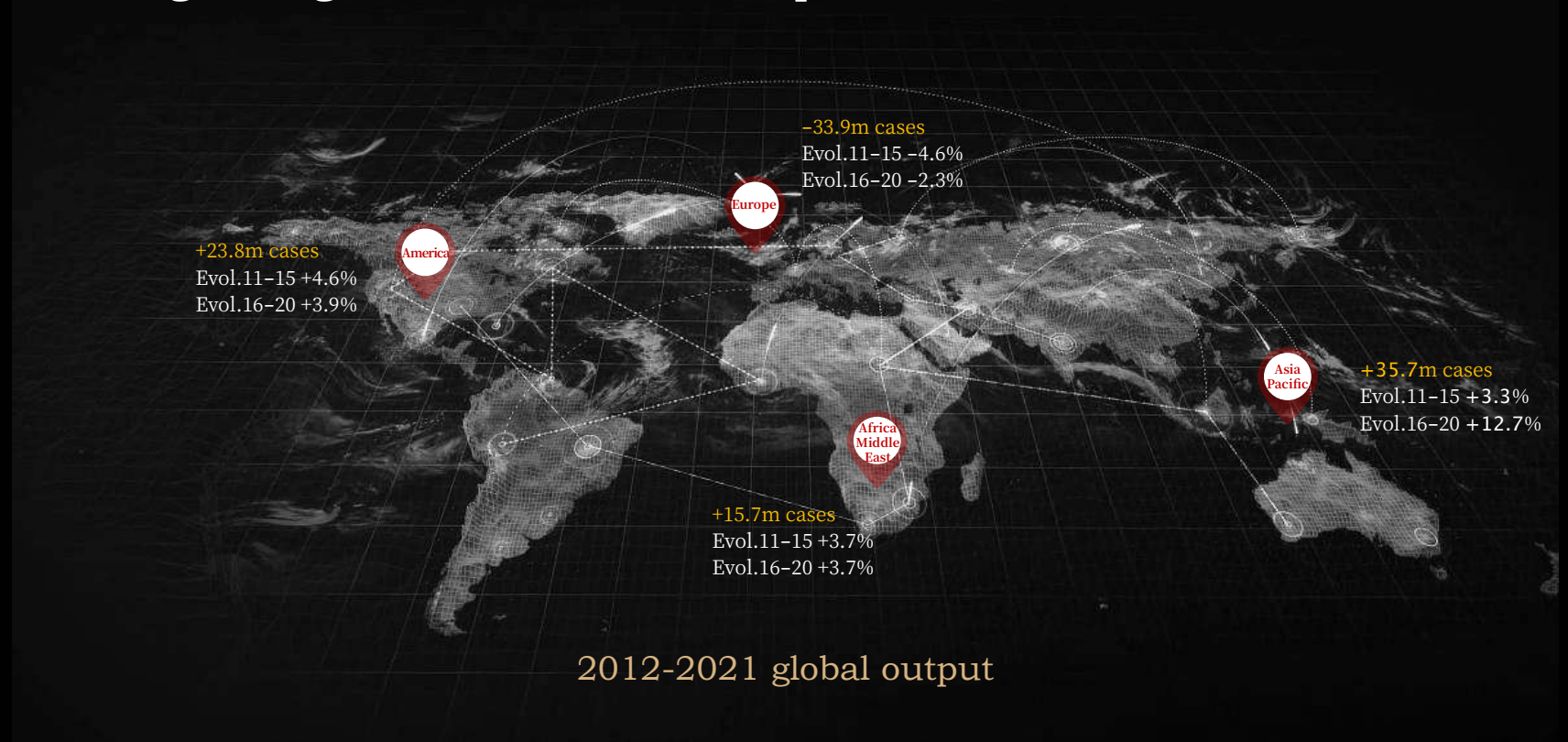
## 1.2 Red Wine Market

According to the preliminary estimate of the international organization of grape and wine (OIV), due to frequent bad weather, the global output in 2020 will be 8.2% lower than last year, about 24.67 billion liters, the



lowest point in fifty years. To be precise, there hasn't been a lower number since the 1960s. The only close figures are 25.16 billion liters in 1991 and 24.94 billion liters in 1994.

Although the wine industry has been impacted by many factors, such as climate, financial crisis in Europe and America, the development trend of wine industry in the world is still improving, the grape planting area has gradually stabilized, the output of high-quality wine has slowly increased, and the consumption of wine has steadily and continuously increased. Wine consumption and production gradually transform to high quality and high end; Wine production and consumption in emerging economies are growing strongly, which has an obvious pulling effect on world wine sales; Asia will become the fastest growing area of wine consumption.



Red wine Market, North America and Asia will be the main markets of red wine in the future, and the policies of Asia and North America are promoting the import of red wine. In recent two years, China has successively reduced the import tariffs of red wine in Australia and other places, so its future development can be expected. In terms of red wine consumption, more than 60% red wines are still consumed in Europe every year. At the national level, the United States is the world's largest wine market, Italy maintains its position as the world's largest wine producer, and China's grape production ranks first in the world.

On the whole, the world's red wine market is in a downturn. The output has dropped sharply in South America, France and Italy, which are greatly affected by the weather. Eastern Europe has sprung up suddenly, and Romania is expected to achieve a leap-forward growth in the output of red wine. At the same time, cocktail parties in minority countries are attracting more and more attention, such as Malvazija wine and Teran wine in Croatia, and Bikaver Blends and Furmint in Hungary. Due to Australian tariffs, shipping and other reasons, it will play an increasingly important role in the market. The year 2022 will be a year when the world's red wine seeks for change in the overall decline.

### 1.3 Beer Industry

According to the statistics of 171 countries and regions by Japan Kirin Company, the world beer production has decreased for two consecutive years in 2018 and 2019. In 2018, the world beer production was 190.71 billion liters, a slight decrease of 0.7 %from the previous year's 192.05 billion liters; In 2019, the world beer production decreased by 1.1% again to 188.64 billion liters below 190 billion liters. Except Africa, beer production in other parts of the world is decreasing without exception.

Region	2018	2019	2020	Growth rate 2018	Growth rate 2019	Market share in 2020
亚洲	646.6	638.1	625.3	-1.30%	-2.01%	37.0%
欧洲	520.2	517.1	510.0	-0.60%	-1.36%	26.0%
南美洲	321.6	314.1	306.0	-2.33%	-2.57%	13.5%
北美洲	245.0	241.8	236.7	-1.29%	-2.13%	17.0%
非洲	139.8	141.9	143.3	1.57%	0.92%	-
大洋洲	21.1	20.4	19.4	-3.40%	-4.67%	-
中东	13.0	12.9	12.7	-0.11%	-1.71%	-
世界合计	1907.1	1886.4	1853.4	-1.09%	-1.75%	100 %

Changes of Beer Production in Major Regions of the World from 2018 to 2020 (Unit: 100 million liters,%)

Regionally, Asia, Europe and South America are the main beer producing areas in the world, while the main consumption markets are concentrated in Asia, Europe and North America.

Looking ahead, it is expected that the beer market will recover again as North America gradually emerges from the financial crisis. However, in the future, the beer competition in North America will be more detailed, that is, premium beer will gain more markets, while the popularity of draft beer will continue to decline. The most competitive regions in the global beer industry will still be concentrated in Asia, especially in China. With the penetration of international beer giants, the competition in Latin America and Africa will gradually intensify. While the market scale continues to grow, the profit margin will be compressed.

From the perspective of beer producing countries, China, the United States, Brazil, Germany and Mexico are the TOP5 countries in the world in beer production, accounting for 51% of the world's total, with the top 10 countries accounting for 65%. Among them, China beer has been the country with the largest beer output for 15 consecutive years. Behind the 15th consecutive championship is the Spring Festival, when the Top 3 of the beer industry completed the first collective price increase in 10 years.

From another set of data, as shown in Table 2, from January to December 2019, the cumulative output of China beer industry was 44.015 million kiloliters, down 0.7% year-on-year. From January to November, 2020, China imported 663,446 kiloliters of beer, an increase of 10.9% over the same period of last year. The amount of sale was 4,668.74 million yuan, a year-on-year increase of 14.9%. According to a study by Statista, in 2020, the per capita beer consumption in Czech Republic was 137.38 liters, far exceeding that in Poland, the second place, of 98.06 liters, while that in China was 35.77 liters.

	Total volume (ten thousand liters)	Year-on-year increase	Import volume (hundred million yuan)	Year-on-year increase
Total beer output of China	4401.5	-0.7%	-	-
Imported beer (January-November)	66.3446	10.9%	46. 6874	4.56%

Table 2 Annual Report of China Beer in 2017



We can conclude from the data that although China's beer industry is quiet good, its per capita alcohol consumption is only at the average level. The per capita consumption in Russia is 15.1 liters, quite a high number. The per capita consumption in Eastern Europe is above 10 liters, and Eastern Europeans consume most of the beer in Europe. Similar to the situation in Eastern Europe, Canada, with a per capita level of more than 10 liters, is still a major market for beer consumption in the world.

To sum up, looking at the whole global wine industry market, whether it's beer which occupies half of the country, red wine which has stagnated in development, or spirits with cultural characteristics, it has gone through a lot in recent years. However, with the improvement of the economic situation, the wine industry may usher in a new round of outbreak after. However, before that, we still have to face the current problems in the wine industry. It can be said that the dormant period of nearly five years has made the problems of the wine industry better exposed to the public, which also gives the wine industry the opportunity to upgrade and reform. Facing the trillion-dollar consumer market and the wave of new technology, how to better solve the current pain points of the industry is the key to whether it can move to the top of the wave in the future.



## 02 Pain Points of The Global Wine Industry

Through the above analysis of the wine industry market, we can conclude that many problems must be solved if the global wine industry wants to develop better. The main problems of the current wine market are as follows.

### 2.1 Cumbersome Trade Links Hinders The Development of The Wine Industry

Whether it's spirits, red wine or beer, their productions are all over the world. Because of the differences in climate, varieties, technology and other factors, the taste of the same wine will be different. Consumers who want to drink different flavors of wine can only rely on import or other channels with no other way.

Imported wine has gradually occupied the Chinese market, especially the red wine industry. Red wine has always been regarded as an imported product by consumers in China. Consumers will naturally think that imported wine reflects the original taste of red wine more, so imported red wine is easily accepted by consumers in China.

However, because of asymmetric information and cumbersome trade details, the import of wine is a very complicated process. At the same time, the imported wine directly purchased by consumers can only be purchased through distributors, e-commerce platforms, duty-free shops and others. It is difficult to guarantee the authenticity of wine through these ways, and it is difficult to handle after-sales service. With so many currencies, the exchange rate is always fluctuating, as the average person can't hold the currencies of various countries at any time, it is too difficult to calculate the exchange rate at any time. Last May, the exchange rate of the euro was close to 1euro: 8 yuan, which caused great concern for the price increase of red wine. Apart from that, the freight rate restricts the trade link. The European shipping giant Ocean Rig filed for bankruptcy protection in the United States, and the shipping form of wine became more severe. Affected by this, many shipping companies planned to raise prices.

All in all, all kinds of factors in the trade link restrict the circulation of wine products all over the world and hinder the development of the global wine industry.

## 2.2 Difficulty in Tracing The Source of Information and Distinguish The Authenticity

The difficulty in distinguishing the authenticity of alcoholic products has been puzzling consumers all over the world. Events around the world in 2017: A wine merchant in Bordeaux filled 420 kiloliters of languedoc original wine, and then labeled it as Bordeaux fine wine for sale. Many big merchants were cheated; Shanghai Hongkou District Public Security Bureau cracked a big case of producing and selling the counterfeit brand red wine across Shanghai and Fujian, and seized more than 14,000 bottles of counterfeit "Benfu"; Guangdong Heyuan fake wine caused 4 people sick and stay in ICU, and 22 people were poisoned. Two Whisky products involved were methanol blending products that were suspected of counterfeiting other people's enterprises and sold to many places; Dalian Public Security Bureau has detected an extraordinarily serious case of producing and selling fake red wine, involving 69 people in 15 provinces, and the amount involved is more than 300 million yuan. It is a very serious public problem to identify the authenticity, because fake wine will not only bring economic losses to consumers, but also health danger. At present, it is difficult for the mass consumers to tell whether the wine is genuine or not from the labels of the liquor products bought on the market. Not only consumers, but also many distributors are not very clear about the status of the wine. The wine's production year, winery information, logistics information and so on are not clear, and they don't know what taste it is suitable for people. This makes it difficult for consumers to buy the wine with confidence. The problem lies in the traceability of information. If consumers can't know the past of a bottle of wine, it's hard to tell whether it's true or not. Healthy drinking is beyond reach.



## 2.3 Price Chaos, Lack of Trust

If it is difficult to trace the source and consumers can't distinguish the authenticity of wine, then the price chaos has completely make the consumer lose their trust. This a group of common phenomena in the market: a wine with an original price of 199 was reduced to a bottle in 20 yuan because of the manufacturer's promotion; The scanned price of a bottle of imported wine is 1399, and the actual selling price is 11.5 yuan. Although there are many varieties of red wine in the world, and the price range is uneven, when the facts are in front of us, we can't help but ask, what is the cost of a bottle of wine, and how can we buy the rest qualified wine?

Price, as the first thing consumers care for, the uneven price chaos has gradually made consumers lose trust in the wine market, and the whole industry is experiencing such a crisis of trust.

## 2.4 Single Function E-commerce Platform Cannot Meet The Deeper Level of Customers' Demand

Most of the current e-commerce platforms are centralized and profit-driven, and most of them are engaged in selling wine. However, with the development of the industry, occupations such as wine lovers, wine collectors, bartenders and tasters are gradually emerging, and the trading of traditional platforms can no longer meet their needs. More people begin to pay attention to the fields of wine storage, collection and secondary trading.

## 2.5 Development Opportunities of Blockchain Application in Wine Industry

Through the above-mentioned pain points and the sorting out of existing solutions, we come to the conclusion that the existing solutions can only partially solve some single problems, but can't do anything about some pain points. What we need is a comprehensive solution from product to industry to culture, a sublimation version of e-commerce, and a reconstruction of the whole wine industry ecosystem.

	Empirical method	QR code	E-commerce platform	Professional courses	Personalized product	Others	Blockchain
Cumbersome trade links	×	×	Partial solution	×	×	×	Perfect solutio
Hard to distinguish between authenticity and falsehood	×	Partial solution	Partial solution	×	×	×	Perfect solutio
Price chaos, lack of trust	×	Partial solution	Partial solution	×	Partial solution	×	Perfect solutio
Limited functions of E-commerce platform	×	×	Partial solution	×	×	×	Perfect solutio

Table 3 The pain points of wine industry and the development of existing solutions

Blockchain have brought us the possibility to solve problems mentioned above.

First of all, blockchain technology has a natural advantage in information traceability. For the wine products on the chain, the platform can record the origin, region, year, transaction and other information of the wine. Every time consumers buy a bottle of wine, they can get all its information through QR code. All information from the factory to the drinking process can be traced, which ensures the openness and transparency of the wine information.

Secondly, the consensus mechanism of blockchain naturally creates a trust platform, which allows all people to gain mutual trust due to the consensus mechanism, thus avoiding the problem that trust in centralized institutions is difficult to establish. At the same time, the asymmetric encryption technology of blockchain can better protect consumers' information and property, not only improve the service level of the platform, but also increase the reputation of the platform.

Compared with e-commerce platform, GTCC platform based on blockchain technology has incomparable advantages in wine trading. GTCC platform can trade wine coins through tokens, and also supports wine trading and wine storage, which not only meets the needs of high-end customers, but also avoids the trading risks caused by cumbersome trade. Therefore, GTCC is not only a trading platform for consumers, but also a collection and social platform for lovers, as an online, open and transparent wine bank.

To sum up, based on the characteristics of decentralization, traceability, distribution, tamper-proof, openness and transparency, "the combination of wine and blockchain" can solve the problems of product information traceability, lack of trust, trading and so on. GTCC's goal is to become a full wine bank integrating wine circulation, trading and warehousing in the world. Token (GTCC), as a general certificate issued by GTCC, can not only reduce the risks brought by transnational trade, but also facilitate the settlement of consumers all over the world, contribute to the global circulation of wine product value information, optimize the industry supply chain system, rebuild the trust system of consumers, and finally become an international and intelligent ecological system of the whole industry.

For these real wine lovers, a decentralized, open and transparent trading platform with community attributes is on the horizon.





## 03 GTCC Wine Industry Solutions

### 3.1 Introduction to GTCC

GTCC International Holding Group, as the pioneer platform of digital wine license, cooperates with Luoyang Shangjiu Group, American Constellation Brands, Sequoia Capital and China Entrepreneur Association, aiming at creating a complete solution for global wine merchants and global users, such as traceability of wine products, authenticity identification, authenticity report, evidence proof, quality evaluation, marketing promotion (DAPP client), wine circle socialization, supply chain logistics information service, O2O application, etc.

By using the technical characteristics of blockchain technology, such as decentralization, high encryption, intelligent contract and consensus algorithm, etc., product digitalization is realized, which further provides technical empowerment and credit enhancement for wine fidelity, so that "GTCC Digital Wine Certificate" can't be forged, copied or tampered with in its life cycle, and every participant in the wine industry will become a witness of GTCC.

### GTCC multidimensional value

#### Industrial value

Investment and merger of various wine industries, wine channels and wine platforms.

#### Social value

Public welfare brand to public welfare fund

#### Public welfare value

Capitalization of industry, combined with global sustainability of public welfare in China

#### Channel value

Holographic circulation (inner circulation, outer circulation, body circulation, self-circulation, holographic circulation)

#### Financial value

Supply chain finance, multi-level funds, financial derivatives +N

#### Capital value

Global listed companies on the main board of securities in China, Hong Kong, America, Europe, New Zealand, etc..

## 3.2 Digital Wine License

GTCC uses blockchain technology to anchor the "digital liquor license" with the physical liquor served in Luoyang, and each liquor license is encrypted and anchored one by one with the exclusive intelligent identification code of each bottle of physical liquor, thus realizing the security and fidelity of the whole process of "every liquor with its own license". "GTCC Digital Wine Certificate" is a blockchain encrypted electronic delivery certificate anchored by GTCC and the physical wine of Luoyang Shangjiu Wine Industry. Digital wine license users can enjoy multiple services online provided by "Shangjiu Wine Industry", such as factory direct supply, warehousing, direct delivery to home, product arrival code scanning verification, professional warehousing, one-click pledge, online gift and convenient transfer. Thus, it ensures full closed-loop fidelity combined with insurance, and easily manages digital liquor license assets.

### Asset information chaining

"Digital Wine Certificate" is anchored one by one with the physical wine served, which realizes the digitalization of physical assets and all the digital asset information is chained.

### Ownership chain

"Digital Wine License" can realize one-click convey, transfer and pledge through serving wine in Luoyang, and all changes of ownership chain in all links.

### Full-process logistics chain

After the user chooses to pick up the goods online or transfer them to a gift, the goods will be delivered directly from the original intelligent warehouse of Shanghai Liquor Factory, and the logistics information will be chained in the whole process.

## 3.3 Wine Certificate NFT

The digital wine license NFT is an essential tool for us to start commercial activities in the Metaverse. Pictures, sounds, videos, avatars, props, buildings, etc. in the universe can all be turned into digital wine license NFT, and become commodities like those labeled with bar codes: after obtaining the attributes of commodities or assets, they can be priced and enter the circulation market. The digital wine license NFT is an important link in the metaverse to form a closed business loop, and it is also an important element of the metaverse, a possible future virtual economy.

With its scarcity, inseparability and irreplaceable characteristics based on blockchain technology, digital wine license NFT provides a brand-new ecological transaction mode for digital encryption industry, and has a profound impact on the confirmation of digital assets in many industries. In the last two years, many people have taken advantage of the times and gained a lot of profits in related transactions.

GTCCNFT liquor license provides a strong technical guarantee for the construction of digital liquor trading platform through blockchain technology. With the blessing of digital liquor license NFT, the collected liquor has its own digital identity certificate, which greatly improves its collection value. The wine chain platform will also provide white liquor consumers and white liquor asset allocators with one-stop white liquor collection and circulation services, such as blockchain fidelity, original factory storage, digital warehousing, and circulation of wine certificates, which will make consumers feel at ease and comfortable, successfully build a digital service ecology of white liquor asset allocation, and solve many industry problems in white liquor collection.

After the digital wine license has been approved, NFT will be made and the license is stored on chain, matching the unique number and encrypted number; NFT transaction will produce the hash value that can't be tampered with, so as to confirm the right. Buyers need to use the hash value to make transactions with banks to confirm the right; When trading, digital wine license products need to be identified; Once the digital liquor license leaves the bank and then returns to the bank, it needs to be re-appraised. Multi-products of the same origin, each digital wine license product has a unique number and encrypted number, and is wound up and stored.





### 3.4 GTCC Capital Strategy

GTCC is helping unicorn enterprises with great development potential to realize the global economic integration and accelerate the capital market. GTCC will adopt industrial mergers and acquisitions, integration, supply chain finance and other ways to help accelerate the capital process of the wine industry, so that enterprises can maximize their brand empowerment with the help of capital, realize the rapid growth and sustainable development of the company, and help enterprises thrive.

At present, GTCC has listed company cluster, securities company cluster, PE management cluster, ESOP incentive cluster, pattern design cluster and scheme design cluster, which will integrate all kinds of superior resources, promote resource complementation and investment cooperation globally; promote project docking and capital cooperation with the government, chambers of commerce, society and enterprises; provide valuable information for listed companies and quasi-listed companies from all directions and angles, and empower them with capital. At the same time, GTCC will focus on solving the problems of small and medium-sized enterprises' difficulty in listing, financing, sales, investment, channels and talents, realize the combination of listing with tea, listing with wine and other industries, and promote more enterprises to enter the fast lane of listing.

### The Basic Mode of GTCC Capital Operation

#### Horizontal M&A

In order to expand the production and sales of its own products, enterprises acquire similar business targets.

01. Eliminate competitors and expand market share through mergers and acquisitions.

02. Give full play to the synergistic effect of management, save common expenses and realize low-cost expansion. Quickly expand the scale of production and operation, and generate economies of scale.

Vertical M&A (whole industry chain M&A)	<p>Merger and acquisition of upstream and downstream targets with cooperative relationship and closely related production and operation.</p> <p>01.Make the production, circulation and other environmental books closely cooperate, complement each other's advantages, shorten the production cycle, reduce procurement costs, reduce circulation costs and improve economic benefits.</p> <p>02.Through the control of upstream raw materials and sales channels, industrial chain competition will be formed, the activities of competitors will be controlled, and the competitiveness will be improved.</p>
Mixed M&A (diversified M&A)	<p>Enterprises merge the targets belonging to different industrial fields to realize diversified operation.</p> <p>01.Expand the business scope and seek the profits of industries other than the main business.</p> <p>02.Diversified investment in various fields can disperse industry risks and enhance the adaptability of enterprises.</p>



## 04 Technical Details of GTCC

### 4.1 Blockchain Technology

In recent years, blockchain technology has been gradually applied in internet field, and it has showed an outstanding application effect in financial internet field in particular. Meanwhile, South Africa First Rand Bank released a report The Advent of Crypto Banking. According to central banks in the world and their research progress in blockchain technology, this report indicated that blockchain technology would create a new era of monetary policy. Bank of Korea applied blockchain technology in settlement system and offered a specific implementation plan. Janet Yellen, the Chairman of the Federal Reserve believed that blockchain technology had a potential influence on global financial system and it was “an important technology”. The development and promising application prospect of blockchain technology has attracted extensive attention and high awareness throughout the world.

The concept of blockchain was first proposed by Satoshi Nakamoto when talking about Bitcoin system. Blockchain is a data structure formed in a way similar to chain table with data blocks in chronological order, and its unforgeable and tamper-proof distributed decentralized account book is guaranteed with cryptography technology. The data stored in blockchain has a precedence relationship and can be verified in system. Every node in blockchain is equal in status, has the same rights and obligations, negotiate, manage and supervise the overall operation of blockchain together, and maintain the public account book together.

Blockchain technology has core advantages of decentration and being able to use the measures of data encryption, timestamp, distributed consensus, synergistic incentive, etc. In the distributed system which doesn't need mutual trust on every node, decentralized point-to-point transaction, negotiation and cooperation can be realized, thus overcoming the problems in centralized system, for example, high cost, low efficiency, unsafe data storage, etc.



## 4.2 Application of Blockchain in GTCC

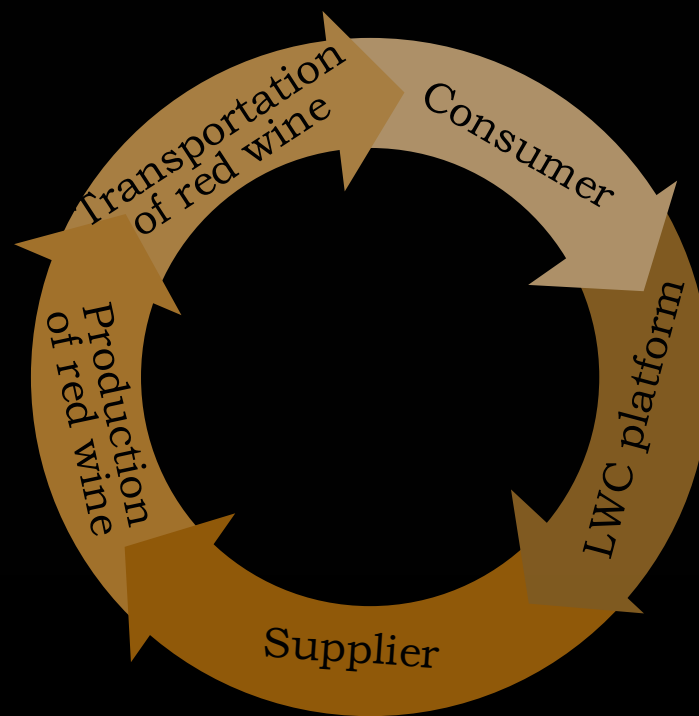
The characteristics of blockchain technology are similar to the demands of GTCC to some extent. See Table 4 as follows:

Characteristic	Blockchain technology	GTCC
Decentration	Nodes have the same rights and obligations	Distributed decision making of every subject
Traceability	Block data can be traced	The data of every subject is traceable, fair and transparent
Marketization	No need of third-party trust mechanism	No need of middleman
Smart contract	Perform the contract automatically	Automated trading

Table 4. Correlation between blockchain and GTCC

- 01 There is no centralized database in blockchain system. Every node keeps all information of blockchain. Every node has the same rights and obligations; GTCC requires “consumers to directly connect to the supplier”, emphasizes fair trading between individuals, and reduces the trading cost.
- 02 Blockchain takes hash of block head as the unique identification of the block, thus realizing the traceability of block data; GTCC emphasizes that the information of every bottle of wine is traceable, fair and transparent for consumers to search and buy.
- 03 Blockchain technology doesn’t need third-party trust mechanism. Blockchain technology can build a fair and open market mechanism and can better serve the trading of other financial products; GTCC requires to build an open wine trading market without middleman, and it will also facilitate the forming of relevant financial derivatives.
- 04 Blockchain system realizes automated and smart performance of contract through smart contract or “programmable currency”; GTCC has a large number of smart delivery, transportation, trading and storage parts and needs a series of smart contract to ensure the automated performance of GTCC tradings, etc.

In the application model of blockchain in GTCC, consumers directly contact the supplier to carry out wine trading activities without middleman as the trading medium. Consumers can place an order by themselves. GTCC distributes the wine orders and delivers wine to consumers after wine production and transportation. Smart contract can guarantee the automated execution of tradings. All information of wine is traceable, and tradings are fair and transparent.

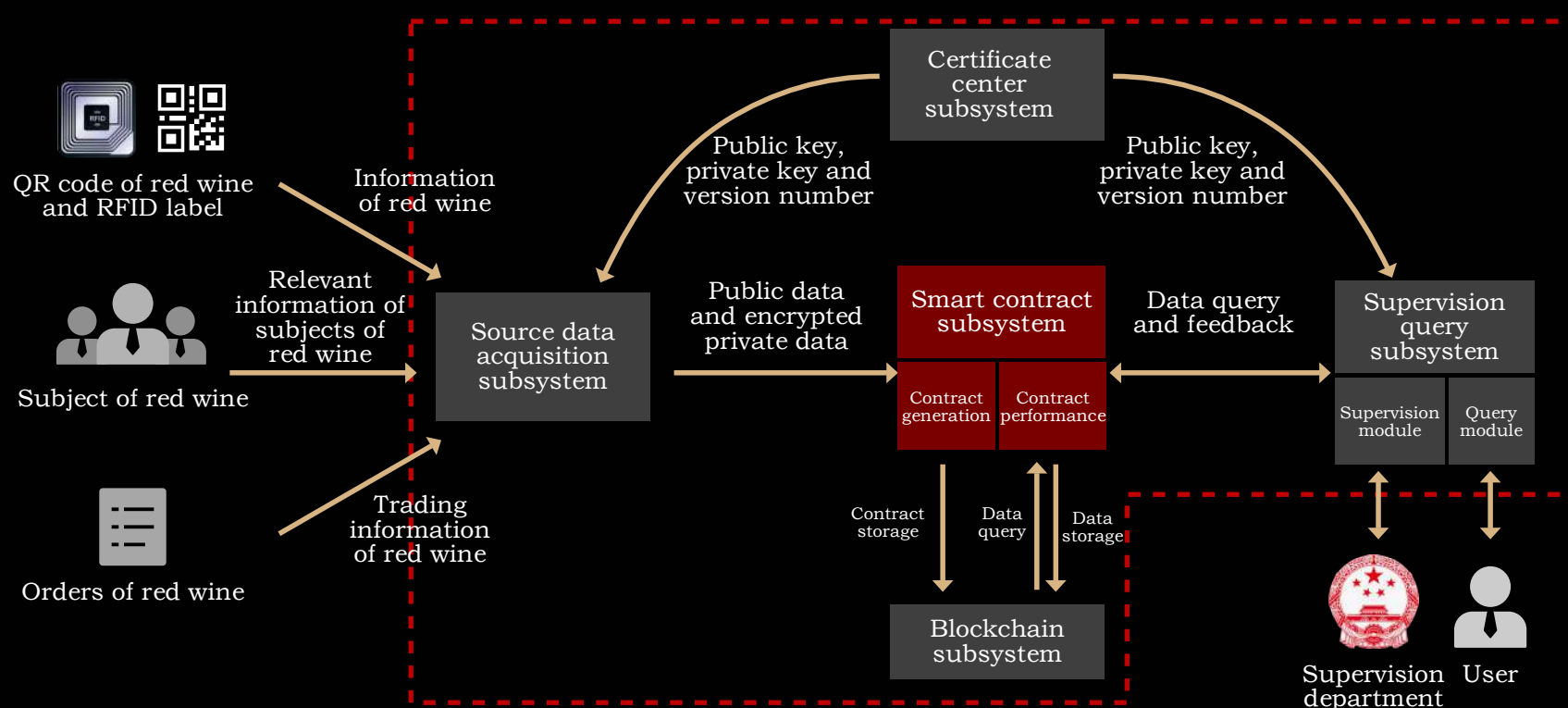


Application model of blockchain in GTCC



### 4.3 Overall framework of GTCC platform

GTCC platform mainly includes source data acquisition subsystem, smart contract subsystem, blockchain subsystem, certificate center subsystem and supervision query subsystem. The specific framework can be seen in following figure.



Overall framework of GTCC platform

#### 4.3.1 Introduction to submodule functions of GTCC platform

Source data acquisition subsystem collects and uploads the information of wine products, wine subjects and wine trading. Information of wine products is obtained automatically by scanning wine QR code or RFID label, mainly including wine number, wine name, wine origin, production time, raw materials, etc; information of wine subjects is provided by relevant wine subjects (mainly including wine supplier, wine producer, wine transporter, etc.), mainly including the subjects' company name, company address, legal representative, source of wine production raw materials, start and end time of wine transportation, etc; information of wine trading is obtained through the orders between wine consumers and wine suppliers, mainly including wine trading number, wine trading price, buyer's personal information (mainly including name, contact, address, etc.), seller's information, etc. Information of wine products is public data; a part of information of wine subjects is public data (e.g. the subjects' company name and company address), and a part of them is private data (legal representative, source of wine production raw materials, start



and end time of wine transportation); information of wine trading is private data. Public data doesn't need to be encrypted, while private data should be encrypted through the public key of certificate center subsystem. The processed data is uploaded onto blockchain subsystem for storage through the interface provided by smart contract subsystem.

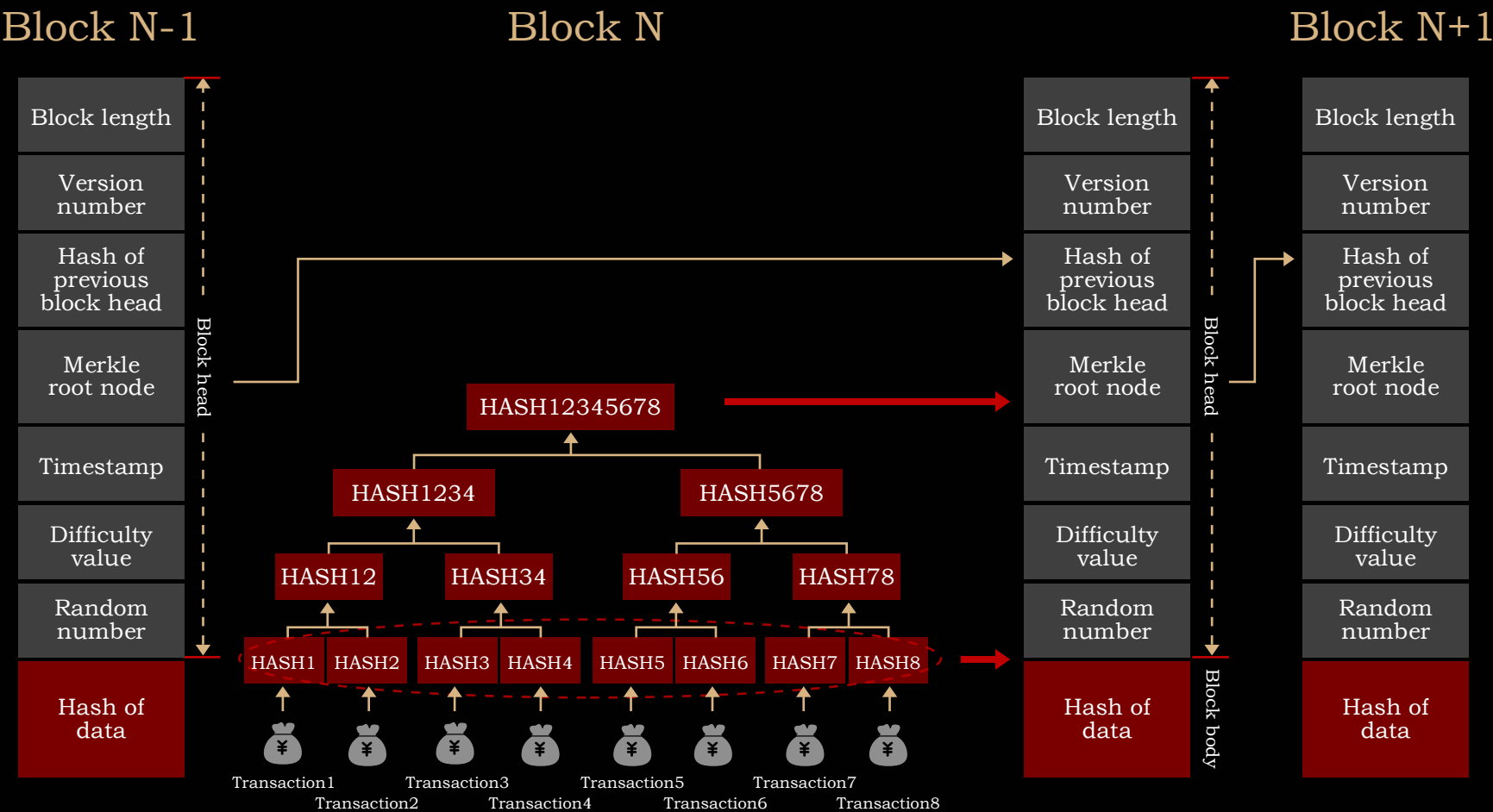
Smart contract subsystem provides interactive interface for submodules, including two modules of contract generation and contract performance. Contract generation module submits smart contract to blockchain subsystem for storage; contract performance module performs contract and realizes the function of storing and searching data in blockchain subsystem. Smart contract subsystem uses smart contract based on blockchain technology. Contract code, performance process and performance result are all open and transparent to system subjects, and the results are tamper proof, which improves the credibility of system and is good for supervision and traceability management.

Certificate center subsystem generates public key, private key and version number and respectively sends and pushes them to source data acquisition subsystem and supervision query subsystem. In order to prevent cracking of secret key, the key can be updated dynamically, for example, set the timer to update the key regularly. This version number is used for key version after identification update.

Supervision query subsystem includes supervision module for supervision department and query module for normal users. Supervision query subsystem sends a request of wine data query through the interface provided by smart contract subsystem and receives the wine data fed back by smart contract subsystem. Query module for normal users only supports query of public data related to wine, while supervision module for supervision department supports query of both public data and private data related to wine, therefore, on one hand, it can improve the privacy of data, on the other hand, it can enhance the supervision of supervision department for wine.

When supervision department queries private data, the encrypted private data stored in blockchain subsystem is fed back to supervision department through smart contract subsystem, and supervision department should decrypt the private data using private key provided by certificate center subsystem before checking the data, greatly improving the security of data. Besides, because blockchain subsystem is designed based on blockchain technology, according to characteristics of blockchain, the data on every node of blockchain are identical and tamper proof, which guarantees the reliability of query results and is convenient for tracking the wine.

Blockchain subsystem is the core part of GTCC platform. It mainly realizes two functions: storage of wine-related data according to smart contract, query and feedback of wine-related data according to smart contract. Blockchain subsystem is realized based on blockchain technology. Blockchain is chain data block structure taking block as unit. It will generate new blocks at fixed intervals. Every block in blockchain records all data generated within creation period. By using this feature, blockchain subsystem permanently stores smart contract and wine-related data in blockchain. The structure of blockchain is as follows:



Structure of blockchain

Blockchain is actually a string of linked data blocks, and its link pointer is block head hash generated by processing block head with cryptography hash algorithm. Every block includes block head and block body. Block head contains information of the whole block and indicates the location of block in blockchain, while block body contains information of the whole transaction and stores the hash of all transactions. Block head mainly includes block length, current version number, hash of previous block head, Merkle root node, timestamp, difficulty value and random number. Merkle root node is obtained by recursive computation for transaction hash with Merkle tree. HASH 1 is obtained by computing SHA-256 hash for transaction 1, HASH 2 is obtained by computing SHA-256 hash for transaction 2, and so on. In recursive computation, a new hash can be obtained by connecting two hash values together. In the first recursion, HASH12 is obtained by computing SHA-256 hash for HASH1 and HASH2, HASH34 is obtained by computing SHA-256 hash for HASH3 and HASH4, and so on. In the second recursion, HASH1234 is obtained by computing SHA-256 hash for HASH12 and HASH34, then recursive computation is carried out circularly until there is only one value - Merkle root node. Merkle tree has good extensibility. Merkle tree and fixed-length Merkle root will be generated finally no matter how many trading records there are. Besides, the timestamp in block head records the write time of current block data and ensures the traceability of every trading data, which is convenient for supervision and query.

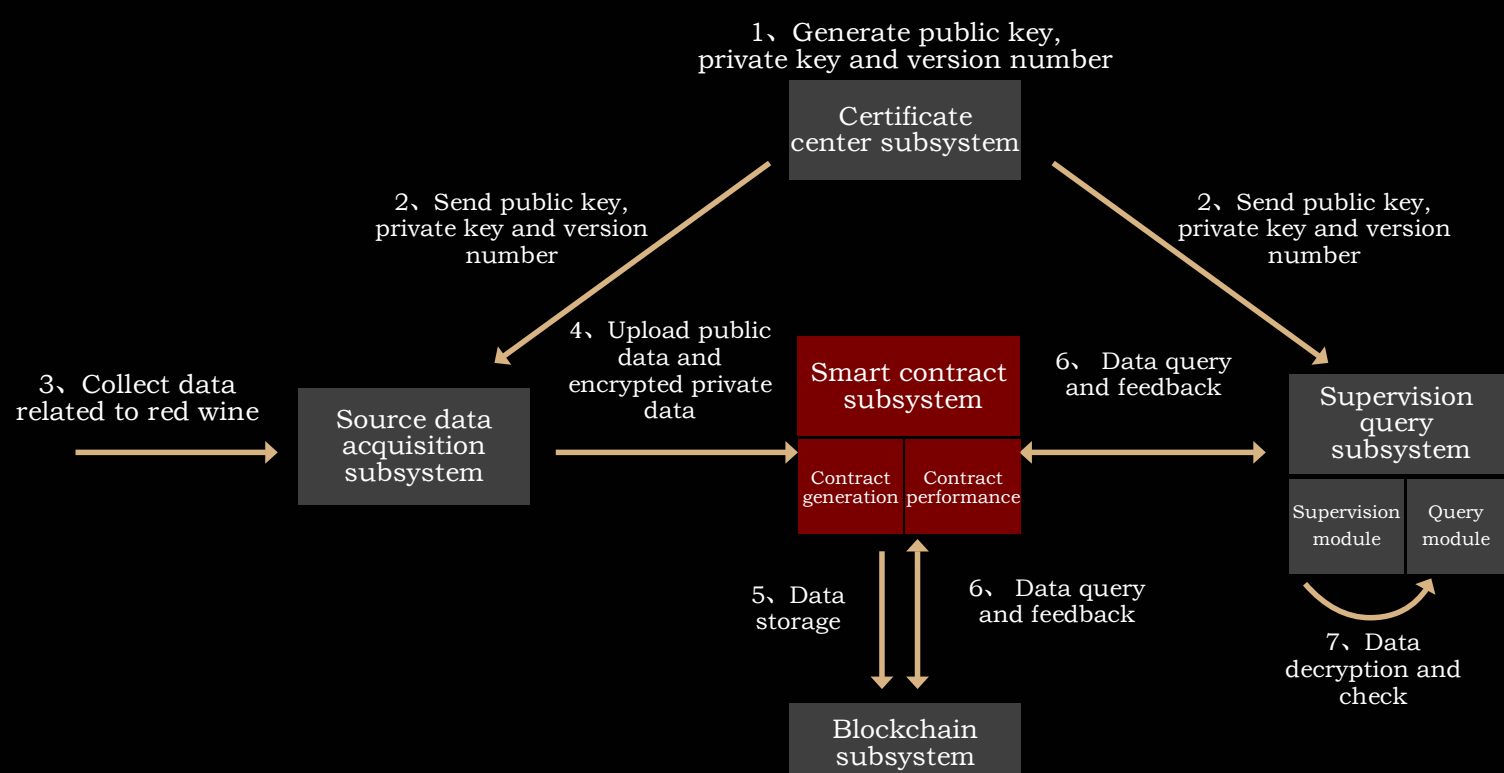
#### 4.3.2 Data stream on GTCC platform

Wine data stream diagram is based on GTCC platform. The entire data stream includes the following several steps:

- 1** Certificate center subsystem generates public key, private key and version number;
- 2** Certificate center subsystem sends and pushes the public key, private key and version number generated to source data acquisition subsystem and supervision query subsystem respectively;



- 3 Source data acquisition subsystem collects wine-related data which mainly includes information of wine products, information of wine subjects and information of wine trading. These data can be classified into public data and private data according to data type;
- 4 Source data acquisition subsystem encrypts the private data using the secret key obtained from certificate center subsystem and sends the public data and encrypted private data to smart contract subsystem;
- 5 Smart contract subsystem stores the wine-related data obtained from source data acquisition subsystem in blockchain subsystem;
- 6 To query wine-related data, supervision query subsystem sends the query quest to blockchain subsystem through the interface provided by smart contract subsystem. Blockchain subsystem obtains corresponding data according to query quest and smart contract and feeds the wine-related data obtained by query back to supervision query subsystem through smart contract subsystem;
- 7 If the data queried is private data, after obtaining the private data queried, supervision query subsystem decrypts the private data using the secret key obtained from certificate center subsystem before checking the data.



Wine data stream diagram based on GTTC platform

## 4.4 Key Technologies of GTCC

GTCC is a platform based on blockchain technology. In combination with the characteristics of red wine trading and relevant technologies of blockchain, this section mainly introduces four key technologies of GTCC platform: cooperative process management mechanism, multi-center dynamic consensus mechanism, incentive mechanism based on value magnitude, and multi-party key agreement mechanism.

### 4.4.1 Introduction to Technologies

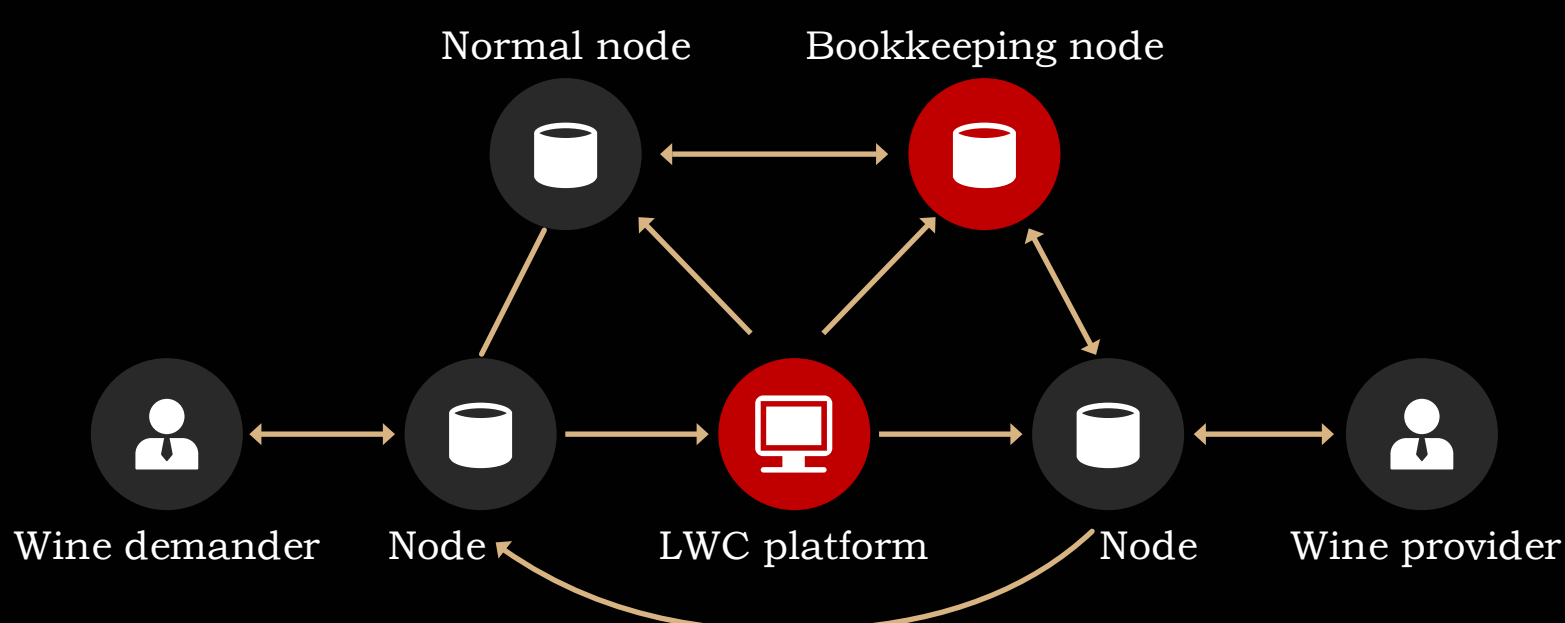
#### **1** Cooperative process management mechanism

On GTCC platform, user terminal will initiate different types of request according to actual needs, such as query, user identity authentication, wine trading, bookkeeping, etc. If different types of request are processed with same type of node, it will surely reduce the processing efficiency, increase the response delay of user request, and reduce users' satisfaction. In order to effectively solve this problem, the requests can be distributed to different nodes for processing according to the type of request. Cooperative process management mechanism effectively processes users' requests just based on such a principle.

For the requests initiated by user terminal on blockchain network, cooperative process management mechanism identifies the types of request and distributes different types of request to different channels, so that different nodes can respond to and execute the requests.

During wine trading, the system will be much safer if all nodes participate in consensus process, however, if all nodes participate in consensus process, some nodes with weak processing ability will reduce the efficiency of the whole system and system performance will decrease consequently. In order to balance the security and performance of system, the nodes can be classified, e.g. normal nodes and special nodes. Normal nodes are responsible for normal operation, while special nodes are responsible for trading, bookkeeping and other operations that require higher.

After wine trading is finished, the bookkeeping nodes will generate new blocks to record trading data and notify other nodes of the information of new blocks generated on the radio. Other nodes verify the information received and then store them in local account book. Using cooperative management mechanism and choosing high-performance nodes as bookkeeping nodes to specially process the bookkeeping operations that require higher for both performance and efficiency will greatly improve the efficiency of the whole system.



Application of cooperative management mechanism in bookkeeping operation

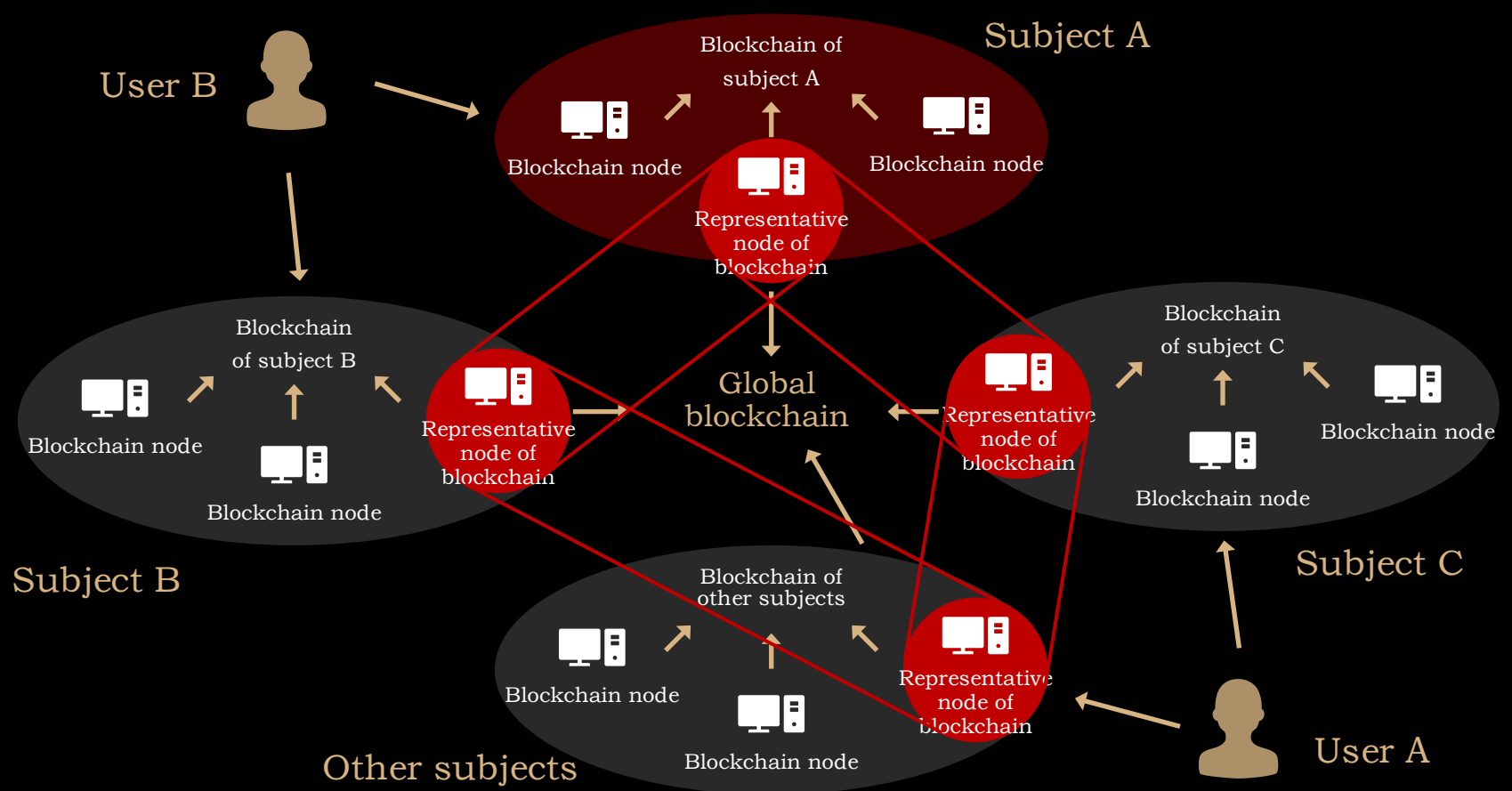
## 2 Multi-center dynamic consensus mechanism

On GTCC platform, wine trading is a complicated process which consists of many parts. The whole process includes a lot of wine-related subjects (e.g. consumer, wine supplier, wine producer, wine transporter, etc.). Different parts involve different subjects. So in order to ensure that all subjects are informed of current state of wine timely and accurately, it is necessary to ensure that wine shows the same state in all subjects. Multi-center dynamic consensus mechanism can effectively solve this problem.

Multi-center dynamic consensus mechanism supports setting of time interval. The time can be divided according to time interval, and each time interval is called a round. The global blockchain is divided into different subjects. Every subject governs the blockchain in its scope and maintains the global blockchain together.



All information of wine trading is stored in global blockchain. In each subject, every node will generate a representative node based on random voting rules in each round. The representative node communicates with other subjects on behalf of its subject. Meanwhile, based on random voting rules, the subjects' dynamic verification set can be elected from blockchain node of other subjects, and the consistency of wine state can be guaranteed through dynamic verification set. The specific realization process is as follows: the representative node of each subject broadcasts the block head data of the subject's blockchain to the subject's verification group. The subject's verification group verifies if the wine state satisfies global consistency and chooses the subject's blockchain node that satisfies global consistency to build global blockchain.



State of multi-center dynamic consensus mechanism

### 3 Incentive mechanism based on value magnitude

GTCC blockchain system includes bookkeeping nodes and normal nodes with different functions. Bookkeeping nodes reach a consensus and generate new blocks according to the results corresponding to user requests, while normal nodes send requests to bookkeeping nodes to query users' trading information, but they don't generate new blocks.

In actual wine trading, the value generated in wine trading can be measured according to the profits generated by the wine supplier in wine trading. After wine trading is finished, wine supplier and wine consumers can be rewarded according to the value generated in wine trading. In order to ensure the stability of currency release in a certain period, it is necessary to set the reward coefficient and dynamically adjust the rewards.

In combination with the functions of nodes in GTCC blockchain and general rules of reward release in wine trading, the incentive mechanism based on value magnitude is proposed.



## 05 GTCC Issue Plan

### 5.1 GTCC Token Issue

As a global capital group, the platform tokens of GTCC have functions of exchange for stock right, mining machine, free trading, chain game register, material object purchase, etc. Total issue volume of GTCC: 100 million tokens. 98 million tokens are locked. Circulation: 2 million tokens.

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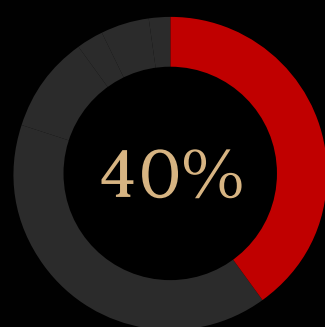
#### Output model

①No presale. Cash is 1.2 times the on-chain output.

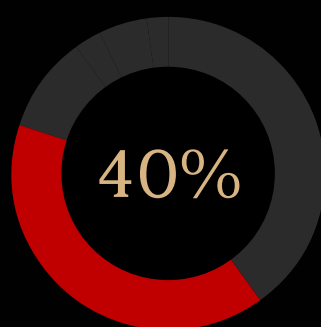
②Output standard: output corresponds to hashrate. 5 tokens will be produced by consuming 10 thousand, 100 tokens will be produced by consuming 200 thousand, and 500 tokens will be produced by consuming 1 million (cap)

See the new performance on that day. Output is the same as the overall performance.

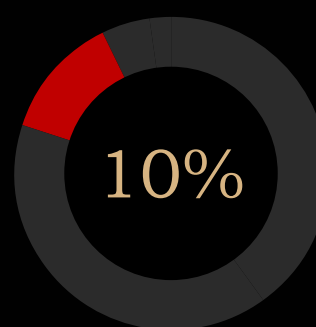
#### Output proportion



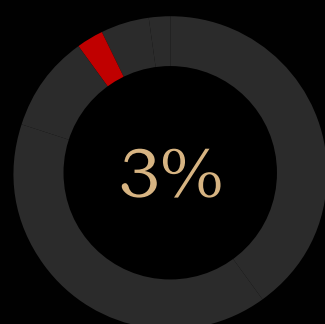
Mutual hashrate  
exchange:40%



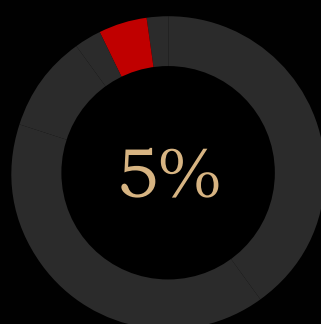
Rewards  
recommended:40%



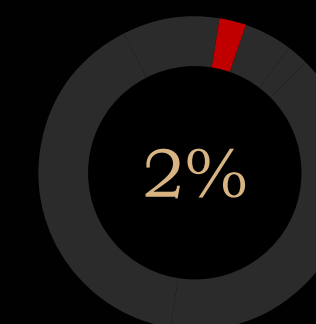
Game activity: 10%



Major node: 3%



Minor node: 5%



Quiz reward pool: 2%



## 5.2 Application of GTCC Token

### Exchange for stock right 01

Shangjiu can enter traditional capital market to finance for listing by exchanging GTCC tokens into stock rights. While users can obtain product and service and the tokens dynamically bound to enterprise' s value of stock right.

### Free trading 02

GTCC tokens can be freely transferred between blockchains without exchanging in decentralized exchange (DEX).

### Chain game register 03

GTCC tokens can be used to pay the resource consumption in community, exchange for platform functions, consume and realize digital resource circulation, and pay the consumption of trans-chain ecology and resource exchange.

### Material object purchase 04

GTCC tokens can be used to purchase some material products of Shangjiu.

### Exchange for mining machine 05

Users holding GTCC can obtain exclusive discount package of GTCC mining, exchange for BTC cloud mining machine and experience the mining machine for free, etc. There will be more and more Bitcoins during mining, and the recovery period is also short.

Mining of Bitcoins. Ethereum IPFS/FIL

Mine with joint mining machine. The mining machine is permanent.

Monitor your own token profits at any time. Mine and withdraw freely at any time.

## 06 Team and Future Plan

### 6.1 Project Team

#### Prida Ivan Andreevich

Project Cosponsor  
and CEO

Network reconstruction project in Moldova. Manager of Microsoft certified system project, French Laco-Alfatec and Promotec company. Deputy Head of Moldova Ministry of Agriculture and Food Industry. As the project leader, Prida leaded the team to work with Microsoft to participate in AD framework upgrade and building of remote control system, cooperated with IBM for network reconstruction, etc. Microsoft certified network assistant (CCNA).

#### Gheorghe Nicolaescu

Project Cosponsor, Project  
Leader and Financial Director

Master's degree of Massachusetts Institute of Technology. Doctor's degree in Computer and E-commerce. Worked in Canadian Baijia, INRA, Ukraine Yalta Guosimai Group, and Canadian NCR company. Have more than 20 years of network management and IT experience. Served as doctor of Magaratch Grape and Grape Research Institute and the Leader of Moldova National Wine Bureau.

### 6.2 Partners

As the pioneering platform of digital wine token, Zhongguo Shangjiu Wine cooperates with China Guijiu Group and Tencent Smart Retail around smart internet of things, smart hardware, dynamic twinship, etc, builds digital wine tokens with support of blockchain, big data and other cutting-edge information technologies, provides high-quality digital white liquor collection service to white liquor consumers and

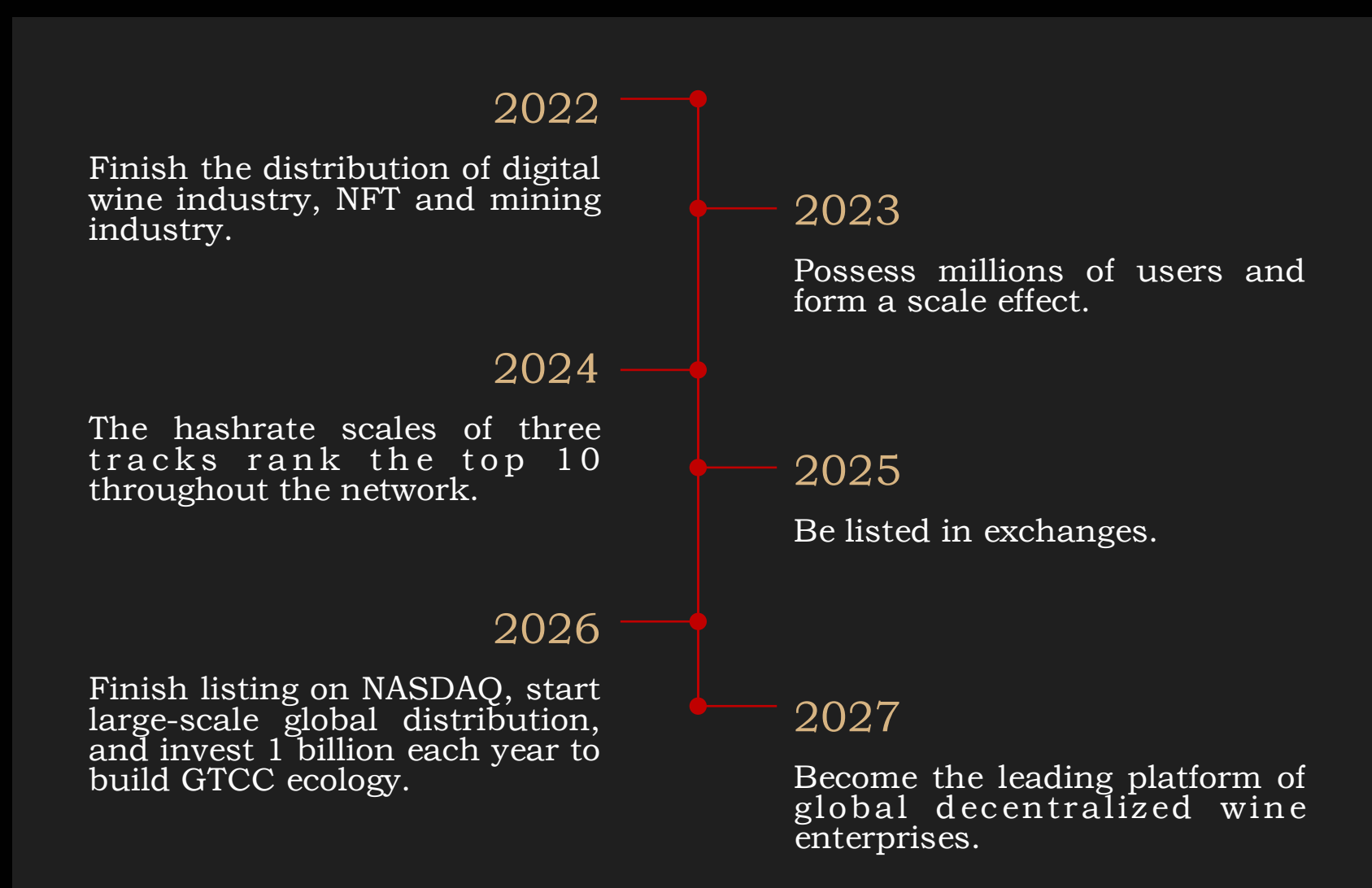
中國 SHANG JIU GROUP  
國 ZHONGGUO



white liquor asset allocators, and reaches white liquor fans and aged wine collection group. Users holding digital wine tokens can enjoy direct supply from the origin, smart warehousing of the origin, delivery from the origin, online gifting and transfer, 24-hour warehousing supervision, taking delivery online and other diversified services, reduce their space and time cost for storage, easily manage digital wine token assets, and experience the services of easy asset allocation, safe trading and stable appreciation.

## 6.3 Development plan

Issue wine tokens of 1 billion Yuan (Shangjiu+99 wine enterprises)  
Buy wines and get wine tokens for free, realizing income of 50 million Yuan (energize 100 billion channel increase of wine enterprises)  
Sequoia Capital Investment, Shangjiu Group Holding and China Entrepreneur Association China Joint Investment Group cooperate with American stock market, Hong Kong Stocks, and China Main Board Listing for market value management, investment and M&A to energize the whole industry chain of wine enterprises with capital.



## 07 Disclaimer

This is a conceptual document (White Paper). The sole purpose of this White Paper is to introduce GTCC platform and GTCC token to potential token holders and provide relevant reasonable information, so that they can determine whether to deeply analyze the project when buying GTCC tokens. The information in this document doesn't contain everything and doesn't contain any elements constituting contract relation. The White Paper doesn't constitute any suggestions about whether you will participate in GTCC platform or buy any GTCC tokens and cannot be used as a basis for any contracts or purchase decisions.

Please carefully read the following items:

1. GTCC team will continue to carry out reasonable attempts and ensure the information in the White Paper is true and accurate. In process of development, the platform may be updated, including but not limited to platform mechanism and distribution of GTCC tokens. A part of content in the document may be adjusted in the new White Paper with the progress of project, and our team will make the updated content to the public in ways of releasing notice on website or new White Paper, etc. Participants should obtain the latest White Paper on a timely basis and timely adjust their own decisions according to updated content.
2. Any content in the White Paper shall not be deemed as constituting any types of prospectus or investment solicitation or constituting any offer or offer solicitation with purpose of buying any securities or any controlled products in any jurisdictions. This document is not prepared according to laws or regulations of protecting investors in any jurisdictions and is not reviewed by regulatory bodies of any jurisdictions.
3. GTCC tokens can only be used for purposes specified in the White Paper and cannot be used for other purposes including but not limited



to investment, speculation or other financial purposes. As a kind of digital encrypted product, GTCC tokens are not: (a) any type of currency; (b) securities; (c) stock rights of legal entities; (d) shares, securities, notes, stock warrants, certificates or other documents granting any rights.

4. GTCC tokens cannot be sold or used in jurisdictions forbidding to sell or use digital currency (including but not limited to China, USA, etc.). GTCC platform and GTCC tokens are not open to everyone (including but not limited to forbidding Chinese, American, etc to buy GTCC tokens). Participation of the platform requires to finish a series of steps including provision of specific news and documents.

5. Value increase GTCC tokens depends on market rules and the needs after application implementation. GTCC tokens may have no value. The team makes no promise for value increase of GTCC tokens and is not responsible for any consequences caused by value increase/decrease of GTCC tokens. To the maximum extent permitted by law, the team is not responsible for the damage and risk due to participation in interchange including but not limited to direct or indirect personal damage, loss of commercial profits, missing of commercial information or any other economic losses. The project abides by any regulatory provisions and industrial self-regulation statements and other regulations which are helpful for healthy development of interchange industry. By participating, the participants completely accept and abide by such inspections. Meanwhile, all information disclosed by participants to complete such inspections must be complete and accurate. The project expressly conveys potential risks to participants. By participating in interchange, the participants understand and agree with various terms in regulations, accept potential risks on the platform and suffer the consequences.

6. Some statements, estimations and financial information in the White Paper constitute forward-looking statements or information. Such forward-looking statements or information involve the known or unknown risks and uncertainties and may lead to great difference between the actual events or results and implied or expressed estimations or results in forward-looking statements.

7. English version of White Paper is the main official source for information of GTCC tokens. The information in the White Paper can be translated to other languages from time to time or can be used for written or oral communication with existing or potential customers, partners, etc. During such translation or communication, some information may be lost, damaged or mistaken, and the accuracy of such alternative communication cannot be guaranteed. In case of conflict or inconsistency between translation and communication, the English original White Paper shall prevail.

Final tip: You must listen to all necessary professional suggestions including tax and accounting treatment. We have confidence that GTCC plan will be very successful. However, we cannot guarantee success, and both digital assets and platform have risks, so you must assess the risks and your risk tolerance.

