The Business Plan of Instrument Map

Catalog

Chapter 1 Executive Summary

1.1 Project Background

In recent years, e-commerce platforms such as Meituan and Ele.me have flourished, and their functions have also been constantly improved. Now they have become the main platforms for young people's online consumption. After years of development, in addition to meal delivery services, the products on the APP platform have also become increasingly diverse. On the basis of the original cuisine, a lot of content has been added, including fruits, medicine, supermarkets, etc. (From Hu Jing, Xu Bin, He Shuangjiang. Research on the Current Situation and Future Development Trends of Meituan Delivery [J]. Marketing Journal, 2020 (05): 32-34.)

However, it is worth noting that the major merchants settling in the map APP are mainly distributed in the food and beauty, leisure and entertainment industries, and only those industries have updated their detailed commodity information on the map. Merchants cooperating with e-commerce platforms are mainly distributed in the daily consumption industry. Therefore, people can only find ordinary daily goods and their travel destinations on the map app, such as rich food scenery, commercial areas suitable for entertainment and leisure, and products. Therefore, map users or product customers are unable to find the products they need in a timely manner, which to some extent affects the user experience.

Currently, more and more families are cultivating their children's artistic literacy from an early age, and the demand for musical instruments has greatly increased. Musical instruments usually require consumers to purchase them offline in person. Currently, the existing instrument apps are mostly designed for a single instrument store and can only serve users around a single instrument store.

Therefore, this project aims to develop an APP for this requirement deficiency, aiming to solve the problem of difficulty in finding desired and emergency products offline.

1.2 Industry pain points

Due to the fact that most customers who purchase musical instruments focus on product quality, they tend to go to offline physical stores to check the quality of the products and make on-site purchases instead of online shopping. Despite the rapid development of electronic maps in China and their penetration into various aspects of people's lives, commonly used map software still lacks much implementation in the visualization of products in the musical instrument industry. Specifically, there is a lack of specialized instrument purchase apps; Insufficient channels for online search of musical instruments and firms; The instrument industry has limited online and offline connectivity; Failure to achieve practical integration of piano playing and navigation functions; Insufficient relevant information; There are not enough permission for instrument stores.

1.3 Project Overview

Instrument Map is an app based on Big data, with the Mall map as the main body,

which integrates offline commodity information and visualizes stores of merchants, and can query Lehang musical instruments online, purchase musical instruments and provide navigation functions.

Instrument Map enable users to access sufficient reliable information online, including but not limited to: instrument store positioning, instrument prices, and their details. By doing so, users can save time, facilitate offline trials and purchases, and promote the development of the real economy.

Instrument Map provide users with the service of searching for products from nearby stores, and can use navigation to locate and reach the store for offline trial and purchase, making it more convenient and reliable. The instrument map mainly adopts online resource integration, and the difficulty of searching for offline materials is not high, and the content is also easy to understand.

Instrument Map can connect more merchants, thereby expanding the scope of services and increasing the variety of products. When our software reaches a certain level of development, there is hope to serve users nationwide and even globally.

Compared to traditional e-commerce, our products can provide users with a better purchasing experience and achieve integrated online and offline services. Users can visit various stores on site and receive their desired products faster.

Our research direction is unique and there are few competitors. The APP developed in this project mainly focuses on filling the needs of the general public for offline products in specific situations. Currently, there is no research on this aspect, and its competitiveness is relatively low.

Overall, the difficulty of project implementation is small and close to daily life; High user acceptance, able to effectively address user needs; The number of development and management personnel is small, and the labor cost is low.

1.4 Project Innovation Points

1.4.1 Novel store types

The main store type is not the food or convenience stores that are currently available on delivery platforms, but rather tends to be Qilexing, which has a large number of offline users. The functions and methods are different from online delivery platforms such as Meituan and Taobao. Unlike online transactions, it provides users with the service of searching for products from nearby stores for offline trials and purchases.

1.4.2 New User Audience Groups

The Musical Instrument Map App is mainly aimed at musical instrument merchants, express delivery, and the general public learning musical instruments. Unlike food, tourism, etc., these specific groups often accounted for a small proportion of the past business objects and were not eye-catching. And our project is aimed at serving these rarely noticed groups.

1.4.3 Special forms of resource integration

Through online connectivity, products from various stores can be displayed in front of users. Make effective use of store resources, combine the functions of the store and

warehouse, and enable users to receive their desired products faster. In stores with poor location, those limited musical instrument resources can also receive more traffic push and have more opportunities to be sold.

1.5 Project Value and Significance

1.5.1 Enhance the transparency of instrument market information and ensure the authenticity and reliability of price information

This project ensures the online disclosure of true information about all instrument products authorized by merchants, including but not limited to: prices, buyer reviews, ontology data, and shipping costs, and updates the information along with the operation of offline stores, providing users with first-hand information, which is conducive to maintaining a good ecosystem of the instrument trading market.

1.5.2 Fill the public's demand for offline musical instrument products

By integrating online product information and visualizing stores, this software focuses on combining offline users with the physical instrument industry, reducing operating and maintenance costs, and mainly filling the needs of the general public for purchasing offline instruments in specific situations.

1.5.3 Promoting the Construction of Market Mechanisms for Musical Instrument Maps

Due to the incomplete development of the instrument mapping industry, this project is only the beginning, and there is still a long way to go for future construction. But this project can provide a basic market system, provide reference and foundation for future development, and promote the market mechanism construction of musical instrument maps.

Chapter 2 Market and Opportunities

2.1 Macroenvironmental Analysis (PEST)

2.1.1 Economic Environment

2.1.1.1 Map Industry

In the mobile The Internet Age, electronic maps can generate many previously unforeseen applications in e-commerce, location navigation, social networking, entertainment and other fields. Electronic maps have developed rapidly in China and have penetrated into various aspects of people's lives. In the second quarter of 2020, the overall active user base of the mobile map market was 893 million, with a month on month and year-on-year growth rate exceeding 10%, respectively 10.9% and 11.7%.

With the popularization of mobile internet and the improvement of people's living standards, traditional maps are gradually transitioning to the internet model; Mobile travel is favored by more people, and the number of mobile map users will continue to grow. The current functions of using mobile phone maps mainly focus on basic functions such as location inquiry, route planning, and navigation. Both Baidu Maps and Gaode Maps can provide basic navigation and positioning functions. At the same time, the two maps also introduce special functions in terms of user experience, such as the indoor map and waterlogging map of Gaode Maps; Baidu Maps has life service functions such as riding navigation, Panorama and violation query. The map industry has complete functions and broad development prospects. (From Mai Shichang, Xie Xiaoyan. Talking about the future development direction of mobile map products - based on Gaode Map and Baidu Maps [J]. China New Communications, 2016,18 (24): 92-93.)

Since the first version of online map services was launched in the 1990s, with the vigorous development of the internet, especially mobile internet, mobile map has gradually upgraded from a primitive interface and single function to a necessary tool and service software for billions of users to travel. Before the popularization of the Internet, companies in the traditional mapping field mainly focused on providing services to B-end users and earning high profits. It was not until the Internet transformed various traditional industries one by one, and map products transformed from a combination of traditional software and hardware to internet software services. (From Lin Anxuan. Research on the Development of Internet Map Business Models from the Perspective of Map Service Providers. 2019)

2.1.1.2 E-commerce Platform Industry

In recent years, e-commerce platforms such as Meituan and Ele.me have flourished, and their functions have also been constantly improved. Now they have become the main platforms for young people's online

consumption. The main characteristics are as follows: diversified and differentiated delivery products, focusing on safety and quality. After years of development, in addition to meal delivery services, the products on the APP platform have also become increasingly diverse. On the basis of the original cuisine, a lot of content has been added, including fruits, medicine, supermarkets, etc; At the same time, it is becoming increasingly differentiated, in addition to delicious food, there are also types of desserts, drinks, afternoon tea, night snacks, and so on. (From Hu Jing, Xu Bin, He Shuangjiang. Research on the Current Situation and Future Development Trends of Meituan Delivery [J]. Marketing Journal, 2020 (05): 32-34.)

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2.1.2 Social and Cultural Environment

The improvement of living standards prompts people to pay high attention to their interests and hobbies. Currently, more and more families are cultivating children's artistic literacy from an early age, greatly increasing people's demand for musical instruments. In order to purchase the desired musical instrument and ensure its sound quality and quality, consumers usually need to purchase the instrument offline in person. However, the vast majority of instrument stores do not complete the uploading and updating of product information, adding to the purchasing burden for consumers.

On the other hand, musical instrument merchants also suffer from the lack of a comprehensive platform for them to display and promote their products, which is extremely detrimental to the flow of funds and industrial development in the musical instrument market. At the same time, there is no navigation system with a certain degree of completion to guide customers to offline stores,

which increases the difficulty and threshold for customers to purchase musical instruments.

With the development of society, people's living standards are getting higher and higher, and the high attention of the public to musical instruments will actively promote the adjustment of national policies. As a regulatory instrument map market, the instrument trading market will inevitably usher in more long-term development in the future.

2.1.3 Technical Environment

The technology used in instrument maps is constantly changing, and its advantages have gradually been reflected in various social fields such as the financial industry, intellectual property protection, and social welfare.

(1) Financial industry

The combination of instrument maps and more technologies has brought new development opportunities to the financial industry. The advantages of the technology used in this project help financial institutions to master personal financial information and transaction records, and based on this, analyze consumers' risk preferences, credit ability, consumption habits, and consumption psychology. It helps to provide consumers with more high-quality and personalized financial services, improve user service experience, and also helps to save service costs and improve service efficiency for financial institutions. In the financial services industry, any digital form of asset authentication, recording, registration, registration, storage, trading, payment, circulation, and other processes can be achieved.

(2) Intellectual Property

The application of instrument maps can establish a new authentication mechanism in digital copyright and intellectual property certificates. The application of databases in the field of intellectual property can preserve the identity information of authors and each stage of creation, and the personal information of equally anonymous users will also be protected. It can improve the supervision of copyright transactions. This app can backup important data and improve system fault tolerance. Simplify the process of copyright protection and reduce costs.

(3) Social welfare

The technology used in this app is a new type of technology that promotes trust and enhances openness and transparency. The data stored on it is highly reliable and cannot be tampered with, which is very conducive to its application in the field of social welfare. On donation platforms, there are often charitable acts worth tens of yuan that cannot be traced and used. At this point, the instrument map can play a role in solving trust issues.

2.2 Industry pain points

The rise and development of the musical instrument market have promoted the development of China in related fields, promoting the development of government and enterprises through market-oriented means. However, due to the fact that the trading of musical instruments in China has only been established for a few years, there are still many problems and challenges in the implementation and development process.

2.2.1 Map Industry

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2.3 Market demand

2.3.1 Reasonably arrange the allocation of quotas in the musical instrument market

The total quota of China's musical instrument market should be flexibly set according to changes in the external economic environment. The production and operation activities of emission control enterprises are greatly influenced by the economic environment, industry planning, industrial policies, etc. When setting the total quota, if incorrect judgments are made about the future economic situation, the total quota cannot play a good restraining role. Especially when determining the total quota of musical instruments based on historical data, without taking into account the impact of past economic changes on musical instrument changes, quota scarcity or surplus may occur in the musical instrument market. Therefore, when the

economy is in a stable stage, the total quota of the musical instrument market can be set using the historical method and the historical intensity method. When the economic environment undergoes drastic changes, the total quota should be flexibly adjusted. If the economy improves, the production of enterprise musical instruments increases, and the scarcity of musical instrument quotas in the market leads to excessively high prices of musical instruments, the competent department can appropriately relax the total allocation of quotas; If the economy goes down and market transactions are sluggish, excess instrument quotas should be collected to maintain a total supply of quotas that is less than the demand in the instrument market. This flexible adjustment of quotas based on changes in the external economic environment can ensure the stable operation of the instrument trading market.

2.3.2 Improving the Construction of Market Supervision Mechanism for Musical Instruments

Each pilot instrument market and the national unified instrument market should increase efforts to improve the regulatory mechanism of the instrument market, ensure the authenticity of data submitted by enterprises, and provide data support for the total amount and quota allocation settings of the regulatory authorities. China should learn from the regulatory experience of foreign musical instrument markets, establish a unified regulatory system for musical instrument transactions, and improve the division of labor and coordination among various functional departments under the regulatory mechanism. The regulatory system for the musical instrument market also requires necessary legal constraints to provide protection for the regulatory mechanism, and to provide clear legal provisions for the initial quota and trading rules of the musical instrument market, in order to limit violations and damage to the market environment during operation. At the same time, the regulatory mechanism of the instrument trading market should also be constantly adjusted in response to environmental changes and operate within the framework of the instrument market in the global economic context. Increase the training of talents in the infrastructure construction of the musical instrument market, provide technical support for verification reports and data, timely summarize issues in data verification and submission, and promote the smooth progress of verification work. Establish an admission and elimination mechanism for verification agencies, strengthen the review of their qualifications, and ensure the quality of verification work and submitted data. The verification results should be made public, the information disclosure system of the musical instrument market should be improved, and a good trading environment for musical instruments should be created.

2.3.3 Stimulating Product Market Vitality

Stimulating effective market demand for musical instrument products is the fundamental driving force for promoting integrated supply and development of musical instruments. The market demand for musical instrument products can guide enterprises to consider low musical instrument factors throughout the

production and sales process, actively adjust to meet market demand changes, and thus profit and maintain competitiveness. The end user demand of consumers can further drive the development of enterprises' low instrumentality and promote technology investment decisions. After the production and sales of musical instrument products form a scale, it will also bring economies of scale to the enterprise, further reducing the production cost of musical instruments for the enterprise; An effective market mechanism will transmit benefits to the consumer market, enhance consumers' willingness to consume musical instruments, and form a virtuous cycle. At the same time, due to the active energy-saving measures taken by enterprises, the total number of musical instruments has decreased, and the quotas originally allocated to enterprises are relatively surplus. In addition to the quotas required for compliance, the excess musical instrument quotas of enterprises can be traded in the musical instrument market to obtain quota trading income. Stimulating the market vitality of enterprise products can drive the initiative of enterprises from the end of supply integration, and stimulate the vitality of enterprises' active participation in the musical instrument market from within.

2.4 Target Customers

2.4.1 Government Requirements

The construction of a unified instrument trading platform in China is not perfect, and there are few professional instrument trading platforms in relevant government departments. Due to the slightly different methods used in each pilot area, it will be more difficult to connect projects in the pilot areas or expand the scale of regional projects. The government urgently needs to establish an organized and fully functional national instrument trading platform to save management time and transaction costs, in order to promote the development of the instrument trading market.

In addition, due to the fact that instrument information is controlled by various government departments, and the competent department for instrument trading needs to allocate instrument quotas to enterprises through enterprise instrument data and local policies, this reflects the importance of the government's integration of data from various departments. However, the government has not yet established a musical instrument database, which will affect the comprehensiveness and rationality of government decision-making and significantly increase the cost of collecting data, posing a certain obstacle to the development of the musical instrument trading market. The platform of this project provides an integrated upstream and downstream solution for the government, achieving cross departmental cooperation and information sharing.

In the government market, we mainly correspond to the relevant government departments responsible for musical instrument trading, and the municipal departments, municipal district departments, County-level city departments, and county departments are all potential customers of this project.

2.4.2 Enterprise Requirements

Faced with the emerging instrument trading market, enterprises need to adapt to policies and observe the situation. Enterprises need an information acquisition platform that can more clearly obtain the desired transaction information and help them make decisions that are more in line with the macro market. Enterprises that have not participated in instrument trading also aspire to enter the instrument market in a safer and more convenient form.

2.4.3 Customer Requirements

With the improvement of people's living standards, the demand for musical instruments is also constantly increasing. The dissemination of international culture has led to a significant increase in the willingness of many non local musical instruments to learn. For those who are willing to learn a musical instrument, their choices are also more diverse.

Facing the diversification of demand, it is also necessary to expand and optimize the instrument market. For example, appropriately increasing the market share of foreign musical instruments and actively responding to government and corporate support policies.

Chapter 3 Products and Services

3.1 Project Overview

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Instrument Map is an app based on Big data, with the Mall map as the main body, which integrates offline commodity information and visualizes stores of merchants, and can query Lehang musical instruments online, purchase musical instruments and provide navigation functions.

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Overall, the difficulty of project implementation is small and close to daily life; High user acceptance, able to effectively address user needs; The number of development and management personnel is small, and the labor cost is low.

3.1.2 Product Concept

The product concept of this project's platform is "empowering the instrument market and providing diversified services". Based on Andriod Studio, we built a decentralized integrated service platform for musical instrument trading to meet the needs of government certification, supervision, musical instrument distribution, fines and other services, providing effective technical support for the country to fully build a trading system.

(1) Flexible market: Provide customized services for different functional modules based on the needs of enterprises and government civil affairs markets, in order to better adapt to the specific situations of different regions;

(2) Real time and professionalism: relying on cloud computing, Big data, the Internet, the Internet of Things and other science and technology, real-time transmission of data such as musical instrument activity levels and factors is realized.

Cloud computing quickly analyzes uploaded data to form a more efficient mechanism.

3.1.3 Expected goals

(1) Building an instrument trading ecosystem to promote the integration of instruments and navigation technology

From the perspective of musical instruments, Chinese musical instruments mainly come from the self generated heating sector. In order to achieve the true integration of musical instruments and map technology, it is necessary to do a solid job by formulating an action plan for reaching the peak of musical instruments before 2030, optimizing the industrial and energy structure, implementing special policies for financial support for the development of musical instruments, and establishing musical instrument support tools. With the introduction of APIs, the instrument trading market will become more active, thereby increasing the voluntary efforts of various enterprises. At the same time, the introduction of forestry instrument collection and instrument financial products will have a profound impact on the industrial integration, restructuring, and restructuring of the entire instrument market. The platform of this project aims to empower China's instrument trading market with application development technology and create a vibrant instrument trading ecosystem.

(2) Expand the scale of musical instrument trading market and help the development of Financial inclusion

The instrument map comprehensive service platform can effectively assist the development of small and medium-sized enterprises and cultivate financial technology talents. The ongoing national instrument market is the main policy tool, providing long-term and stable policy incentives for energy conservation for enterprises through instrument pricing. While maintaining the overall tax burden of enterprises, instrument taxes are imposed on industries outside the coverage of the instrument market. Fiscal policies provide more flexible development space and policy incentives for further rapid development.

3.2 Business Architecture

According to the business operation mechanism, instrument trading involves multiple stakeholders. Core stakeholders: the government, musical instruments and musical instrument trading enterprises (buyers and transferors), project parties and trading parties, and musical instrument verification and consulting institutions play a core leading role in the supervision, implementation and supervision of musical instrument trading to achieve the market operation Traditional Japanese musical instruments goals of musical instrument trading; Key stakeholders: R&D institutions, energy supply industries, and financial institutions play important roles in trading and technology, energy, and funding; General stakeholders: public groups, institutional investors, and news media, playing a supporting role in instrument testing and identification, investment and financing, and market transactions. The instrument trading model supported by multi-party business platforms and application systems includes

different business scenarios of various stakeholders.

In addition, various platforms such as national and regional publishing, distribution, auction, registration and settlement platforms, registration and trading platforms, and national and regional trading market systems are interconnected to form a unified national instrument trading system; The automatic monitoring or manual recording system of the unit provides quantity information; The third-party platform certification data has been recognized by various platforms. Given the difficulty of comprehensive automatic monitoring in the short term, third-party platforms can be compatible with existing third-party audit methods. After the audit results are digitally signed, they will be provided to various trading platforms in the national instrument trading system; Unified transaction supervision prevents financial risks while Financial innovation. Form a musical instrument trading model that focuses on core stakeholders, supplemented by important stakeholders, and takes into account general stakeholders, featuring "enterprise transactions+government regulation+third-party review+financial risk prevention".

Due to the involvement of multiple types of responsible parties such as government, enterprises, and third-party certification agencies in instrument trading, the types of transactions allowed for different responsible parties are also different, belonging to typical upstream and downstream application scenarios. The specific business is as follows:

(1) Sharing on government cross departmental databases

The regulatory authorities collect automatic or regular monitoring and measurement of enterprise production data through monitoring equipment installed on the production and operation site of enterprises; The finance department collects regional instrument trading volume data by monitoring and measuring the volume of instruments in key regions. The data collected by various government departments is input and stored in their internal databases at a certain frequency.

The platform sets up servers in each government department related to data acquisition as an entry point for transaction integration. According to the requirements of instrument regulation and instrument quota allocation, various government departments negotiate and select the shared data portion. Each department integrates this data through hash algorithms to form an instrument database, achieving the goal of cross departmental collaboration and data sharing among the government.

The business status updates and inspections of various government departments are completed through smart contracts. The platform administrator sets different steps for contract settings, and completes data verification, query, and update operations with various department servers.

(2) Registration of musical instrument quotas and project data

Using the instrument database formed through collaboration among various departments, the instrument trading management department allocates instrument quotas to enterprises using the historical method of verifying instrument quotas based on the historical level of emission control units and the baseline method of verifying instrument quotas based on industry benchmark strength. Distribute the instrument quotas of various enterprises and regions using hash algorithm technology to store data, and notify each

enterprise of the event in the form of public information.

If the enterprise has surplus musical instrument quotas that are inconsistent with the cost, the surplus musical instrument quotas can be auctioned and listed on the project platform Traditional Japanese musical instruments quota registration platform for verification by a third-party certification authority.

(3) Permission Management of Musical Instrument Trading System

Enterprises participating in this app can only participate in the database by obtaining a digital certificate from a third-party certification agency. The validity of the digital certificate is verified through the certificate key installed on the node. If the verification fails, entry is refused. If the verification is successful, entry is allowed, and China Unicom integrates with other nodes and accesses the business layer through the open corresponding application layer.

The integrated enterprise can send and receive instrument transaction information on the platform of this project, record transactions with other enterprises, maintain local books, and conduct on-site and listing queries on other transparent transactions.

Government departments and third-party certification agencies can conduct compliance review and transaction verification of system transactions and registration information on the platform to maintain the security and authenticity of the system. At the same time, the organizers of the instrument trading market under government supervision have the highest access rights, and can modify and delete trading information on the platform, arbitrate trading disputes, formulate macro trading strategies, and coordinate with third-party certification agencies.

(4) Instrument quotas and project transactions

Enterprises can conduct instrument or project transactions on the platform, and the transaction process, quantity, price, and ownership information of instrument quotas will be recorded in real-time upstream and downstream. Rules are defined between various markets through upstream and downstream integration and smart contracts. Each node relies on a consensus mechanism to complete the reliability and consistency endorsement of information. After information disclosure messages, relevant enterprise nodes verify the information. If the verification is successful, the smart contract is triggered, and the easy information is packaged into data blocks. After consensus, it is written into a distributed ledger, and the transaction is completed.

(5) Quota settlement service

Third party certification agencies can calculate the level and factors of recorded enterprise musical instrument activities by introducing IoT detection technology and distributed sensors. Enterprises that have completed the approval can be registered in the database, while those that have not completed the approval will be punished according to local policies. And the finance and tax department that integrates with the instrument trading supervisory department can verify the implementation of enterprise rewards and punishments, and provide data feedback to the instrument trading supervisory department through upstream and downstream channels.

(6) Instrument point registration and trading

The platform's record keeping system automatically generates musical instrument points, which are jointly formulated by government regulatory departments and third-party certification agencies to provide reasonable rewards and punishments for crackdown actions, as well as to distribute allowances or penalties for breach of contract. Integrate data records related to points to form a red and black list, providing convenience for the government to further guide enterprises to upgrade.

3.3 Product Functions

The platform provides the following functional modules to provide services for government departments, enterprises, and third-party certification agencies.

(1) Government Information Collection and Verification System

Coordinate the flow of instrument information among various government departments as nodes, and achieve cross departmental instrument information sharing among governments. The platform sets up servers in various government departments as upstream and downstream entrances for the department. Each relevant department selects and negotiates which data to integrate through hash algorithms based on the policy requirements and business requirements of instrument regulation and quota trading. This data includes automatic monitoring, collection, verification of instrument data, and internal business data of government departments. The relevant instrument information is integrated at a fixed frequency and stored in a distributed database, forming a shared database that connects various government departments. The competent department of musical instruments can allocate musical instrument quotas to enterprises more comprehensively and reasonably through the integration of relevant information in the government information collection and verification system. In addition, the platform sets up smart contracts for cross departmental government business collaboration, and completes operations such as data verification, query, and update with various departmental servers to update or verify business status.

(2) Instrument quota registration

After setting instrument quota allocation for enterprises, the government integrates quota allocation data using hash algorithm technology and its non modifiable characteristics. The integrated instrument quota allocation data is stored in a distributed accounting manner in the data layer, and event notifications are provided to various enterprises using a consensus service broadcasting mechanism. After integrating the instrument quota data, users can obtain relevant instrument quota information through the platform.

(3) Project transaction registration

The project transaction registration system provides registration and listing services for projects, as well as project transactions. Enterprises with cost differences can auction off excess quotas and quantities and register them on

the project transaction level platform for listing. The platform defines rules through smart contracts, and each node endorses the reliability and consistency of information based on a consensus mechanism.

(4) Instrument trading system

The instrument trading system provides instrument quota trading services for enterprise users. The transaction process, quantity, price, ownership and other information of quotas are recorded and integrated in real-time, and are digitally signed by the platform's private key to ensure the security of transaction information. The system formulates rules through upstream and downstream integration and smart contracts. The enterprise node sends information to the consensus layer through a broadcast mechanism, and after the receiving node verifies it, it can trigger a smart contract. The relevant transaction information data is packaged into modules and stored in a distributed ledger to complete the transaction. In addition, the triggered smart contract set by the platform for musical instrument behavior inspection makes Big data predictions by checking the updated data of enterprise musical instrument quota at a fixed frequency. When the enterprise quota is about to run out, it will automatically initiate musical instrument quota transactions, complete pricing and booking according to the market quota and supply and demand, and send relevant information to the enterprise. Enterprises can achieve cross entity transactions through the platform's automated trading business.

(5) Musical Instrument Credit Query

Instrument credit, as a measure of a company's instrument performance and instrument transaction credit, is an indicator that other companies can refer to before conducting instrument transactions. The platform of this project uses the instrument credit system to assess the performance of enterprises, and provides instrument credit query function through automatic corresponding smart contracts requested by the business. Enterprise users can use the instrument credit query system to check whether their instrument credit is excellent. During the query process, the smart contract automatically retrieves relevant data from the database according to business logic to complete the inspection, and only returns the judgment result for the enterprise. The instrument credit query system displays both the red and black performance rankings of enterprises and institutions, achieving public disclosure of performance status.

(6) Third party certification agency

Third party institutions can apply to government departments for market access qualifications for instrument trading on the platform, and complete the docking work with government departments. After certification is passed, third-party institutions can obtain digital certificates issued by government

departments, and participate in nodes with certificate keys provided by the government to conduct compliance reviews on system transactions and registration information, verify instrument transactions, and approve instrument points, maintaining system security.

3.4 System Architecture

Based on the technical framework: The implementation of the module is divided into five steps:

Firstly, national and regional systems publish quota allocation information, registration platforms publish project approval, filing, and registration information, and the issuer's private key is digitally signed and recorded in the database.

Secondly, key units monitor in real-time and digitally sign volume, factor, and activity level data using the enterprise's private key. Smart contracts automatically convert activity level data into instrument rights consumption. Small and medium-sized enterprises are audited by instrument verification agencies and digitally sign using the private key, which is then recorded in the database separately. Projects that have been approved, filed, and registered will be registered in the database by the platform after undergoing emission reduction testing and verification.

Thirdly, entities with tradable instrument rights or quantities can anonymously publish listing information on national and regional trading systems and trading systems. All parties can view and trade the listed targets. Smart contracts can generate tradable targets and list them in real-time according to rules. This project prevents ordinary participants from obtaining the source of the subject matter and transaction history, ensuring trade secrets. Authorized intended buyers can verify the authenticity, and authorized third parties can verify the production information, quantity corresponding projects and information corresponding to the rights, and monitor them in real-time. Fourthly, during instrument trading, the ownership of instrument rights and quantities is transferred, and the transaction and new ownership information are recorded in real-time in the database and digitally signed by the trading platform's private key. The volume trading of national and regional market instrument rights trading, forestry instrument collection and other projects operates within their respective systems. Conversion rules are defined between markets through database integration and smart contracts. The forestry instrument collection project combines fixed instruments with soil and water conservation, and the addition of factors such as soil and water conservation during the conversion of smart contracts will be subsidized by the government or public welfare funds. Fifthly, the annual paid instrument rights offset the amount of instrument rights quota, and the transaction will be stopped after the platform's private key digital signature is paid.

3.5 Module Implementation

3.5.1 Distributed ledgers solve the problem of information asymmetry

For enterprises scattered in various pilot markets, distributed ledger technology is used to allow multiple participants to join the integration bar, share instrument quota transaction data and project transaction data, while also achieving privacy protection, so

that data can only be seen by enterprises with permission. For the difference in technology in the instrument trading market, under traditional systems, companies need to submit instrument data reports to third-party certification agencies for verification. In order to verify the authenticity of information, institutions need to spend a lot of money on verification. Only after verification can we participate in the allocation of government instrument quotas. This process is extremely cumbersome and cumbersome, consuming manpower and financial resources. If a database is used to lock data, it will greatly reduce various costs for the client.

3.5.2 Transaction Mode Based on Intelligent Contract and Distributed Node Algorithm

The distributed node consensus algorithm is used to generate and update data, the Cryptography method is used to ensure the security of data transmission and access, and the smart contract composed of automated script code is combined to do the automatic clearing and settlement of instrument quotas, helping reduce risks. Compared to traditional trade agreements, through the implementation risks of paper contracts, smart contracts can write the rights and responsibilities of both parties into database codes, and the division of rights and responsibilities on smart contracts is open and transparent. While transaction participants fulfill their obligations, transactions can operate automatically and fully. Embedding smart contracts in instrument trading reduces human operations, and the entire instrument trading process on the integration bar is recorded on the integration bar, forming a contract. And after the transaction, the instrument quota will be automatically cleared according to the rules of the smart contract.

3.5.3 Platform design mode using products instead of projects

Product rather than project mode: The traditional application mode is to develop a complete application in project mode, and deliver it to the operation and maintenance team after development is completed; The platform Microservices architecture of this project adopts an integrated approach integrating development and operation and maintenance, and "Microservices" runs through the entire product life cycle. "Decentralized" governance and data management mode: unlike holistic applications, which often use a single technology, the Microservices architecture of this project tends to look for technologies that have successfully solved similar problems. The platform of this project integrates various component modules and uses appropriate tools to complete the tasks of each module.

3.5.4 Weakening the participation of intermediary structures

In the Wet market of musical instrument trading, each subject needs to find an intermediary institution that both parties trust, so that the transaction can be carried out normally. Inevitably, it needs to pay a certain amount of fees. The process is difficult and cumbersome. This project is based on database construction, while database technology is a peer-to-peer decentralized network that can effectively connect various participants to form a distributed system with multiple nodes. Each node can directly establish mutual trust and manage independently, without the need for joint trust intermediaries to directly

conduct transactions and achieve resource sharing. This measure greatly reduces the intermediary costs required in traditional models.

At the same time, each node is physically independent, and problems with individual nodes will not affect the operation of other nodes or even the entire system, ensuring the stability of the entire system.

3.5.5 Information Disclosure and Transparency

The Musical Instrument Map App ensures that each node has an equal relationship with each other. It establishes a consensus mechanism within its distributed network structure and solves the problem of mutual trust between nodes under the premise of decentralization. In the context of applying database technology, user related information will be automatically stored in the database, and each transaction will be synchronously stored in each node of the platform. Each company, as one of the nodes, can easily obtain information from other nodes. Once information is entered, it cannot be easily tampered with unless more than half of the calculation rules are mastered or the consent of multiple other nodes is obtained. This effectively solves the problem of information asymmetry in the instrument trading market, ensuring transparency and accuracy of information. The new recording method and open calculation rules have to some extent avoided the emergence of absolute monopolists, prevented excessive government intervention, and helped establish a more fair system.

3.5.6 Efficient Resource Integration

Through online connectivity, products from various stores can be displayed in front of users. Enable effective utilization of store resources, enabling customers to timely obtain the latest news and achieve real-time updates of information; Integrating the functions of the store and warehouse to enable users to receive their desired products faster.

By using map navigation methods, the exposure rate of stores with poor location has been increased, which is beneficial for restricted musical instrument resources to receive more traffic push, thus having more opportunities to be sold.

Chapter 4 Feasibility Analysis

4.1 Technical feasibility

1.User Interface Design: A shopping application needs a user-friendly and attractive interface. Android Studio provides a wealth of UI design tools and layout managers, such as XML layout files, ConstraintLayout, RecyclerView, etc., for creating the user interface of the application.

2.Data storage and management: Shopping applications usually need to process a large amount of product data, user information, order information, etc. You can use the data storage options provided by Android, such as SQLite databases, SharedPreferences, or use cloud services such as Firebase to store and manage this data.

3.User authentication and authorization: Shopping applications may require user registration, login, and authentication capabilities, as well as rights management to authorize users to access specific functions or sensitive information. You can use technologies such as Firebase Authentication, OAuth, etc. to achieve these functions.

4.Product display and search: Shopping applications need to display product lists, product details, product images, etc. You can use view components such as RecyclerView and GridView to display product lists, and use search functionality to help users find and filter products.

5.Location and geographic services: Shopping apps may need to obtain the user's geographic location information in order to provide location-based services, such as displaying nearby stores, calculating delivery distances, and so on. You can use Android's Location Services API to obtain the user's location, and use the Geocoding and Maps APIs to implement related functions.

6.BAIDU Maps API: BaiDu Maps API is a development interface that provides functions related to maps and geographic locations. It allows developers to display maps, mark locations, get user locations, calculate routes, and more in their applications. In Android Studio, you need to use the Google Maps API to integrate map functionality into your application.

7.Location Services (Location Services): Android provides a set of APIs for obtaining the location information of the device. You can use these APIs to get the user's current location, listen for location changes, get the status of location providers (such as GPS or network), etc. This is very important for map applications, because it allows you to mark the user's location on the map, provide navigation functions, and so on.

8.GPS positioning: GPS positioning is a technology that obtains the exact geographic location of a device through the Global Positioning System (GPS). In the map application, you can use the GPS positioning function of Android to obtain the

real-time location of the user, so as to provide accurate navigation, route planning and other functions.

9.Geocoding: Geocoding is the process of converting a geographic location, such as an address, into latitude and longitude coordinates. In a mapping application, you might need to convert a user-supplied address into geographic coordinates for marking or navigating on a map. Android provides a geocoding API that can help you do this.

10.Routing: Routing is the process of calculating the best route between two or more locations. In a Maps application, you can use routing technology to help users find the shortest route, the fastest route, or a route that avoids congestion, etc. The Google Maps API provides a routing function that can help you calculate and display routes.

11.Map markers and interaction: Mapping applications often need to mark a specific location on the map, display an info window for the marker, and allow the user to interact with the map (such as zooming, dragging, etc.). Android Studio provides a wealth of APIs and tools for adding markers on the map, customizing marker styles, handling interactive events, and more.

12. **Data storage and caching:** Map applications usually need to process large amounts of geographic data, such as map tiles, location information, and so on. You need to consider how to store and manage this data efficiently so that maps can be loaded and displayed quickly in your application. Android provides a variety of data storage options, such as SQLite database, SharedPreferences, etc., which can help you with data management and caching.

4.2 Organizational Feasibility - Cost Control and Management Measures

The cost of the Instrument Map project includes: software secondary development cost (customized development and testing based on the characteristics of instrument trading business, pain points, issues, and challenges), hardware cost, and other network security related equipment.

Project cost control is to achieve the cost objectives of the project, guide, supervise, adjust, and limit the consumed human resources, materials, and expenses, timely control and correct any upcoming and existing deviations, and control all expenses within the specified range.

(1) The principle of comprehensive control is to establish a project cost control responsibility system that combines full participation, responsibility, rights, and interests. Cost control runs through every stage of project implementation, and regular cost control is ensured through systems. Unusual "exceptional problems" also have corresponding measures to control and cannot be overlooked.

(2) The principle of dynamic control is that project implementation is not a one-time action, and cost control should be taken seriously in advance and controlled during the process. Cost prediction should be conducted before the start of the project, target costs should be determined, cost plans should be prepared, and various consumption quotas

and expense standards should be formulated or revised; In the implementation phase, the focus is on implementing cost plans, implementing cost reduction measures, and implementing cost Management by objectives; Cost control continues with the implementation process and is synchronized with the implementation progress.

4.3 SWOT analysis

Determine the competitive strengths, weaknesses, opportunities, and threats of the Cloud Leap platform through SWOT analysis, in order to organically integrate the platform's strategy with internal resources and external environment. In this way, we can conduct a comprehensive, systematic and scientific research on the situation of the platform and formulate corresponding development strategies, plans and countermeasures according to the research results. See the table for details.

Table 4-1 SWOT Analysis

Opportunities and Threats (External) / Advantages and Disadvantages (Internal)	**Opportunities（O）**	**Threaten（T）**
	(1) The support of national cultural rejuvenation policies; (2) With the development of the musical instrument economy, the demand for a unified musical instrument purchasing platform among users is urgently increasing; (3) The rapid growth of enterprises in China that have been included in instrument trading and are about to be included in instrument trading has a vast potential market; (4) There is a market gap in musical instrument trading platforms in China; (5) Excellent policy conditions for innovation and entrepreneurship among college students; (6) The development of blockchain technology provides guarantees for the security and reliability of the platform.	(1) The integration of blockchain systems with other technologies may bring potential technical risks; (2) Peer imitation and follow-up; (3) There are loopholes in laws and regulations related to blockchain, and industry management still needs to be improved; (4) The harm to the entire social order caused by the dissemination of illegal or harmful information through the blockchain system; (5) The decline in China's economic growth has increased the difficulty of financing for start-up enterprises.
Strength（S）	**SO strategy**	**ST strategy**

(1) The platform combines emerging blockchain technology with the current demand of the instrument trading market, which is innovative; (2) A secure trading platform that can provide enterprises with information traceability, measurable instrument trading volume, tradable quotas, and non modifiable data; (3) Multi party consensus mechanism, blockchain prevents ordinary participants from accessing the source of the subject matter and transaction history, ensuring commercial privacy and confidentiality; (4) Authorized third-party certification agencies can conduct real-time supervision of enterprise instrument trading volume registration, CCER project information, etc; (5) The transaction data through consensus algorithms is traceable, transparent, and distributed accounting is implemented, ensuring the safety and reliability of the instrument trading market; (6) A strong team of experts and consultants.	(1) Our company has professional advantages in business, and on the basis of being familiar with the needs of the target market, we provide comprehensive services to enterprises and governments with low cost and high cost-effectiveness; (2) Implement a technological innovation strategy, further consolidate technological leadership advantages, and lead industry development; (3) Utilize the inherent advantages of college entrepreneurship schools and government policy support to expand scale.	(1) At the initial stage of entrepreneurship, the team gathered a group of planning and operation talents to maximize the decomposition of Carbon emission trading market business and achieve high-quality construction of the platform; (2) Implement a technology innovation strategy to consolidate the image of the platform as an "innovation benchmark"; (3) Implement a quality differentiation strategy and cultivate a stable customer base in the government and corporate markets through high-quality platforms and products.
Weakness（W）	**WO strategy**	**WT strategy**

(1) Lack of funds in the early stages of entrepreneurship makes it difficult for the platform to achieve comprehensive coverage in a short period of time; (2) The platform's initial popularity was weak; (3) The technical strength of university student team platform development is relatively weak, and the overall grasp of blockchain technology is not deep enough; (4) Poor positioning of uncertain factors; (5) It is difficult to collaborate with the government to endorse, and the degree of resource integration is relatively low.	(1) Improve the front-end page design and back-end architecture of the platform, continuously fine tune platform functions, and do a good job in upgrading the platform's business layer; (2) Strengthen the overall relevance of the platform ecosystem and achieve unified management, planning, and design; (3) There are many internet companies, and collaborating can design platforms in a short period of time, which is beneficial for future cooperation and services.	(1) Promote the unification of instrument prices; (2) Understand market demand, build a blockchain based instrument trading service platform that is suitable for demand, and improve resource utilization; (3) Fully absorb and draw on the service experience of foreign and domestic instrument trading platforms, try to adopt mature platform development models, and reduce investment costs.

Chapter 5 Project Strategy

5.1 Overall strategy

With the continuous development of technology, the Chinese musical instrument manufacturing industry is undergoing a technological revolution. Currently, many instrument manufacturers are utilizing new technologies such as 3D printing, virtual reality, and laser processing to change the development direction of the instrument manufacturing industry. They utilize these new technologies to achieve breakthroughs in design concepts, manufacturing processes, product quality, and other aspects.

In addition, the Marketing channel of the Chinese musical instrument manufacturing industry is constantly expanding, and the network channel has become a new key development area of the industry. Enterprises in the Chinese musical instrument manufacturing industry are increasing their internet marketing efforts, promoting musical instrument products to consumers through online channels such as e-commerce and social media to meet their diverse needs.

In addition, the Chinese musical instrument manufacturing industry is also strengthening international market development and striving to expand export channels. Chinese musical instrument manufacturers are striving to seize the international market and launch more musical instrument products with Chinese characteristics to meet the needs of global consumers.

Overall, the market size of China's musical instrument manufacturing industry has been continuously expanding, and the future development trend is foreseeable. Chinese musical instrument manufacturers will continue to increase investment in research and development, use modern technology to improve product quality, expand Marketing channel, improve product design, expand the international market, and provide consumers with more high-quality musical instrument products to meet the diversified needs of consumers, further expand the market, improve market competitiveness, and promote the development of Chinese musical instrument manufacturing industry.

The Instrument Map project team has initially established the overall development strategy on the basis of analyzing the market law of the product and Technology life cycle. In the early stage of entrepreneurship, based on the core technology, through the goal gathering and low-cost strategy, relying on the progressiveness and uniqueness of the company's products, it infiltrated into the market dominated by Guangzhou, quickly occupied the target market, recovered the investment, improved customer satisfaction, and established brand awareness. In the growth process of the company, adopt a differentiation strategy to explore the eastern and central regions. In the mature stage, we focus on technological innovation, continuously develop and improve a series of products and services, expand new business, form multiple product modules, and avoid the risk of single operation. On the basis of accumulating a certain number of customers, through brand strategy, establish a brand image, focus on forming the company's brand effect, and develop a cost leading strategy to expand the national market, gradually expanding into the western region, and simultaneously exploring new markets and stabilizing the already occupied market.

Through 5-8 years of efforts, this platform will become a Carbon emission trading

platform service provider with multiple independent intellectual property rights and a relatively high-tech content, striving to become a leading comprehensive service platform for musical instrument trading in the Asia Pacific region.

Table 5-1: List of Activities and Time Sorting

Time	Content arrangement
2023.12~2024.02	Preliminary preparation stage: Conduct final optimization of the platform architecture based on market research and analysis, combined with the current market situation; Related software and hardware purchases, team technology penetration
2024.02~2024.06	System development stage: Develop based on system architecture combined with blockchain technology, mainly using the Fabric platform and developing on the basis of existing source code
2024.06~2025.09	Internal trial phase: Collaborate with the government and enterprises on a small scale to obtain data for internal testing of the platform, solve problems that arise in actual operation, fine tune the architecture, and improve the service framework
2025.09~	The platform is officially put into use and carries out marketing and publicity work

5.2 Strategic Planning and Implementation

This project will be customer-centric, market-oriented, and supported by core technologies, committed to solving user pain points, providing efficient and personalized instrument trading services for users, and promoting sustainable development of related industries. Based on this, the project is planned to take three steps in the next 5 to 10 years: in the first stage, the company will be registered and established, with concentration and marketization as the company's Marketing strategy. The project will be initially launched in Guangzhou, and gradually radiate to the Yangtze River Delta region; In the second stage, expand application scenarios and improve the product industry chain. While expanding business in the Yangtze River Delta region, adopt differentiated strategies to gradually expand the markets in the eastern and central regions, while focusing on reducing operating costs and achieving economies of scale; The third stage is to explore the national market, expand the company's business coverage nationwide, provide diversified value-added services, and explore more possible profit models based on platform data.

(1) Phase I: centralized market Marketing strategy, focusing on Guangzhou and radiating the Yangtze River Delta (the first two years)

(2) Phase 2: Improve the product chain and expand the eastern and central regions through differentiated strategies (3-5 years)

(3) Phase 3: Cost leadership strategy to expand the national market and implement the "going global" strategy (5 years later)

5.3 Technology Innovation Strategy

The competition between technology-based enterprises is manifested externally as the competition of products and services, but in essence, it is the competition of technology. Technology is the core of a product, and technological innovation is the source of power that drives technological progress and product updates. Based on the important position of technological innovation, we have formulated the following technological innovation strategies:

(1) Continue the research and development of related core technologies, especially the research and development of related products based on Internet of Things technology, map monitoring technology and Big data technology, and strive to improve the technical added value and quality level.

(2) Market demand and market opportunities drive technological innovation. Our company is sensitive and forward-looking in responding to the current market demand situation, seeking to rely on technological innovation strategies to adapt to changes in market demand, striving to establish industry standards, and consolidating its advantageous position in the industry.

(3) Collaborate with external forces and focus on technical cooperation. The resources for implementing technological innovation strategies are mobile among enterprises in the same or related industries. Our company should actively engage in industry exchanges, jointly develop innovative products in competition and cooperation, and promote industry development.

5.4 Talent Strategy

The foundation for the company's development and growth is the cultivation and introduction of core talents, which are the driving force for the company's sustainable development and the focus of the human resources department's work. Therefore, the company has formulated the following talent strategy:

(1) Develop detailed employee growth and skill training plans, systematically train company employees, improve professional skills, and clarify career development directions and paths.

(2) Improve the company's salary incentive system, develop corresponding equity incentive systems, and attract and retain core talents.

(3) Through cooperation between universities and research institutions, while fully leveraging the role of existing scientific research talents in industry and academia research, we accelerate talent introduction, borrow external wisdom, and continuously "transfuse blood to strengthen our body", effectively accelerating the pace of technological innovation in the company.

Chapter 6 Team and Management

6.1 Team Overview

The project team is a team with high education, multi-disciplinary, entrepreneurial passion and executive ability. It has outstanding students in South China Normal University and ShanghaiTech University. Each member of the entrepreneurial team has a solid theoretical basis and rich practical experience in technology, market, finance, human resources, and Information science technology, effectively combining what they have learned with what they have used. In the early stages of the company's establishment, the main person in charge will be members of the entrepreneurial team, and high-end technical talents and high-performance sales personnel will be hired. In the future development process, corresponding adjustments will be made according to actual needs, and more outstanding professionals from relevant industries will be hired to join the company.

6.1.1 Introduction to the Instructor

Research and Technology Guidance Teacher: Cao Yang

He graduated from the Management science and Engineering Department of the National University of Defense Technology in 2002, and has been engaged in scientific research in the field of information technology during his studies and since he started his work. During my master's and doctoral studies at the National Defense University of Science and Technology, I participated in the research projects of the National Defense University of Science and Technology's pre research project "Comprehensive Document Groupware

System", the Ninth Five Year National Defense pre research project "Research on Communication Network Reliability Simulation and Evaluation Technology", and the National Defense Science and Technology Pre research Fund project "Research on Reliability and Security of Electronic Information Systems"; I graduated in 2003 and was assigned to work at the First Military Medical University. During this time, I participated in the research and development of the military's "Tenth Five Year Plan" engineering model project "Research and Application of Inspection Information System". As the project leader, I completed the Guangdong Natural Science Foundation doctoral initiated project "Security Management Mode and Application Research of Healthcare System". Since being transferred to the School of Computer Science of South China Normal University in 2006, he has participated in one hundred projects in Guangdong Province, namely, "Demonstration Research on Spatial Information Integration and Application in Guangdong Province", "Research on Spatial Information Sharing System Integration and Typical Demonstration", and "Research on XML based Public Welfare Spatial Information Service System" National Fund Project "Research on Theory and Method of Online Spatial Overlay Analysis" and "Research on Mobile Node Positioning Method of Underwater Sensor Network Based on Monte Carlo Method", "Network Security Situation Assessment and Application System Development and Industrialization" of the Ministry of Education of Guangdong Province, "Research and Application of Role based Data Warehouse Hierarchical Security Model" The independent research project of the State Key Laboratory of Resources and Environment Information System, "Research on Visualization Solution in Data Management and Sharing and Construction Method of Data Grid", etc. At present, as the project leader, I have presided over the research on the stability support fund project of the Key Laboratory of National Defense Science and Technology "Research on the Construction of Military intelligence Facts Map and Visualization Analysis Technology", and as the sub project leader, I have participated in the research and development plan project of key fields in Guangdong Province "Research and Development and Demonstration of Key Technologies and Equipment for Monitoring, Early Warning and Rapid Response of Major Mass Mountain Disasters". In 2015, he won the second prize of the Guangdong Provincial Science and Technology Award (ranked third).

Business Planning Instructor: Lu Liuxing

Lu Liuxing/Lecturer/PhD, who focuses on user privacy and privacy computing in fields related to information behavior, has participated in research on user privacy protection and other related topics. Published 2 SCI/SSCI papers, 1 EI paper, and more than 10 CSSCI papers in important academic journals both domestically and internationally. Participated in multiple important academic conferences and presented papers.

6.1.2 Introduction to Team Members

Team leader/Li Nieming

Students in the School of Artificial Intelligence of Aberdeen School of Data Science and Artificial Intelligence of South China Normal University are mainly responsible for the design and development of applications, and have strong technical practical ability.

Team member/Mei Xue

Software engineering students in Aberdeen School of Data Science and Artificial Intelligence of South China Normal University are mainly responsible for user demand analysis and business plan writing, with strong business sensitivity.

Team member/Wan Yiqing

Software engineering students in Aberdeen School of Data Science and Artificial Intelligence, South China Normal University are mainly responsible for application vulnerability modification and application testing. They are highly speculative and can accurately correct application errors.

6.2 Company Organizational Structure

6.2.1 The first stage of company development (1-3 years)

In the first three years of the company's development, the organizational structure aims to be flexible and efficient, and it is planned to adopt a linear functional organizational structure. Implement a general manager responsibility system under the leadership of the board of directors, with six functional departments under each department manager responsible for clear division of labor and cooperation. The company plans to hire experts with core technology and practical experience as a consulting team.

The Organizational chart is shown in Figure 6-1:

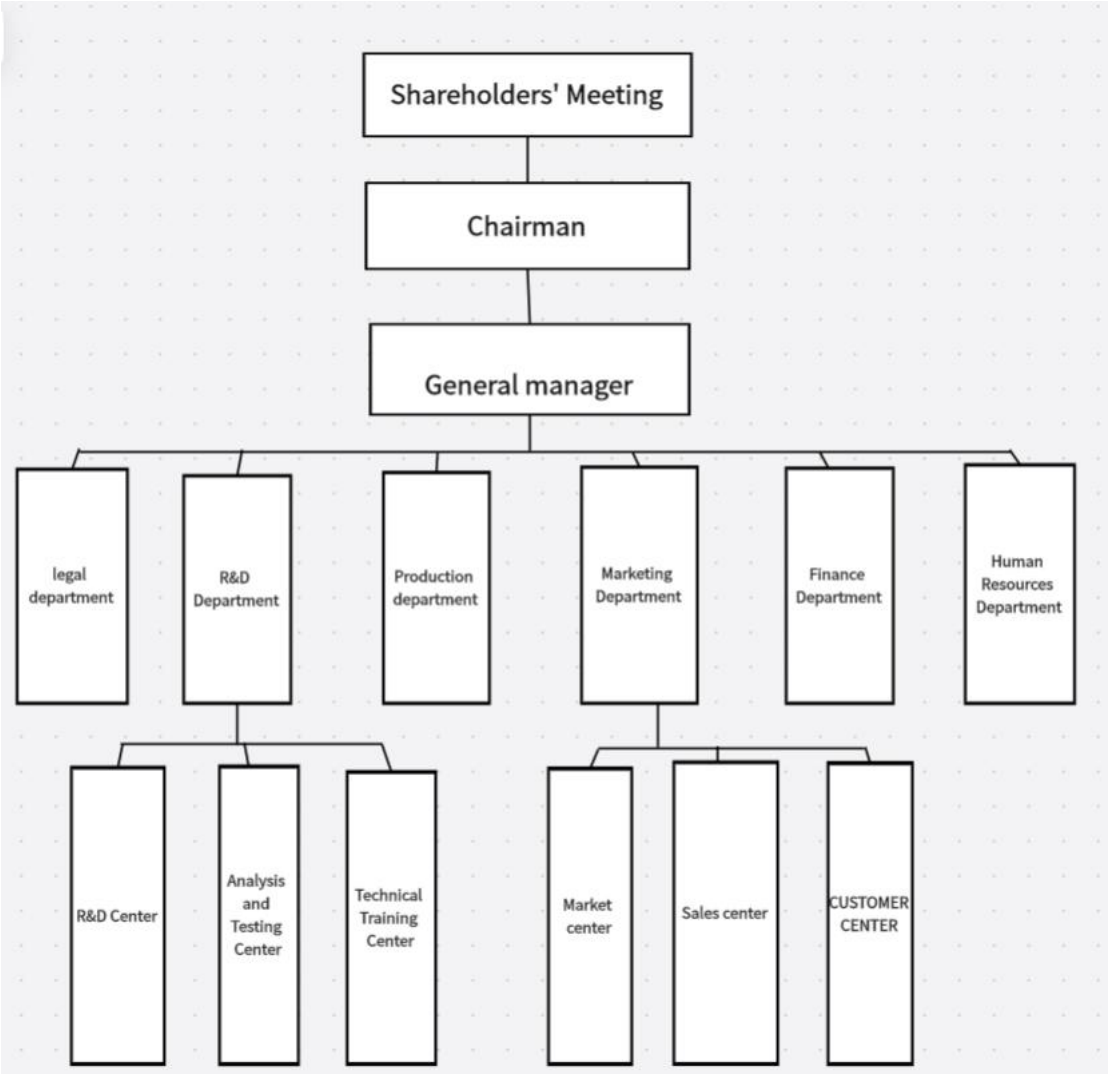

Figure 6-1 Organizational chart of the First Stage of the Company's Development

6.2.2 Second stage of company development (4-6 years)

In the rapid growth stage of the company, to fully promote its business to the national market, the marketing department is required to have strong market promotion, product sales capabilities, and good after-sales service. Therefore, the marketing department is further divided into marketing department, sales department, and customer department, each performing their respective duties.

The marketing department is responsible for drafting market development plans and marketing promotion plans; Investigate and collect market information; Market analysis and forecasting; Develop marketing, product, image and other business plans, and collaborate with sales and customer departments to implement them.

The sales department formulates marketing policies and strategic plans based on the sales goals set by the company, and is responsible for the sales of products; Organize the delivery of products and accept returns.

The customer department is responsible for collecting customer information; Organize customer issues and provide feedback to relevant departments such as sales and technical departments; Establish a customer information database and

form an information management system for customer information.

The Organizational chart is shown in Figure 6-2:

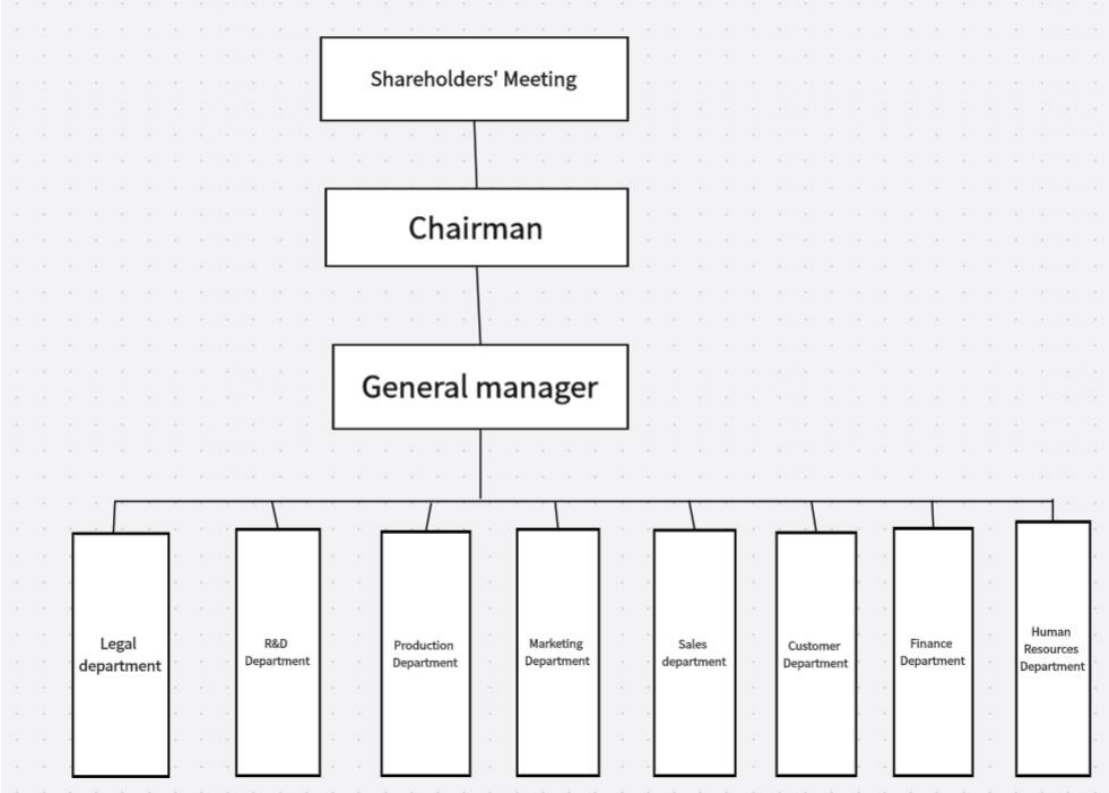

Figure 6-2 Organizational chart of the Second Stage of the Company's Development

6.2.3 Third stage of company development (7-10 years)

After expanding the domestic market, the company needs to actively acquire international market share and further expand its business scope and scale. At this stage, the company will focus on research and development. At this point, the organizational structure should be adjusted in a timely manner, guided by technological development.

Add marketing, technical, and financial directors to assist the general manager in making decisions and handling daily affairs.

The production department has been adjusted to a production center under the R&D department, with a focus on developing new processes. The functions of the production department have been weakened, and it has been changed to a production center directly under the R&D department.

The Organizational chart is shown in Figure 6-3:

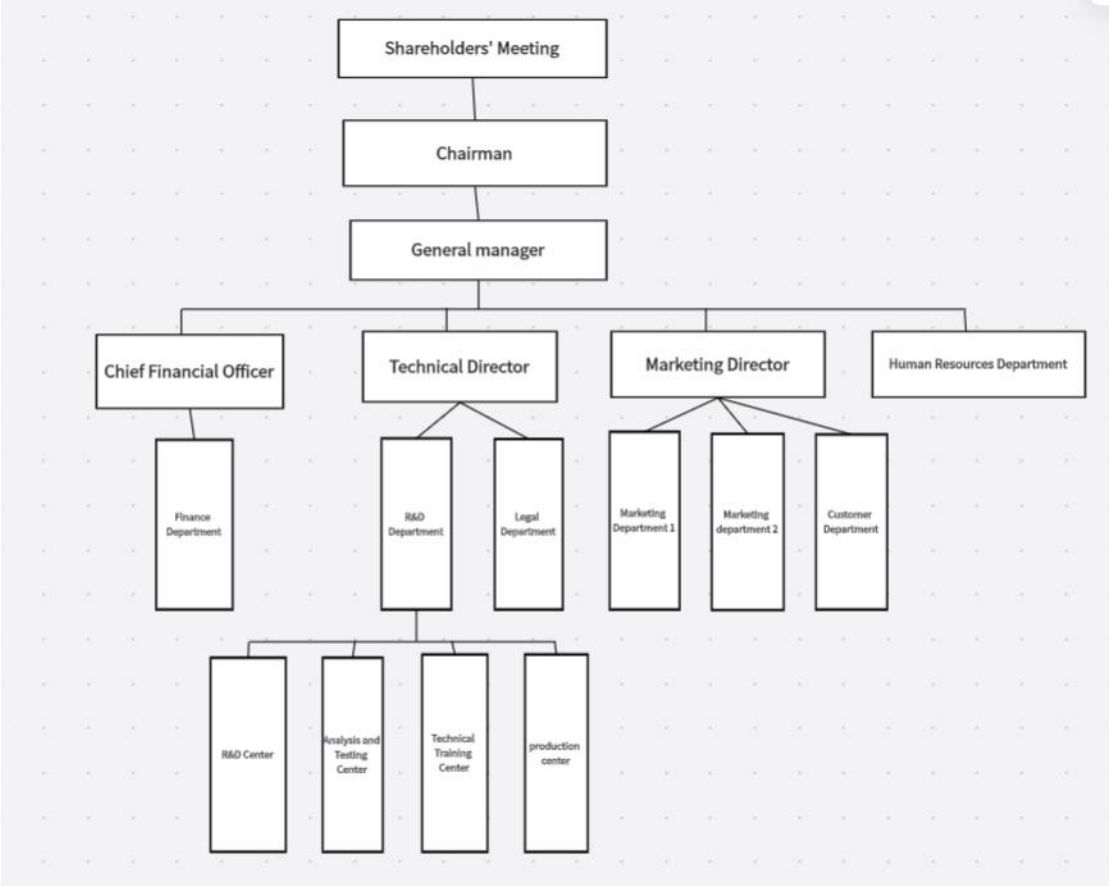

Figure 6-3 Organizational chart of the Third Stage of the Company's Development

6.3 Performance and Incentive System

6.3.1 Performance evaluation

(1) Assessment purpose

The company conducts regular evaluations of employees' work performance through scientific assessment methods, motivating and constraining employees, and achieving the expected goals of the company.

(2) Assessment principles

1) The principle of fairness and justice: fairness and justice are guarantees for achieving efficiency and all work.

2) Principle of results disclosure: The assessment results shall be disclosed to the entire company for a certain period of time.

3) Feedback principle: Individual analysis of results feedback.

4) The principle of differentiation: Different assessments are conducted for employees in different positions.

5) Combining the principle of rewards and punishments: Based on the results, fair rewards and punishments are given to motivate employees.

(3) Assessment implementation

1) Performance Management Committee

The company has a performance management committee composed of leaders at all levels and selected employees.

2) Human Resources Department

The personnel department should develop different assessment plans based on different departments, implement the assessment process, and summarize, evaluate, and archive assessment materials, scores, etc.

3) Each functional department

Different departments can conduct assessments based on their responsibilities, and each functional department has one assessment specialist.

(4) Assessment method

According to the division of job levels, the company has established different performance evaluation methods to form the company's performance evaluation system.

Table 6-2 Assessment Methods

Assessment object	Monthly	Quarter	Annual	Assessment Description
Senior management			KPI assessment Work report	KPI assessment for achieving business efficiency
middle managers		KPI assessment Work report	Sum of quarterly assessment points for the current year/4	KPI assessment based on job qualifications and achievement of strategic goals
first-line manager		KPI assessment Behavioral assessment	Sum of quarterly assessment points for the current year/4	KPI assessment and key behavior assessment based on KPI implementation
R&D personnel	Target assessment Behavioral anchoring	Sum of monthly assessment points for the current quarter/3	Sum of monthly assessment points for the current year/12	Parallel assessment of performance goals and capability development goals
Production personnel	Job KPI Target assessment	Sum of monthly assessment points for the current quarter/3	Sum of monthly assessment points for the current year/12	Goal decomposition and achievement evaluation, as well as the achievement of various KPT indicators

Salesperson	Job KPI 360 degree assessment	Sum of monthly assessment points for the current quarter/3	Sum of monthly assessment points for the current year/12	Achievement of sales targets

(5) Performance Appraisal Application

1) Performance bonus allocation

Determine the level of performance evaluation based on the results of performance evaluation and allocate performance bonuses.

2) Commendation

Sort the annual evaluation scores of company employees, award the "Outstanding Award" to the first place, and report the commendation and award the bonus.

3) Training and personnel adjustments

① The winner of the "Outstanding Award" with an assessment result of A for three consecutive months should be listed as a key training object, and incentive methods such as expatriate training and job rotation training should be implemented.

② Those who have been evaluated twice within a year as "below the requirements" shall be demoted, laid off, or dismissed.

③ The Human Resources Department summarizes the assessment situation, analyzes the effectiveness of the assessment, proposes the growth points, existing shortcomings, and problems that can be further improved for the company's employees, as well as the further development direction and potential that the employees can unleash; At the same time, improve the performance evaluation plan.

6.3.2 Employee compensation and benefits

In our company's management system, employee compensation is composed of three parts: static salary, dynamic salary, and human salary.

(1) Static salary

Static salary, also known as the basic salary of employees, is determined based on the different responsibilities of each position and paid monthly to ensure the basic living needs of employees.

(2) Dynamic salary

Dynamic salary, that is, the Performance-related pay of employees, will be paid according to the assessment results of employees. Its amount is not fixed and changes with the performance of employees, so as to play a role in motivating employees.

(3) Human salary

Human salary, which refers to the annual merit pay (enterprise seniority allowance) and other allowances stipulated by the company, is a form of encouragement and compensation for new employees with lower salaries and employees who have served the company for a long time.

Table 6-3 Personnel Salary

Senior management personnel	Middle management and technicians	Grassroots employees
Static salary (70%)	Static salary (70%)	Static salary (70%/80%)
Dynamic salary (30%)	Dynamic salary (30%)	Dynamic salary (30%/20%)

The calculation method of dynamic salary:

Administrative Management Sequence Dynamic Salary (Performance Bonus)=[Annual Salary - (Monthly Static Salary+Personnel Salary) × 12] × (Score obtained from target assessment) × 100%)

Sales sequence dynamic salary (commission bonus)=effective contract sales amount × 5% or 10% (commission).

Product development award=0.1% of directly generated sales revenue or 0.5% of gross profit.

6.3.3 Employee motivation and constraints

(1) Stock Option Plan

For middle and senior managers and core personnel, stock option plans will be adopted, including illegal stock NQSO and incentive stock ISO. Based on the characteristics of the high-tech industry, incentive stock forms will be adopted, and core personnel will be locked in the company through these incentive methods.

(2) Implement a high sales commission approach for market sales personnel to enhance their work enthusiasm.

(3) Employee shareholding

Used to enhance employees' sense of ownership.

(4) Non salary incentives

Develop career development plans that align with each employee's own characteristics as much as possible.

(5) Constraint mechanism that balances internal and external factors

The Company implements a constraint mechanism combining internal constraints such as articles of association, contract constraints and institutional constraints with external constraints such as legal constraints and market constraints to effectively prevent Moral hazard and business management risks.

Chapter 7 Financial Analysis

7.1 Accounting Assumptions and Explanations

7.1.1 Accounting premises and assumptions

(1) Accounting entity

Our company is an economically independent legal entity and an accounting entity with independent accounting qualifications. (2) Going concern

(2) Going concern

Due to our excellent products and management, our company will not face bankruptcy or liquidation in the foreseeable future.

(3) Accounting installment

Our company's financial accounting installment is based on a one-year cycle, using the Gregorian calendar year system.

(4) Monetary measurement

Our company's accounting is measured in currency, using the Chinese yuan as the bookkeeping base currency to maintain the uniqueness of the currency and try to maintain the invariance of the currency value.

7.1.2 Relevant instructions

In order to facilitate the determination of the specific content of cash flow, the following assumptions are made to simplify the calculation process:

(1) Full investment assumption

Assuming that when determining the cash flow of a project, only all investment movements are considered, without distinguishing between specific forms of cash flow such as one's own funds and the funds of a venture capital company. That is, to use all the actual existing funds as the capital for the operation of the company.

(2) Deterministic hypothesis

Assuming that the prices, costs, and income tax rates related to the project cash flow are known constants.

(3) Financial feasibility analysis assumptions

Assuming that the investment decision is made from the perspective of corporate investors, and the investors determine the cash flow for the purpose of conducting a project feasibility study, the project has already achieved national economic and technical feasibility.

(4) Assumption of investment funds during the construction period

Regardless of whether the original investment of the project is a one-time investment or a phased investment, unless otherwise specified, it is assumed that they were invested during the construction period.

(5) Time point indicator assumption

In order to facilitate the use of the form of time value of funds, regardless of whether the value indicators involved in the specific content of cash flow are actually time point indicators or period indicators, it is assumed to be processed

according to the year-end time point indicators; Among them, construction investment occurs at the beginning or end of the relevant year during the construction period, while current cash investment occurs at the end of the construction period; The recognition of income, costs, amortization, profits, taxes and other items for each year during the operating period occurs at the end of the year; The final scrapping or cleaning of the project occurs at the end point;

Investment income analysis: Based on the company's development plan, achieve the following goals in terms of investment income. In the early stage of construction, gradually improve the company's preparation work and purchase fixed assets; In the early stages of operation, due to the support of national policies, the company's various expenses were reduced, and the advanced product technology and prices were more reasonable compared to similar products, making it more popular; As the company's operations become more formal and the company gradually becomes profitable, the company expands its production scale and reinvests in it.

7.2 Financial statements

7.2.1 Balance Sheet

Table 7-1 Estimated Five Year Balance Sheet

Time / Project	First year	Second year	Third year	Fourth year	Fifth year
Property					
Current assets					
Monetary funds	1187500	1426300	1723600	3054200	4302100
Accounts receivable	724375	870043	1051396	1863062	2624281
Less: Bad debt reserves	35625	43789	51708	91622	129063
Inventory	197910	237710	287260	509030	717010
Total current assets	2074160	2490264	3010548	5334670	7514328
Fixed assets:					
Original value of fixed assets	400000	320000	240000	360000	210000
Less: Accumulated depreciation	80000	80000	80000	150000	150000
Net value of fixed assets	320000	240000	160000	210000	60000
Long-term Deferred Expense	100000	80000	60000	40000	20000
Intangible assets:					
Original value of	800000	750000	700000	650000	600000

intangible assets					
Less: Accumulated amortization	50000	50000	50000	50000	50000
Net value of intangible assets	750000	700000	650000	600000	550000
Total non-current assets	1170000	1020000	870000	850000	630000
Total Assets	3244160	3510264	3880548	6184670	8144328
Liabilities and equity					
Current liability:					
Accounts payable	1758602.4	1025896	192150.7	73072.4	228033.8
Interest payable	0	0	0	60000	30000
Dividend Payable	0	0	256150	935130	1226160
Tax payable	292578.8	366095.2	620638.6	523879.1	630478.8
Short-term borrowings	470698.1	640728.4	154453.5	14072.3	128033.8
Total Current Liabilities	2521879.3	2032719.6	1223392.8	1609173.8	2242706.4
Non Current liability:					
Long-term loan	0	0	0	1000000	500000
Total Non-current Liabilities	0	0	0	1000000	500000
Total liabilities	2521879.3	2032719.6	1223392.8	2609173.8	2742706.4
Owner's equity					
Paid-in capital	800000	800000	800000	800000	800000
Capital reserve	0	0	0	0	0
Surplus reserves	0	54263.6	257164.2	362594.8	505426.6
Undistributed profits	-77719.3	623280.8	1599991	2412901.4	4096195
Total owner's equity	722280.7	1477544.4	2657155.2	3575496.2	5401621.6
Total liabilities and equity	3244160	3510264	3880548	6184670	8144328

7.2.2 Income statement

Table 7-2 Income statement for the Expected Five Years

Time / Project	First year	Second year	Third year	Fourth year	Fifth year
1、Revenue	3855440	6236720	8080360	9150120	10643840
Less: Main business costs	2815480	3616430	4106610	4727070	5593430

2、 Main business profit	1039960	2620290	3973750	4423050	5050410
Less: Business tax and surcharges	17679.3	44544.9	67553.8	75191.9	85857
Selling expenses	700000	750000	850000	1000000	800000
Overhead	400000	500000	750000	750000	700000
Financial expenses	-	-	-	-	-
3、 Operating profit	-77719.3	1325745.1	2306196.2	2597858.1	4814553
Plus: Non operating income	-	-	-	-	-
Less: Non operating expenses	-	-	-	-	-
4、 Total profit	-77719.3	1325745.1	2306196.2	2597858.1	4814553
Less: Income tax (25%)	-	331436.3	576549.1	649464.5	1203638.3
Minority interest	-	-	-	-	-
5、 Net profit	-77719.3	994308.8	1729647.1	1948393.6	3610914.7

7.2.3 Cash flow statement

Table 7-3 Estimated Five Year Cash flow statement

Time / Project	First year	Second year	Third year	Fourth year	Fifth year
1、 Cash flow generated from operating activities					
Cash received from selling goods and providing services	3462510	5946210	9051610	9251610	11561550
Cash received related to other	0	0	0	0	0

operating activities					
Subtotal of cash inflow	3462510	5946210	9051610	9251610	11561550
Cash paid for purchasing goods and receiving services	3232444.7	3018703.5	4823749.7	4748413.5	4798644.4
Cash paid to and on behalf of employees	819215	1134895	1451596.5	1559697.8	1576197
Taxes paid	292576.8	366095.2	620638.6	523879.1	630478.8
Cash paid related to other operating activities	-	-	-	-	-
Subtotal of cash outflows	3525021.5	4519693.7	6895984.8	6831990.4	7005320.2
Net cash flow generated from operating activities	-62511.5	1426516.3	2155625.2	2219619.6	4556229.8
2、 Cash flow generated from investment activities					
Cash paid for the purchase and construction of fixed assets and intangible assets	400000	-	-	200000	-
Net cash flow generated from investment activities	400000	-	-	200000	-
3、 Cash flow generated from financing activities					
Cash received from absorbing equity investments	-	-	-	-	-

Cash received from borrowings	0	0	0	1000000	500000
Subtotal of cash inflow	0	0	0	1000000	500000
Cash paid for dividend and interest payments	0	0	256150	1055130	1316160
Subtotal of cash outflows	-	-	256150	1055130	1316160
Net cash flow generated from financing activities	0	0	-256150	-55130	-816160
4、 Net increase in cash and cash equivalents	-462511.5	1426516.3	1899475.2	1964489.6	3740069.8

7.3 Report Analysis

7.3.1 Analysis of important report data

Table 7-4 Analysis of Important Report Data

Time / Project	First year	Second year	Third year	Fourth year	Fifth year
Operating revenue	3855440	6236720	8080360	9150120	10643840
Net profit	-77719.3	994308.8	1729647.1	1948393.6	3610914.7
Total Assets	3244160	3510264	3880548	6184670	8144328
Net cash increase	-462511.5	1426516.3	1899475.2	1964489.6	3740069.8

Figure 7-1 Analysis and Comparison of Important Reports

From Table 7-4, it can be seen that the company's operating revenue, net profit, total assets, and net cash increase are generally on a continuous upward trend, indicating that the company's situation is steadily growing and has a promising future.

In the first year, due to the expenditure of a portion of research and development expenses and sales expenses in order to develop new technologies and expand markets, the profit growth was not significant.

In the third year, due to the improvement of production technology and the vast

market, the company expanded its reproduction, resulting in a significant increase in operating revenue.

7.3.2 Analysis of financial indicators

Table 7-5 Analysis of Financial Indicators

Category	Indicator Name	Indicator Description	First year	Second year	Third year	Fourth year	Fifth year
Profitability analysis	1. Profit margin of sales	Net profit/sales revenue	-2.02%	15.94%	21.41%	21.29%	33.92%
	2. Sales Gross margin	Gross profit/sales revenue	26.97%	42.01%	49.18%	48.34%	47.45%
	3. Cost profit margin	Operating profit/(sales cost+three fees)	26.56%	53.84%	69.63%	68.29%	71.20%
	4. Surplus cash coverage ratio	Net cash generated from operating activities/net profit	-	1.43	1.25	1.14	1.26
	5. Total Return on assets	(Total profit+interest expenses)/average total assets	-2.40%	37.77%	59.43%	42.97%	59.48%
	6. Return on Total Assets	Net profit/average asset value	-2.40%	28.33%	44.57%	31.50%	44.34%
	7. Return on equity	Net profit/average shareholder equity	-10.76%	67.29%	65.09%	54.49%	66.85%
Current ratio analysis	1. Current ratio	Current assets/Current liability	82.25%	122.51%	246.08%	331.52%	335.06%
	2. Quick ratio	Quick assets/Current liability	74.40%	110.81%	222.60%	299.88%	303.09%
Solvency anal	1. Asset liability ratio	Total liabilities/total assets	77.74%	57.91%	31.53%	42.19%	33.68%

ysis	**2. Equity ratio**	**Total liabilities/total owner's equity**	349.16%	137.57%	46.04%	72.97%	50.78%
Business Capability Analysis	**1. Current asset turnover situation**						
	(1) Accounts receivable turnover rate	**Operating income/average balance of accounts receivable**	532.24%	716.83%	768.54%	491.13%	405.59%
	(2) Inventory turnover	**Operating costs/average inventory balance**	1422.61 %	1521.36 %	1429.58 %	928.64%	780.10%
	(3) Current asset turnover rate	**Operating income/average share of current assets**	185.88%	250.44%	268.40%	171.52%	141.65%
	2. Fixed asset turnover rate	**Operating income/average net value of fixed assets**	1070.96 %	2227.40 %	4040.18 %	3210.57 %	7884.33 %
	3. Total asset turnover rate	**Operating income/average total assets**	118.84%	177.67%	208.23%	147.95%	130.69%
Development Capability Analysis	**1. Sales growth rate**	**(Current year's sales revenue - previous year's sales revenue)/Last year's sales revenue**	-	61.76%	29.56%	13.24%	16.32%
	2. Capital accumulation rate	**(Ending balance of owner's equity - beginning balance of owner's equity)/beginning**	-	104.57%	79.84%	34.56%	51.07%

		balance of owner's equity					

(1) Profitability analysis

[Profit margin of sales]

This indicator has been negative for the first year. In the first year of a company's establishment, various expenses and costs were high, the market was not yet open, the market share was low, the company suffered losses in operation, and the net profit was less than zero. Therefore, this indicator is negative, which is a stage that new startups will go through. There is no need to worry, but it is important to pay attention to whether the company's business strategy is in line with the specific situation of the target market. At the same time, it is necessary to strengthen cost control and increase sales volume. In the next four years, interest rates have steadily increased, and the enterprise is steadily developing. Sales volume has expanded, market share has increased, and profits have increased. At the same time, the cost and expenses of the enterprise in operation are controlled within a certain range, and the financial situation of the enterprise is good. This indicates that the enterprise has a strong competitive advantage and development potential, reflecting its development in line with market development and catering to consumer market demands.

[Surplus cash coverage ratio]

Due to the negative first year net profit of the enterprise, there is no surplus cash protection ratio. The indicators for the following four years are all greater than 1, indicating that the net cash flow of the enterprise is greater than the net profit. The net profit generated by the enterprise's operating activities contributes significantly to cash, and the enterprise has abundant liquidity funds, which can meet the cash turnover needs of the enterprise, prepare for the expansion of the enterprise's operation, and fully utilize surplus cash for investment. At the same time, enterprises need to pay attention to maintaining a reasonable surplus cash protection ratio. If the ratio is too high, it indicates that sufficient liquidity funds have not been effectively utilized. Therefore, it is necessary to achieve moderate expansion of enterprise scale based on the scale of surplus cash.

[Total Return on assets, total return on assets]

Due to negative net profit in the first year, all indicators are negative; In the following four years, the overall indicator value tends to rise, especially in the development period, where the enterprise has expanded the market, operated through multiple channels, and has a strong ability to use enterprise assets to obtain profits. The funds required to achieve the same sales level are gradually decreasing, and the comprehensive utilization effect of all enterprise assets is good.

[Return on equity]

Return on equity (ROE) is the core indicator for evaluating a company's capital operations. The indicator remains at around 60% from the second to fifth year, reflecting the company's excellent operational performance, strong ability to obtain profits from its own capital, good operational efficiency, and high level of protection for investors and creditors' interests.

(2) Current ratio analysis

On the whole, the enterprise's Current ratio keeps increasing, and at a relatively high level, the enterprise's liquidity is strong, reflecting the enterprise's short-term solvency. Not only can it meet daily business needs, but it can also provide more sufficient temporary financing to meet the maturing debt needs, accelerating the company's capital turnover.

(3) Business Capability Analysis

[Accounts receivable turnover rate]

It is an important indicator for evaluating the liquidity of accounts receivable. Timely collection of accounts receivable by enterprises can not only reduce bad debt losses, but also enhance short-term debt repayment ability. Overall, our company's accounts receivable turnover rate is relatively high, with fast collection speed and strong asset liquidity. However, it is necessary to stabilize the accounts receivable turnover rate of the enterprise within a moderate range, which can ensure asset liquidity while not affecting the company's sales volume.

[Inventory turnover]

It is a comprehensive indicator for measuring and evaluating the management status of various links such as inventory purchase, production input, and sales recovery of enterprises. In five years, the Inventory turnover rate of our company has remained at a high level. The Inventory turnover rate is fast, the liquidity is strong, and the enterprise's Working capital occupies less inventory, which can maintain an advantage in similar enterprises. At the same time, it should also compare and analyze with similar enterprises, and maintain a reasonable Inventory turnover rate in combination with its own characteristics, so that the inventory can not only ensure the continuous operation of the enterprise, but also occupy as little operating funds as possible, improve the efficiency of enterprise capital utilization, and improve the enterprise management level while ensuring the solvency of the enterprise.

[Fixed asset turnover rate]

It reflects the speed of turnover of fixed assets in enterprises, used to measure and judge the ability of fixed assets to generate sales revenue. From the table, it can be seen that our company's fixed asset turnover rate is very high. On the one hand, it indicates that the utilization rate of fixed assets is high, there are few idle equipment, and the management level is high; On the other hand, it also indicates that the enterprise itself belongs to the sales type, and the fixed assets of the enterprise do not need to be constructed too much. At the

same time, in the fourth or fifth year, the expansion of sales channels led to a much greater increase in sales revenue than the increase in fixed assets, resulting in rapid growth.

(4) Development Capability Analysis

[Sales revenue growth rate]

It is the source of enterprise value growth. In the first two years, the company adopted various sales methods, and its sales revenue grew rapidly, rapidly opening up the market. In the third to fifth year, due to the large sales revenue base of the previous year, the growth rate of sales revenue is relatively low, which cannot indicate that the company's development ability is poor. The growth rate of sales revenue of the company has dropped to a reasonable range. However, compared with the previous two years, the growth rate of sales revenue has indeed declined significantly, which indicates that managers should take various measures in the later development, such as exploring new markets, expanding Marketing channel, and improving market share; We also need to expand research and development investment, develop new products, and attract multiple types of consumers to maintain the growth of enterprise sales revenue.

[Capital Accumulation Growth Rate]

It is the ability of an enterprise to accumulate capital that year and an important indicator for evaluating its development potential. Overall, the growth rate of capital accumulation in enterprises is at a good level. With a large amount of capital accumulation, enterprises can effectively cope with market risks and have a good ability to sustain development; At the same time, enterprises can use their accumulated capital to expand their business scale, enhance their own strength, enhance their visibility, and establish a good corporate image in the minds of consumers.

7.4 Feasibility Analysis

Table 7-6 Estimated Net Present Value Flow Table (Unit: RMB)

	First year	Second year	Third year	Fourth year	Fifth year
Net cash flow	-462511.5	1426516.3	1899475.2	1964489.6	3740069.8
Accumulated net cash flow	-462511.5	964004.8	2863480	4827969.6	8568039.4
Discounted net cash flow	-412956.7	1137210.1	1352008.9	1248468.7	2122216
Accumulated net cash flow after	-412956.7	724253.4	2076262.3	3324730.9	5446947

discount					

7.4.1 Net present value of investment

$$NPV = \sum_{t=0}^{n} \frac{CF_t}{(1+k)^t}$$

In the formula: - net cash flow of each period, - benchmark discount rate.

The interest rate for short-term bank loans (1-year term) is 6%. Considering the current low cost of funds, as well as factors such as the opportunity cost of funds and the risk of investment, k is taken as 12% (the same below).

After calculation, the net present value (NPV) of the project over five years is 5446947 yuan

The net present value of 5446947 is much greater than zero, proving that the investment project is feasible and can bring excess returns to investors.

7.4.2 Investment payback period

Investment payback period (PP)=(year when the cumulative net cash flow begins to show a positive value) -1+(absolute value of the cumulative net cash flow of the previous year/net cash flow of the current year)

The dynamic investment payback period refers to the total time required to offset the original investment present value with the present value of the net cash flow of the investment project, taking into account the time value of money. That is, the time required for the project from the beginning of investment until the cumulative discounted cash flow equals 0. The static investment payback period refers to the time required to recover all original investment amounts without

considering time value.

According to Tables 7-6, it can be concluded that:

The static payback period of this project is 2-1+462511.5/1426516.3=1.324 (years)

Dynamic payback period=2-1+412956.7/1137210.1=1.363 (years)

The investment payback period, as an indicator for project feasibility analysis, mainly reflects the payback period of project investment. The shorter the indicator, the better. A short payback period indicates that the project has good profitability and low investment risk. According to the above table, the dynamic investment payback period of the project is 1.363 years, which is a relatively short investment payback period, making it a considerable investment project.

7.4.3 Intrinsic Rate of Return

The internal rate of return is the discount rate at which the cumulative present value of net cash flow for each year within 5 years of a project equals zero. It is an important indicator for evaluating the profitability of a project and reflects a compensation and reward for the occupied funds.

According to the Cash flow statement, the IRR is calculated as follows:

$$NPV（IRR）=\sum_{t=0}^{n}\frac{CF_t}{(1+IRR)^t}=0, IRR=335.08\%$$

The embedded return rate reaches 335.08%, which is much higher than the investment return rate of 12%. The project has strong feasibility. The reason is that the cost and price of hardware products are low, while the sales price of the

entire product is high, resulting in a higher sales profit margin. Moreover, the market growth in the first five years has been very good.

7.4.4 Breakeven Analysis

The breakeven point (breakeven point) refers to the point where the total sales revenue and total cost are equal, and there is neither profit nor loss. The sales volume (amount) that happens to be breakeven is the boundary point between a company's loss and profit.

Break even point amount=Fixed cost/contribution gross profit rate

Contribution Gross Profit Rate=Total Contribution Gross Profit/Sales Income

Total contribution gross profit=total sales revenue - total Variable cost

Table 7-7 Breakeven Analysis Table (Unit: RMB)

	First year	Second year	Third year	Fourth year	Fifth year
Sales revenue	3855440	6236720	8080360	9150120	10643840
Fixed cost	1156632	2001987.1	2682679.5	2982939.1	3565686.4
Variable cost	2826700	3694530	4112400	4698560	5618730
Total contribution gross profit	1028740	2542190	3967960	4451560	5025110
Contribution margin ratio	0.26683	0.40762	0.49106	0.48650	0.47211
Break even	4334715	4911447.7	5463012.8	6131390.1	7552590

From Tables 7-7, it can be seen that in the first year of the company's establishment, due to the immature market, the sales revenue did not reach the

breakeven point. However, since the second year, it has exceeded the breakeven point and greatly exceeded it in three to five years. This indicates that after the company's operation enters the right track, profitability and growth are strong, and the development potential is enormous.

7.5 Equity control

This project team currently has 3 core members and 4 like-minded friends. After mature development, it is planned to establish a company. The expected capital contributions and equity composition of each member are shown in Table 7-8:

Table 7-8 Equity Ratio

Name of shareholder	Contribution amount	Share proportion
Li Nieming	120000	20%
Mei Xue	180000	30%
Wan Yiqing	90000	15%
Friend A	90000	15%
Friend B	60000	10%
Friend C	30000	5%
Friend D	30000	5%

7.6 Financing Plan

The entrepreneurial team should develop a reasonable financing scale based on the still in the development stage, as well as the demand for funds and the cost of financing. The project team plans to raise 1500000 yuan after establishing the company in the later stage to ensure the liquidity of the company's funds and the normal operation of the company.

Source of funds:

(1) Self raised funds

There are a total of 7 core members of the entrepreneurial team, with a self raised capital of 600000 shares.

(2) Bank loans

According to the overall deployment of the State Council on strengthening the construction of the credit guarantee system for small and medium-sized enterprises, the central government strongly supports the development of credit guarantee institutions for small and medium-sized enterprises, and guides financial institutions to carry out small guarantee credit business. The company's production and operation of high-tech products are in response to national policies, and the company has good development prospects. At the beginning of the company's

establishment, fixed assets purchased with self raised funds were used as collateral to apply for bank loans, and value chain financing was actively developed in the process of enterprise development to raise funds for later needs.

(3) Venture capital

The company is a high-tech start-up enterprise, and its personnel have good professional qualities. According to relevant policies, the company's operating products will assist in the construction of the national safety emergency guarantee system, improve road rescue speed, and ensure people's travel and traffic safety. The company has huge market opportunities and a good development trend, with certain technological advantages to meet the conditions for venture capital. This project team will appropriately raise venture capital to provide guarantees for the commercialization and industrialization of high-tech achievements, which is conducive to the further development of the company.

We expect to plan financing work in early 2022, with the funds used for the company's operations in 2022. The specific financing purposes are shown in Table 7-9:

Table 7-9 Financing purposes

Expenditure item	Estimated funding	percentage
Purchase	600000	40%
Office Facilities	300000	20%
System maintenance	375000	25%
Marketing	225000	15%

Chapter 8 Risk Management

8.1 Risk analysis and response strategies

The entrepreneurial process of this project team faces a series of risk factors, and once the risk truly occurs, it will hinder the entrepreneurial process and even lead to the failure of entrepreneurship. Faced with entrepreneurial opportunities, there are usually competition risks, market risks, management risks, financial risks, patent and technology risks, non market risks, and cooperation risks. Next, we will conduct risk analysis on various risk factors and develop corresponding strategies to actively respond.

8.1.1 Competitive Risks and Countermeasures

The competitive risks faced by applications mainly come from existing and potential competitors. In response, our team will:

(1) Always maintain an innovative spirit and the company remains sensitive to market trends; With the spirit of continuous innovation, relying on the fast pace of new product research and development, create a core advantage with "Scarcity".

(2) Form a network effect to prevent competitors from competing in the market.

(3) Through competitor analysis, it can be concluded that this application outperforms other similar platforms in terms of performance; At the same time, at present, no enterprise has formed a monopoly in the field of musical instrument application. For multilateral platforms, the most effective measures to prevent competition risks are to seize the market first, form economies of scale for the demander and supplier of musical instruments, trigger network effects and form a strong Moat system. Network effect can not only expand the application scale to reduce the average cost and establish cost advantage, but also prevent new entrants through Network effect. At the same time, it can lock users through user preferences and habits, making it difficult for existing competitors and potential competitors to occupy the market.

8.1.2 Market risks and response strategies

Due to the significant uncertainty in the future development of the company and the external market environment, it is necessary to make certain adjustments to the business model based on specific circumstances when necessary. During this process, the following issues may occur:

(1) Missing the opportunity for change without receiving feedback from the market and environment. To this end, our team closely monitors any risks and benefits that exceed our expectations. Through the participation and organization of communication among department members, we promptly identify market trends and establish corresponding mechanisms to quickly adjust our business model based on market feedback.

(2) Can the new business model effectively inherit the company culture and conflict with the current business model. In this regard, we will use the two-dimensional matrix framework proposed by Constantinos Markides to determine how to manage new business models and previous business models, and

determine whether to adopt separation or integration through two variables: degree of conflict and strategic similarity.

(3) The company's employees' lack of adaptation and understanding of the new model has caused obstacles to the company's operations. We will conduct eye-catching and multi-channel internal communication activities to announce changes in the business model, and through communication with employees, help them understand the logic and operation of the new business model.

8.1.3 Risk management and response strategies

The management risks faced by this application mainly include:

(1) **Team management risk**: The team faces personnel turnover and outdated management models. To this end, our team will build a team culture in terms of work atmosphere, development philosophy, corporate responsibility, and enhance the sense of identity among team members. In terms of salary and benefits, our team will provide reasonable benefits to members based on their own financial situation. In addition, the platform will adopt a flat management mode to ensure management flexibility and high response speed, and ensure the rationality and scientificity of decision-making.

(2) **Supply chain management risk**: Supply chain issues such as shortage of key raw materials will have a significant impact on product production and sales. Our team will establish strategic partnerships with upstream and downstream supply chain enterprises to ensure the stability of the supply chain.

(3) **Information security management risk**: as a core resource, the Carbon emission trading platform will suffer from malicious network attacks, which will make the team face the risk of platform function damage, team secret disclosure and user privacy disclosure. The team has a high level of technology and will actively build an information Safety management system to prevent malicious attacks from harming products, team secrets and user privacy.

(4) **Decision risk**: In the process of enterprise development, the decision-making, strategic deployment, and operational management ideas of the leadership department play a decisive role, and need to be flexibly adjusted according to market changes. In addition, the complexity and diversity of the market and individual differences in business operations will also increase the risk of decision-making and management errors. To this end, major decisions of the company will be discussed by all members of the entrepreneurial team and investors' opinions will be solicited. The daily management adopts a manager responsible board of directors supervision system, effectively avoiding the negative impact of personal factors on the company's management.

8.1.4 Financial risks and response strategies

In the development process of the studio, if cash management policies are not appropriate, there is a possibility of encountering a liquidity crisis. To avoid such situations, after reaching a certain stage of growth, our team will introduce advanced cash management systems, focusing on strengthening the management of accounts

receivable and payable, with the goal of shortening the cash conversion cycle. At the same time, we will also make full use of the financial support from various venture funds to further reduce Liquidity risk.

8.1.5 Patent and Technology Risks and Countermeasures

The technical risks of application mainly include the risk of being replicated by other teams, as well as the demand for rapid iteration of technology due to market development. Although this project has a high technical threshold, failure to pay attention to intellectual property protection and continuous technological updates may pose risks such as technology being replicated by other teams or falling behind market needs.

For the prevention of technical risks, on the one hand, our team will focus on intellectual property protection, apply for patents and software copyright protection, and prevent other teams and teams from imitating this product; On the other hand, our technical research and development team will continuously optimize existing hardware products and platforms, continuously improve related performance, and thus ensure the technological advantages of the existing market. At the same time, continuously enrich product functions to ensure that they always meet the needs of the market.

8.1.6 Non market risks and response strategies

During economic contraction, the survival environment for startups and small and micro enterprises deteriorates, and applications will face a decrease in the number of target customers, as well as the pressure brought by the economic situation.

To this end, first of all, grasp the direction of the national economic incentive policies, moderately adjust the company's operating mode and goals, so that the overall operating direction of the company is in line with the national economic incentive policies. Secondly, implementing scientific management, improving management efficiency, improving the efficiency of resource and labor utilization, in order to enhance market competitiveness. Finally, make full use of the existing opportunities and environment to rapidly develop the company and enhance the project's strength in facing economic risks and resistance to risks.

8.1.7 Cooperation risks and response strategies

In the increasingly fierce market competition, more and more enterprises have realized that relying solely on their internal resources is no longer enough to grasp the rapidly changing market opportunities and challenges. Therefore, they are seeking external resources to optimize and integrate resources, in order to quickly adapt to market opportunities, reduce costs, improve competitiveness, and achieve common goals. However, the asymmetry of information and the incompleteness of the credit system have brought some new risks to cooperation between enterprises. Among them, the most prominent is the disagreement among partners in terms of risk and investment sharing, incentive measures, and income distribution, which has

led to collaborators withdrawing midway and causing certain cooperative members to suffer varying degrees of losses.

The risks in enterprise cooperation can be divided into early stage risks and mid to late stage risks in chronological order. The control of early risks is mainly achieved through the selection of partners, allocation and confirmation of risks, formulation of allocation plans, decomposition of objectives, and establishment of performance evaluation indicators. In addition, the design of an integrity mechanism and the establishment of an exit mechanism are conducive to effective restraint of fraud and other behaviors. The mid to late stage risks are mainly achieved through the reasonable decomposition of inappropriate goals in the initial stage of project operation, timely adjustment of performance evaluation indicators, and strict monitoring of the implementation of project plans.

8.2 Exit Management of Venture Capital

8.2.1 Public listing

Public listing means that a company can issue shares on the securities market, and venture capitalists can transfer shares on the public market. This method is the most ideal exit channel for venture capital, and its investment return will also be higher compared to other methods. After the company's operation is mature, and in accordance with legal regulations, it is reorganized into a limited liability company and applied for listing. It publicly issues stocks on the securities market, and venture capital companies attach their stocks to the public market and sell them. They convert their private equity into public equity, and profit from resale to achieve investment returns. To this end, the company needs to ensure good operating conditions, sound financial structure, potential for continued growth, and compliance with policies and laws for listed companies. It should be noted that due to the complex legal procedures for listing in China, which require a preparation period of two years before and after, the application for listing on the Hong Kong Entrepreneurial Edition is fast and can be considered an ideal choice.

8.2.2 Project M&A

The project has good development prospects and a certain profit scale, but in the early stage of the company's establishment, due to the small scale of the enterprise, fierce competition in similar domestic markets, and numerous segmented markets, it is difficult to meet the requirements for listing in the short term, and it is not possible to publicly sell equity. Therefore, when the development is relatively mature, especially when the expected present value of investment returns exceeds the market value of the enterprise, the company can be packaged as a project and sold to strategic investors - another company or venture capital company, or merged by other enterprises. Strategic investors have achieved an increase in their own value by acquiring equity in the company, and the stock price has also risen accordingly; The investors of our company obtain investment returns by selling the company's shares, which is a win-win strategy to achieve the exit of venture capital

and obtain risk returns. Project mergers and acquisitions have the following advantages:

(1) Compared with corporate public offerings, it can recover investment faster;

(2) Project mergers and acquisitions usually choose stock exchange as the payment form, which can greatly reduce the financial pressure of the acquiring party compared to direct cash payment;

(3) Venture capital often intervenes in the seed stage and is fully invested and packaged as a whole. After the project matures, it can be sold as a whole to strategic investors at a price that is several times or even dozens of times the original investment, earning a generous premium.

8.2.3 Equity transfer

Equity transfer is a highly operational exit method in venture capital in recent years, where venture capitalists are unwilling or unable to continue investing and can transfer their shares to other investors. This approach is a highly feasible venture capital exit method for our company after it matures, as it has the following unique advantages:

(1) Almost unregulated, venture capital can quickly exit and obtain legitimate and considerable returns;

(2) The true charm of equity transfer lies in its ability to update equity, allowing the company to always have sufficient capital to maintain and increase value, leaving huge room for appreciation;

(3) Similar to project mergers and acquisitions, venture capitalists can also receive equity premiums. Due to its unique research and development technology, considerable profitability, and promising development prospects, venture capitalists can implement a stock transfer method, which not only recovers all investment but also earns considerable profits.

8.2.4 Bankruptcy liquidation

In order to guarantee the rights and interests of investors, once the company's operating condition deteriorates, the prospect of future earnings is poor, and the company is insolvent, the future company will negotiate with venture investors in strict accordance with the Bankruptcy in China Enterprise Bankruptcy Law and other relevant laws and regulations, so as to minimize the losses of venture investors. When the company is unable to pay its debts at maturity, we will withdraw from the venture capital and liquidate and go bankrupt. The investors will each bear the debts according to their respective contribution ratios, and distribute the company's liquidation assets.