STUDY ON SATISFACTION OF COLD CHAIN LOGISTICS MANAGEMENT IN SHUANGHUI COMPANY

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ABSTRACT

Cold chain logistics is an important part of current supply chain management. Taking Shuanghui Company as an example, this study analyzes the influencing factors of cold chain logistics management customer satisfaction and their relationships. The four study objectives of this study are: 1)To examine whether there is a relationship between cold chain logistics standards and customer satisfaction; 2) To examine whether there is a relationship between cold chain logistics system and customer satisfaction; 3) To examine whether there is a relationship between cold chain logistics warehousing and distribution system and customer satisfaction; 4) To examine whether there is a relationship between cold chain logistics information sharing mechanism and customer satisfaction.

Based on the cold chain logistics management of Shuanghui Company, this study adopted quantitative analysis method. Through questionnaire survey, 189 valid questionnaires were collected from the customers, and the following conclusions were drawn: 1) There is a positive correlation between cold chain logistics standards and customer satisfaction; 2) There is a positive correlation between cold chain logistics system and customer satisfaction; 3) There is a positive correlation between cold chain logistics warehousing and distribution system and customer satisfaction; 4) There is a positive correlation between cold chain logistics information sharing mechanism and customer satisfaction.

Keywords: Shuanghui Company, cold chain logistics management, satisfaction

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At this point, my postgraduate career is coming to an end, and I will not have such a precious campus life after graduation, but there are those bright or dull campus days on the way to school, which are all precious memories for me.

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Declaration

I, Huijian Zhai, hereby certify that the work embodied in this independent study entitled "Study on Satisfaction of Cold Chain Logistics Management in Shuanghui Company" is result of original research and has not been submitted for a higher degree to any other university or institution.

Zhai Huijian

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Chapter 1 Introduction

1.1 Background of the Study

With the rapid development of China's economy, China's residents have become more and more cognizant of food safety, people's consumption level has been upgraded, and the cold chain food supply has gradually become a hot spot of concern for residents (Zhou & Huang, 2022). The development of cold chain logistics has a huge role to play in ensuring food quality and safety, improving the living standard of residents, and reducing logistics loss and resource waste. The cold chain logistics field is ushering in a new era of innovation and development. In this context, the supply chain is also developing comprehensively, relying on the linkage between the supply chain for resource integration, mutual collaboration between the upstream and downstream industrial chains of enterprises, mutual promotion, and overall smooth operation to enable the stable development of enterprises in the whole industrial chain, which can greatly reduce the operating costs of enterprises and enhance their operational efficiency and service capacity (Li & Liu, 2021). The supply chain is one of the important elements of modern enterprise management, and is also an important source of enterprise competitiveness, which has a positive effect on enhancing the market share of enterprises. Compared with traditional logistics enterprises, cold chain logistics relies on the supply chain, which has a greater potential and stronger innovation. With the continuous formation of research on supply chain and cold chain logistics management, relevant theoretical achievements begin to be applied to specific business operations, guiding enterprises to focus on developing advantageous business. From the analysis of theories related to supply chain and cold chain logistics, enterprises rely on their own advantages to integrate resources and establish a perfect supply chain, which can ensure the smooth operation of the entire cold chain logistics and enhance the competitiveness of enterprises (Li, 2014).

As the current meat products production and consumption countries, China's demand for related meat products processing and production is also getting higher and higher (Zhang, 2015). Cold chain logistics is currently the main mode of transportation for meat products, which is the key to ensure the quality and safety of meat products. However, at this stage, the development degree of cold chain logistics in China, both in academic theory and social practice have not yet reached the level of developed countries, although there is a certain scale, but both the level of science and technology, the degree of standardization or the development of maturity of enterprises in developed countries cold chain logistics there is a small gap. China's

cold chain logistics started late, there are limitations in the development of cold chain technology, the technical level of the relevant aspects of cold chain logistics and facilities and equipment are not yet perfect, and currently can not meet the needs of the cold chain food circulation of processed meat products in China. The cold chain logistics management of each link in the supply chain is the fundamental guarantee for the safety and quality of cold chain products, so the research on cold chain logistics management is an urgent need in the development of logistics industry. This thesis takes Shuanghui Company as a typical case, combines relevant theoretical methods and survey data analysis, and proposes a set of cold chain logistics management optimization plan for Shuanghui Company , in order to ensure the smooth circulation of processed meat products, so as to improve the efficiency of logistics operation and enhance the core competitiveness of the enterprise.

1.2 Research Questions

The research questions of this article mainly focus on the following aspects:

1. Whether cold chain logistics standards have a positive impact on the customer satisfaction?

2. Whether the cold chain logistics system has a positive impact on the customer satisfaction?

3. Whether the cold chain logistics warehousing and distribution system has a positive impact on the customer satisfaction?

4. Whether the information sharing mechanism of cold chain logistics has a positive impact on the customer satisfaction?

1.3 Objectives of the Study

The main research objectives of this article are as follows:

1. To examine whether there is a relationship between cold chain logistics standards and customer satisfaction.

2. To examine whether there is a relationship between cold chain logistics system

and customer satisfaction.

3. To examine whether there is a relationship between cold chain logistics warehousing and distribution system and customer satisfaction.

4. To examine whether there is a relationship between the information sharing mechanism of cold chain logistics and customer satisfaction

1.4 Scope of Research

The focus of this article is to analyze the optimization of cold chain logistics management in Shuanghui Company. Based on the theory of cold chain logistics management, 38 relevant literature were reviewed to understand the current situation, existing problems, and optimization strategies of cold chain logistics management in enterprises, providing breakthrough answers for the problems in cold chain logistics management in Shuanghui Enterprise.

1.5 Research Significance

1. Theoretical significance

From the analysis of theoretical research level, the existing theories focus on logistics management, and there are more related achievements and research literature, but the main business of research is meat processing enterprises, especially the research on cold chain logistics management under the perspective of supply chain is less (Zhao, Ye & Shi, 2016). Most of the current research results involving cold chain logistics management analyze the traditional cold chain logistics management or focus on the optimization and upgrading of specific logistics links (Song, 2021). Based on the specific market development, this paper composes the existing research results and focuses on the optimization and upgrading of the cold chain logistics management of meat processing enterprises from the perspective of supply chain. Established in the supply chain perspective, we can more comprehensively discover the current situation of meat processing enterprise logistics from the enterprise supply chain, and clarify its advantages and problems. In the supply chain perspective to optimize and improve the cold chain logistics management model, but also to provide reference value for the development of cold chain logistics management.

2. Practical significance

There are still many problems in the management of cold chain logistics in Shuanghui Company at this stage. In order to meet the needs of the times and innovate modern logistics control methods. In this paper, we analyze the current situation of cold chain logistics management of Shuanghui Company and put forward suggestions for its optimization and upgrading, aiming to promote the synergistic development of many aspects of cold chain logistics and enhance market competitiveness. In order to adapt to the fierce competition in the market, Shuanghui Company also needs to upgrade the cold chain logistics management mode and create a more flexible cold chain logistics management, so as to optimize the supply chain utility and realize the cold chain To maximize the utility of cold chain logistics, reduce the operating cost and enhance the competitiveness of the company. Shuanghui Company is a meat processing enterprise, based on the specific situation of Shuanghui Company , analyze the shortage of cold chain logistics management from the perspective of supply chain, rely on relevant theories and company strategic planning, provide targeted solutions to optimize the company's cold chain logistics management, at the same time, the cold chain logistics management research results also have certain reference and reference value for similar meat processing enterprises, which is the practical significance of this study.

1.6 Limitation of the Study

There are the following limitations in this study:

1. Limited research sample: This study is limited to Shuanghui Company as the research object, and in reality, there are significant differences in cold chain logistics management between different companies, so the generalizability of this result may be limited.

2. Insufficient data collection and analysis: This study is mainly based on individual cases, and there may be insufficient information during the data collection and analysis process, which may lead to deviations in the reliability and accuracy of the results.

3. The implementation effect of optimization strategies needs to consider multiple factors: The optimization strategies proposed in this study are mainly based on the supply chain perspective, but in reality, the implementation of these strategies also needs to consider many factors, such as cost, technology, personnel support, etc.

Chapter 2 Literature Review

2.1 Introduction

This chapter mainly analyzes the research summary of scholars on this research topic from six aspects: cold chain management, cold chain logistics standards, cold chain logistics system, cold chain logistics warehousing and distribution system, cold chain logistics information sharing mechanism and customer satisfaction. By understanding the specific situation of Shuanghui Company and summarizing the experience of scholars, this paper provides theoretical support for the following discussion.

2.2 Literatures Reviews

2.2.1 Cold Chain Management

An(2010) put forward that cold chain logistics refers to a systematic work to ensure that perishable products such as refrigeration should be in a suitable, reliable and stable low-temperature environment, fully ensure food quality and safety, and reduce food loss. Chen(1999) thinks that the continuous development of cold chain infrastructure, equipment and refrigeration technology is an important foundation for its survival and development. Huo & Zhang (2017) believes that, unlike the traditional normal temperature logistics, cold chain logistics is temperature-controlled logistics, which can provide a low-temperature or constant-temperature control environment for cold chain products, thus fully meeting the fresh-keeping needs of the products themselves.

Cold chain logistics also has the following characteristics:

1. Cold chain logistics needs to ensure stable temperature in the whole process. Chen(2019) believes that perishable products that need to be refrigerated should remain stable in the whole process of transportation and circulation in order to avoid food safety risks, reduce enterprise losses and protect customers' interests.

2. Cold chain products have high quality requirements. Hu(2017) believes that in the process of product transportation, its quality is determined by three aspects, namely, three standards in cold chain logistics, namely, temperature, time and storage

resistance. Because the longer the circulation of goods, coupled with changes in temperature, is likely to lead to changes in product quality. This requires different products to be managed according to different temperature and time in cold chain logistics, so as to ensure product quality and improve the service level of cold chain logistics.

3. Cold chain logistics needs high cost. Li(2014) thinks that cold chain products should always be in a low temperature environment in order to ensure the safety and quality of their products during the whole product circulation process. Therefore, it is necessary to install necessary refrigeration equipment in the cold storage or refrigerated truck, and the cold chain logistics temperature control information management system needs to be configured in the background accordingly. The installation of these facilities and equipment requires a lot of capital investment, which increases the cost of cold chain logistics.

Fourth, the cold chain logistics transportation efficiency is high. Lan & Zhang (2003) thinks that because cold chain logistics products require high time and temperature, it is necessary to speed up product circulation, improve transportation efficiency and reduce product loss in the whole cold chain logistics operation.

Lu & Zhang (2021) believes that compared with the traditional management form of logistics industry, cold chain logistics management fully embodies the core ideology of supply chain, fully adheres to the principle of efficiency, and clearly identifies some key factors to improve management with the help of structural reengineering and process reengineering. Li (2020) believes that after comprehensive application of existing information management technologies, cold chain products should be fully controlled in the whole process of processing, storage, transportation and distribution, so as to promote the realization of optimal output ratio and minimum cost input and establish the core competitive advantage of cold chain management. Liu (2016) said that the biggest feature of cold chain logistics management compared with ordinary logistics management is that in the whole cold chain logistics link, products must be in the required constant temperature environment, and cold chain logistics management can ensure the safety and quality of products, reduce unnecessary product losses, and finally reach consumers quickly.

Yang & Song (2013) emphasized that as for the factors that should be paid attention to in cold chain logistics management, the formulation of cold chain logistics standards is particularly critical. Of course, Ma (2003) thinks that the perfection of cold chain logistics system also plays an important role in logistics

management. Some scholars also found that the cold chain logistics warehousing and distribution system is also a very key factor. In addition, the information sharing mechanism of cold chain logistics is also recognized as one of the key factors. Therefore, in the process of studying the cold chain management of Shuanghui Company, this paper also makes a concrete analysis with reference to these factors.

The related theories in this respect are as follows:

Japanese scholars believe that logistics can help enterprises save operating costs and put forward the theory of the third profit source. When expounding this theory, scholars point out that there are three kinds of profit sources corresponding to the profits obtained by enterprises in the process of operation. The first profit source is concentrated in the field of resources, which is simply to develop and utilize limited resources and obtain profits through them; The second profit source is concentrated in the field of human resources, that is, enterprises can obtain labor through lower costs, so as to achieve the purpose of saving costs and obtaining profits; The third profit source is concentrated in the logistics field, that is to say, if reasonable logistics methods are adopted in the process of transporting goods, the transportation cost can be saved to a certain extent, and finally the profit can be increased.

The value that logistics can bring to enterprises is presented in both time value and space value. In terms of time: many products have continuous production and consumption, but their production and consumption time is not fixed, and logistics can solve the time contradiction between production and transportation; In terms of space: producers and consumers are in different spaces, and logistics can create value by changing the spatial position of products, which is spatial value.

2.2.2 Cold-chain Logistics Standards

Cold chain logistics standards refer to a series of standards, such as temperature control, equipment requirements and operation specifications, which are formulated for different commodities and transportation links in the cold chain logistics process. Wang (2021) said that cold chain logistics standards are of great significance for ensuring food safety and improving the effect of commodity preservation. Song (2021) thinks that with the continuous development of cold chain logistics industry, the research and formulation of cold chain logistics standards has become a hot issue of concern.

The development of cold chain logistics standards has gone through the following stages:

1. Early stage: Liu (2021) proposed that from 1970s to early 1980s, domestic and foreign countries began to pay attention to cold chain logistics, and began to formulate specific cold chain logistics standards, such as HACCP standards in the United States and food hygiene standards in the European Union.

2. Standardization development stage: From the 1990s to the early 21st century, with the rapid development of cold chain logistics industry, various countries and organizations began to vigorously promote the standardization of cold chain logistics. In 2000, the International Organization for Standardization (ISO) established the TC104 Committee, which is responsible for the research and formulation of cold chain logistics standards.

3. Unified standard stage: From the mid-2000s to the present, the formulation of cold chain logistics standards began to show the characteristics of convergence. Song (2021) proposed that the cold chain logistics standards formulated by various countries and regions at home and abroad are getting closer and closer, such as the GB8968-2017 standard of China.

At present, the application of cold chain logistics standards mainly includes the following aspects:

1. Food industry: Cold chain logistics standards are most widely used in the food industry. Li (2021) proposed to ensure the safety and quality of food transportation and storage through strict temperature control and equipment requirements.

2. Pharmaceutical industry: In the pharmaceutical industry, cold chain logistics standards are mainly used to ensure the safety and effectiveness of drugs. Lan & Zhang (2003) proposed that this industry has reasonable temperature control and transportation requirements.

3. Biotechnology industry: In the biotechnology industry, cold chain logistics standards are mainly used for the transportation and storage of biological products. Li (2017) proposed to ensure the activity and quality of biological products through strict temperature requirements and equipment requirements.

The future research of cold chain logistics standards can be carried out from the following aspects:

1. Formulation of detailed standards: Li (2021) believes that with the progress of logistics technology, cold chain logistics standards need to be more detailed and detailed. Future research can formulate more specific and stricter standards and requirements for different commodities and transportation links.

2. Intelligent control technology: Wang (2022) believes that with the development of Internet of Things, big data and other technologies, future cold chain logistics standards can be combined with intelligent control technology to realize real-time monitoring of environmental parameters such as temperature and humidity.

3. Research on standards of cooked food and express delivery industry: Yang Hesong (2013) thinks that the demand for cold chain logistics in cooked food and express delivery industry is increasing, but the research on corresponding standards is still relatively weak. Future research can focus on the cold chain logistics of these two industries.

In general, the research and application of cold chain logistics standards are of great significance for ensuring food safety and improving the effect of commodity preservation. Liu & Yang (2017) said that with the continuous development of the cold chain logistics industry, the research on cold chain logistics standards needs to be further deepened, and the future research can be carried out from the aspects of refined standard formulation, intelligent control technology, standard research of cooked food and express industry.

2.2.3 Cold Chain Logistics System

Chen (2020) proposed that the cold chain logistics system refers to the overall structure and organization of cold chain logistics formed at three levels: material, process and information. Hu (2017) believes that with the continuous development of the cold chain logistics industry, the research on the cold chain logistics system has become a hot issue of concern. Li (2020) believes that the study of cold chain logistics system can improve the efficiency and quality of cold chain logistics through the organization and management of logistics, information flow and people flow, and ensure the safety and quality of goods during transportation and storage.

The research of cold chain logistics system is carried out from the following aspects:

1. Logistics: Wang & Liu (2021) pointed out that logistics is the core of cold chain logistics system, and the research on the path, process and efficiency of logistics is the focus of cold chain logistics system. At present, the research mainly focuses on the optimization of transportation routes, the layout and management of storage facilities and the research of temperature control technology.

2. Information flow: Liu & Yang (2017) believes that information flow is an important part of cold chain logistics system, and it is of great significance to study the flow and management of information flow to improve the efficiency and reliability of cold chain logistics. At present, the research mainly focuses on the construction and management of information system, the formulation and application of logistics information standards and so on.

3. People flow: Song (2021) pointed out that people flow refers to the organization and management of personnel and managers involved in the cold chain logistics system. Research on people flow management can improve the collaborative efficiency and quality of cold chain logistics system. The current research focuses on personnel training and clear job responsibilities.

The development trend of cold chain logistics system has the following aspects:

1. Informatization and intelligence: Wang (2016) believes that with the development of Internet of Things, big data, artificial intelligence and other technologies, the future cold chain logistics system will become more and more informationized and intelligent. Through the establishment of intelligent monitoring management system, real-time monitoring of logistics, information flow and people flow can be realized.

2. Cross-border cooperation: Ma (2003) thinks that with the development of cold chain logistics industry, cold chain logistics system needs to cooperate with other fields to realize the integration and optimization of cold chain logistics. Future research can focus on the coordinated development of cold chain logistics, e-commerce, supply chain management and other fields.

3. Sustainable development: Song (2021) proposed that with the continuous improvement of social requirements for environmental protection and sustainable

development, the future cold chain logistics system should pay more attention to environmental protection and resource utilization efficiency. Research, design and manage a sustainable cold chain logistics system to reduce energy consumption and environmental pollution.

Based on the future research of cold chain logistics system, scholars' experience can be developed from the following aspects:

1. Quality management: Wang (2016) believes that studying the quality management methods and technologies of logistics, information flow and people flow can improve the efficiency and quality of the cold chain logistics system.

2. Cost control: Wu (2021) thinks that studying the control methods and technologies of material procurement, equipment investment and transportation cost can reduce the operating cost of cold chain logistics system.

3. System construction: Zhou (2022) thinks that studying the organizational structure, process design and management system of cold chain logistics system can improve the operation efficiency and reliability of cold chain logistics system.

In a word, the research of cold chain logistics system is of great significance to improve the efficiency and quality of cold chain logistics. Zhao & Shi (2016) said that the current research mainly focuses on logistics, information flow and people flow, and future research can focus on informationization and intelligence, cross-border cooperation and sustainable development.

2.2.4 Cold chain Logistics Warehousing and Distribution System

Wang (2016) proposed that the cold chain logistics warehousing and distribution system refers to the link responsible for commodity storage and distribution in the cold chain logistics system. Ming & Zhu (2022) said that the cold chain logistics warehousing and distribution system is an important link in the cold chain logistics system, which undertakes the storage and distribution of goods. With the continuous development of cold chain logistics, the research of cold chain logistics warehousing and distribution system has become the focus of attention.

At present, the research on cold chain logistics warehousing and distribution system mainly focuses on the following aspects:

1. Storage facilities and equipment: Song (2021) proposed the research on cold chain logistics storage facilities and equipment, including the layout and design of cold storage, the selection and management of shelves, and the application of temperature control equipment. The current research focuses on how to improve the space utilization rate and temperature control accuracy of storage facilities to meet the cold chain storage needs of goods.

2. Warehouse management and operation: Lin (2020) proposed to learn the warehouse management and operation of cold chain logistics, including inventory management, warehousing operation, goods sorting and quality control. The current research focuses on how to improve the efficiency of warehouse management and the accuracy of goods operation, so as to improve the efficiency and quality of cold chain logistics warehousing.

3. Distribution network and route planning: Li (2017) proposed to study the distribution network and route planning of cold chain logistics, including the layout and design of distribution centers, vehicle scheduling and route planning. The current research focuses on how to optimize the distribution network and route to improve the efficiency of logistics distribution and reduce costs.

In view of the future development trend of cold chain logistics warehousing and distribution system, there are the following aspects:

1. Informatization and intelligence: Wang & Liu (2021) believes that with the development of Internet of Things, artificial intelligence and big data technology, the future cold chain logistics warehousing and distribution system will become more and more informationized and intelligent. Through the establishment of information system and intelligent equipment, the real-time monitoring and management of warehousing and distribution links are realized, and the work efficiency and accuracy are improved.

2. Cross-border cooperation: Ming & Zhu (2022) believes that with the development of cold chain logistics, cold chain logistics warehousing and distribution system needs cross-border cooperation with other fields to realize the integration and optimization of cold chain logistics. Future research can focus on the coordinated development of cold chain logistics, supply chain, e-commerce and other fields in order to improve the efficiency of logistics distribution and reduce costs.

3. Environmental protection and sustainable development: Wang (2018) said that the future cold chain logistics, warehousing and distribution system needs to pay more attention to environmental protection and resource utilization efficiency. Study the design and management of sustainable cold chain logistics warehousing and distribution system to reduce energy consumption and environmental pollution and realize sustainable development.

Looking forward to the future, the research of cold chain logistics warehousing and distribution system can be carried out from the following aspects:

1. Intelligent storage equipment and management: Zhou (2022) proposed to study intelligent refrigeration equipment and storage management system, which can improve storage efficiency and quality.

2. Distribution route optimization: Wu & Zhou (2018) proposed to study distribution route optimization methods and technologies, which can improve distribution efficiency and accuracy.

3. Environmental protection technology: Hu (2017) proposed environmental protection technology research in cold chain logistics, warehousing and distribution, which can reduce energy consumption and environmental pollution.

Summarizing scholars' research results, the research of cold chain logistics warehousing and distribution system is of great significance for improving the efficiency and quality of cold chain logistics. Li (2021) said that the current research mainly focuses on storage facilities and equipment, storage management and operation, distribution network and route planning. Future research can focus on information and intelligence, cross-border cooperation and sustainable development.

2.2.5 Cold chain Logistics Information Sharing Mechanism

An (2010) put forward that cold chain logistics refers to the logistics process of keeping goods in a low temperature state through temperature control and equipment requirements during the transportation and storage of fresh and perishable products. The information sharing mechanism of cold chain logistics refers to the mechanism of sharing logistics information among all links in the process of cold chain logistics. Liu (2021) thinks that this mechanism is an important means to realize the sharing of logistics information among all links in the cold chain logistics system. With the

continuous development of cold chain logistics, information sharing has become the key to improve the efficiency of cold chain logistics and reduce costs.

At present, the research on information sharing mechanism of cold chain logistics mainly focuses on the following aspects:

1. Information sharing platform: Chen (1999) thinks that the research and establishment of cold chain logistics information sharing platform based on Internet and Internet of Things technology can realize information sharing among all links. At present, the research mainly focuses on the construction and operation mechanism of the platform, as well as the platform's ability to process and manage logistics information.

2. Information sharing standards and protocols: Song (2021) thinks that studying the standards and protocols of cold chain logistics information sharing can realize information exchange and sharing between different links. The focus of current research is to design and apply standards and protocols to improve the accuracy and efficiency of information sharing.

3. Information security and privacy protection: Wang (2018) proposed to study the security and privacy protection in cold chain logistics information sharing to protect business secrets and personal privacy. At present, the research focuses on information encryption and access control technology to ensure the security and reliability of information sharing.

The development trend of cold chain logistics information sharing mechanism has the following aspects:

1. Data sharing and analysis: Lin (2020) proposed that with the development of big data analysis technology, the information sharing mechanism of cold chain logistics will tend to data sharing and analysis in the future. Through the in-depth mining and analysis of logistics data, the operation efficiency and quality of cold chain logistics can be improved.

2. Application technology: Song (2021) proposed that blockchain technology has the characteristics of decentralization, traceability, safety and reliability, and can be applied to the cold chain logistics information sharing mechanism. Future research can focus on the application of blockchain technology in cold chain logistics information sharing, and improve the credibility and efficiency of information sharing.

3. Partner participation: Wang (2016) said that cold chain logistics involves many links and participants, and the future information sharing mechanism needs the participation and cooperation of all participants. The research focus can be on how to establish a partner network and mechanism to realize the comprehensive sharing of information.

The future research of cold chain logistics information sharing mechanism can be carried out from the following aspects:

1. Multi-level information sharing mechanism: Study the multi-level information sharing mechanism to meet the information sharing needs of different participants and realize the comprehensive sharing of cold chain logistics information.

2. Optimization of information sharing platform: research the optimization and upgrading of information sharing platform, improve the processing capacity and service quality of the platform, and meet the demand of cold chain logistics information sharing.

3. Information security and privacy protection technology: study the security and privacy protection technology in information sharing to improve the credibility and security of information sharing.

In a word, the research on information sharing mechanism of cold chain logistics is of great significance for improving the efficiency and quality of cold chain logistics. The current research mainly focuses on information sharing platform, information sharing standards and protocols, and information security and privacy protection. Future research can focus on data sharing and analysis, the application of blockchain technology and the participation of partners.

2.2.6 Customer Satisfaction

Customer satisfaction is an important index in enterprise development, which pays attention to customer needs and feedback and evaluates according to different evaluation criteria. In this field, many scholars have conducted in-depth research.

Parasuraman et al. (1985) is one of the most influential scholars in the field of customer satisfaction research. They put forward a service quality model to measure the relationship between service quality and customer satisfaction. SERVQUAL

model is based on five dimensions, namely, service reliability, service responsiveness, service guarantee, actual effect of service and service empathy. Their research provides a feasible method for the study of customer satisfaction, and its application in practice has been widely recognized.

Oliver(1997) focused on emotional satisfaction. Oliver believes that emotional satisfaction is relatively new and complete, which can describe the emotional relationship between us and a product, service or experience. In his research, Oliver put forward 11 components of emotional satisfaction, including responsibility, trust, feeling, interaction, being disturbed, reducing risk, gaining benefits, achieving a sense of accomplishment, pleasure, comfort and gratitude.

Anderson & Fornell(1994) put forward a widely accepted model-Expectation-Disconfirmation Theory (EDT). They believe that customer satisfaction depends on the difference between their expectations of a service or product and the value they actually get. EDT model has been widely used in various industries and fields, and has become an important theoretical framework.

Rust & Oliver(1994) mainly discussed the relationship among consumers' behaviors, attitudes and emotions, and how to improve customer satisfaction. They put forward the "Credibility Consistency Theory", which points out that customers' trust and awareness (credibility) are important factors affecting customer satisfaction. Therefore, improving credibility can improve customer satisfaction.

In the field of customer satisfaction research, scholars' research provides us with in-depth theoretical basis and practical guide. The research of these scholars has guided enterprises to pay attention to customer needs, improve service quality and create a better customer experience, which has provided important support for the development and success of enterprises.

2.3 Shuanghui Company Introduction

As a national key enterprise, Shuanghui Company represents the standard and advanced technology of the agricultural industrialization industry and has been ranked in the forefront of China's meat products industry for many years, and has achieved a brand value of over 70 billion yuan. In the national meat products industry, the brand value of Shuanghui Company is about RMB 60 billion, and its market share in the national meat products market is at the forefront of the market, and it has strong

market competitiveness and market influence in the processing and production industries of domestic meat products and overseas markets. At present, Shuanghui Company has 30 meat products processing sites nationwide, with a number of production projects, including slaughtering, meat products processing and cold chain logistics, etc. Shuanghui Company 's industrial technology has become mature and gradually started to establish a complete industrial chain model. At present, the product delivery area covers the whole country, and most of the areas can be delivered on the same day. The core value of the enterprise is "insisting on cultural construction, insisting on establishing the enterprise for trust and virtue, always putting product quality in the first place", the enterprise also insists on its own specialization and sustainable development, strengthening the study and application of its own technology and environmental protection technology, insisting on high technological content and high efficiency in the large-scale construction, while reducing Environmental pollution and resource waste, promote new industrial construction, and promote the healthy and green development of enterprises. (Http://www.shuanghui.net)

Shuanghui Company currently has upstream, midstream and downstream industrial chains. The main business of Shuanghui Company is the processing of meat products in the middle of the industrial chain, and the main products are fresh frozen meat, high-temperature and low-temperature meat products, The main products are fresh frozen meat, high-temperature and low-temperature meat products.

Shuanghui Company currently has 30 modern meat processing bases and related supporting industrial chains in China, with a production capacity of over 2 million tons of meat products. The company's main business composition is shown in Table 3.2 below, of which the operating revenue of meat processing products is about 28 billion yuan, and the profit margin of meat products is about 67%, the main profit source of the company is meat processing category, and the gross margin is about 30%.

In Shuanghui Company 's logistics and freight business, cold chain logistics transportation is different from ordinary cargo transportation. Compared with ordinary cargo, cold chain logistics transportation is difficult to complete cargo docking, and the empty return rate of trucks is high, which is also due to the low temperature control technology and popularity rate of cold chain products. The demand for specialized transportation of cold chain logistics is expected to increase in the future. The cold chain logistics business is currently the main business direction of Shuanghui Company , and the future goal is to build a benchmark enterprise in the

domestic cold chain industry. With the development of the industry, Shuanghui Company attaches more and more importance to cold chain logistics transportation, and now continues to strengthen investment in capital, technology and equipment, and is ready to promote intelligent control, and also attaches importance to the improvement of the overall cold chain logistics capacity, laying the foundation for the broad development of the cold chain logistics business in the future.

2.4 Conceptual Framework

According to the analysis and summary of scholars' customer satisfaction with cold chain logistics management, the customer satisfaction of cold chain logistics management is influenced by cold chain logistics standards, cold chain logistics system, cold chain logistics warehousing and distribution system and cold chain logistics information sharing mechanism. Therefore, the theoretical framework of this paper is as follows:

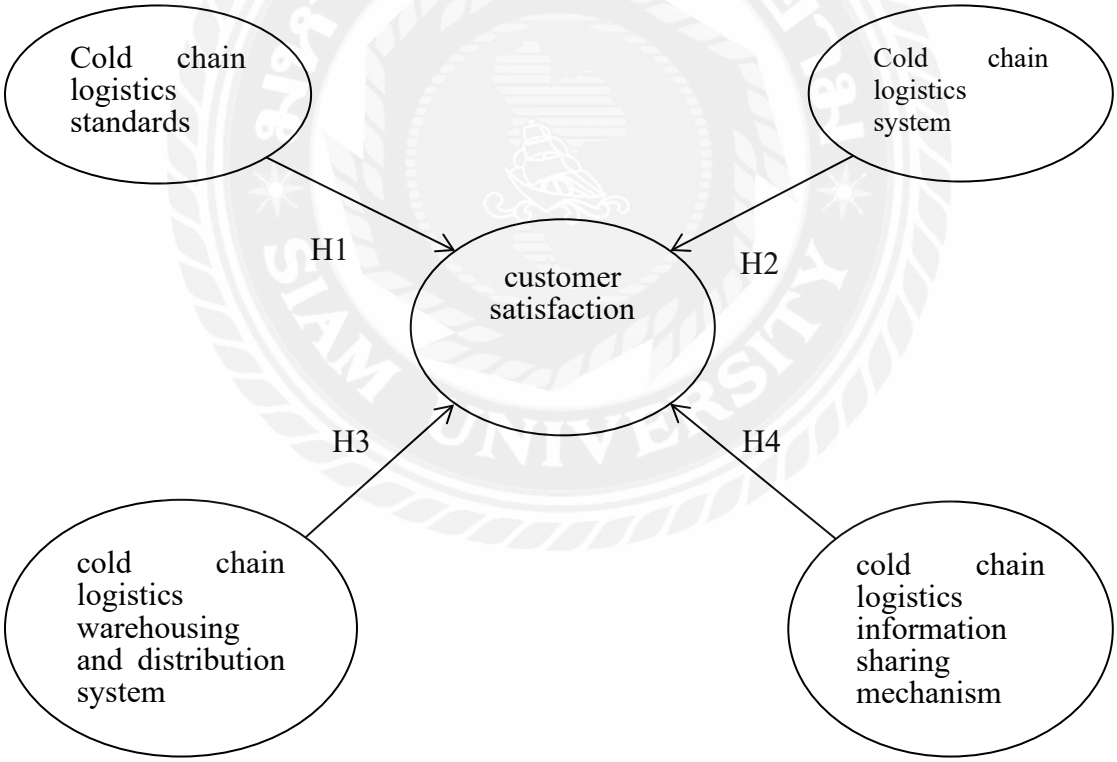

Figure 2.1 Conceptual Framework

Chapter 3 Research Methodology

3.1 Introduction

This study mainly conducts research through quantitative analysis methods. This chapter first analyzes the research design of this article, then points out the sample size and relevant data collection processes and methods involved in this article, and finally analyzes the reliability and validity of the survey scale, laying the foundation for the following data analysis.

3.2 Research Design

In this study, questionnaire survey method was adopted, questionnaires were distributed, and logistics management questionnaire was compiled by summarizing the previous experience, and data were collected by Likert five-point method. The reliability and validity of the questionnaire are verified by SPSS, and the specific situation is summarized to lay the foundation for the formulation of problems and strategies. The scales involved in this paper are mainly as follows:

3.2.1 Cold Chain Logistics Standard Scale

Relevant research in academic circles shows that the clarity of a standard can improve the acceptance and implementation of the standard. Clear and easy-to-understand standards can help stakeholders better understand the content and importance of standards, so as to better implement standards. Standard compliance means that standards should meet the requirements of national laws, regulations and policies, and its focus is to ensure that the contents of standards meet the requirements of laws and regulations. Anjiuyi(2010) studied the influence of compliance of standards on the implementation of standards, and the results showed that compliant standards can improve the application degree and implementation effect of standards. In the process of formulating standards, we should pay attention to the compliance of laws, regulations and policy requirements to ensure the implementation effect of standards. Therefore, on the basis of summing up the experience of scholars, the scale of recruitment tests content is shown in Table 3.1.

Table 3.1 Cold Chain Logistics Standard Scale

Standard clarity	The standard content is clear and easy to understand.

	Clear standard scope.
Standard compliance	The standard meets the requirements of relevant laws and regulations.
	The standard conforms to international standards.

3.2.2 Cold Chain Logistics System Scale

Cold chain system plays an important role in logistics and supply chain management, and its functionality and ease of use are essential to maintain the quality and safety of goods. Li et al. (2020) studied the relationship between the functionality of the cold chain system and the cold chain efficiency and food safety. The results showed that a fully functional cold chain system could improve the cold chain efficiency and food safety. Li(2021) studied the relationship between ease of use and operational efficiency of cold chain system, and the results showed that a cold chain system with high ease of use could improve operational efficiency and reduce the risk of misoperation. Therefore, on the basis of summing up the experience of scholars, the scale of recruitment tests content is shown in Table 3.2.

Table 3.2 Cold Chain Logistics System Scale

System functionality	The system contains the functions required by the cold chain logistics business.
	The function of the system meets the actual needs of users.
System usability	The system is easy to install and deploy.
	The system operation is simple and easy to learn.

3.2.3 Cold Chain Logistics Warehousing And Distribution System Scale

Cold chain storage management and distribution accuracy are important issues in modern supply chain management. Cold chain logistics refers to the logistics activities of transporting perishable vegetables, fruits, meat, seafood and other products from the production place to the sales place under certain temperature, humidity and time conditions. With the globalization and the complexity of supply chain, the accuracy of cold chain storage management and distribution needs to be strengthened more and more. In the aspect of cold chain storage management, Chen(2020) deeply studied the influence of cold storage temperature, humidity, airflow, lighting and other parameters on the actual storage time, freshness and quality of stored products through a large number of experiments and analysis, and provided enterprises with a scientific model and scheme for cold chain storage management.

Therefore, on the basis of summing up the experience of scholars, the scale of recruitment tests content is shown in Table 3.3.

Table 3.3 Cold Chain Logistics Storage and Distribution System Scale

Warehouse management efficiency	The warehousing system can realize efficient warehousing and warehousing operations.
	The warehousing system can timely and accurately carry out inventory management.
Distribution accuracy	The distribution system can ensure the accuracy of the delivery time of goods.
	The distribution system can handle the abnormal situation in the distribution process in time.

3.2.4 Cold Chain Logistics Information Sharing Mechanism Scale

Logistics information sharing is one of the important links that must be paid attention to in modern logistics management, especially in cold chain logistics. Cold chain logistics involves the logistics and transportation in food, medicine and other fields, so the comprehensiveness and security of information sharing must be guaranteed. Wang (2018) studies the information sharing mechanism of cold chain logistics mainly from the aspects of information sharing methods, information sharing contents and information sharing security. The establishment of cold chain logistics information sharing mechanism is a complex process, which needs to consider many factors, so it needs the cooperation of relevant departments and the active participation and support of enterprises on the basis of scholars' research. Only in this way can we achieve the purpose of information sharing and improve the efficiency and safety of cold chain logistics. Therefore, on the basis of summing up the experience of scholars, the scale of recruitment tests content is shown in Table 3.4.

Table 3.4 Cold Chain Logistics Information Sharing Mechanism Scale

Comprehensive information collection	The information sharing mechanism can collect comprehensive cold chain logistics information.
	The information sharing mechanism can update the latest logistics information in time.
Information security and protection mechanism	Information sharing mechanism can protect the confidentiality of cold chain logistics information.
	Information sharing mechanism can ensure the integrity of cold chain logistics information.

3.2.5 Customer Satisfaction Scale

With the increasing demand for high-value products such as fresh food and biological products, the importance of cold chain logistics has been widely recognized. In order to improve customer satisfaction of cold chain logistics, scholars have done a lot of research.

First of all, Ming et al. (2022) discussed the service quality of cold chain logistics from many angles. Among them, quality management system is one of the key factors. In addition, measures such as optimizing cold chain logistics distribution network, strengthening operation management, and enhancing data sharing and commitment reliability can also effectively improve service quality.Secondly, the research on customer satisfaction is also very rich. It is found that consumers have extremely high requirements for the fast response of cold chain logistics service quality and delivery time. Therefore, on the basis of summarizing the experience of scholars, the scale of recruitment tests content is shown in Table 3.5.

Table 3.5 Customer Satisfaction Scale

Customer satisfaction	Customer satisfaction with cold chain logistics service
	Customer's trust in cold chain logistics service organizations

3.3 Hypothesis

1.H1: Cold chain logistics standards(standard clarity、standard compliance) and customer satisfaction have a positive impact.

2.H2: Cold chain logistics system(system functionality、system usability) and customer satisfaction have a positive impact.

3.H3: Cold chain logistics warehousing and distribution system(warehouse management efficiency、distribution accuracy) and customer satisfaction have a positive impact.

4.H4: Cold chain logistics information sharing mechanism(comprehensive information collection、information security and protection mechanism) and customer satisfaction have a positive impact.

3.4 Population and Sampling Size

The purpose of this questionnaire survey is to discuss with customers of Shuanghui Company. The survey method is sampling survey, and 200 questionnaires are distributed through WeChat and email. The related situation of cold chain logistics management in Shuanghui Company was investigated and analyzed in detail, and the corresponding results were obtained through data collection and analysis.

3.5 Data Collection

This study mainly used a questionnaire survey to collect data. The questionnaire was distributed from January 1,2023 to February 1,2023, and was distributed and recovered online. One month later, when the relevant questionnaires were collected, 200 questionnaires were distributed and 189 points were collected, with a recovery rate of 94.5%. Therefore, the collected data can be used for subsequent studies.

3.6 Data Analysis

The questionnaire involved in this paper includes two parts: basic questionnaire and specific questionnaire. In order to prove the authenticity and reliability of the questionnaire, this paper uses SPSS software to test the reliability and validity of specific questionnaire parts. The results of the questionnaire can be seen intuitively through the chart. The specific reliability and validity of this questionnaire are as follows:

3.6.1 Reliability Analysis of the Questionnaire

Kehlenbach's α coefficient is over 0.7, and the reliability of the questionnaire is good. Reliability analysis method is used to analyze the reliability (internal consistency) of the problem project. In this study, Kehlenbach's alpha coefficient (a) was used to test the internal consistency of the scale, and the result was above 0.70, indicating that the scale has high reliability. After Kehlenbach's alpha coefficient test, the results of the questionnaire in this study are all greater than 0.7. Therefore, the reliability of the questionnaire is good.

Table 3.6 Questionnaire Reliability Analysis

	Cronbach's Alpha	Number of terms
Cold chain logistics standards	0.816	18

Cold chain logistics system	0.841	18
Cold chain logistics warehousing and distribution system	0.812	18
Cold chain logistics information sharing mechanism	0.895	18

3.6.2 Questionnaire Validity Analysis

When KMO value is greater than 0.7, the validity of the questionnaire can be further studied in the future. As can be seen from Table 3.3, the KMO values of all the factors in this questionnaire are greater than 0.8, and the significance of bartlett sphericity test is 0.000, which is considered to meet the standard.

Table 3.7 Questionnaire Validity Test

	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity		
		Approx. Chi-Square	Df	Sig.
Cold chain logistics standards	0.813	245.956	6	.000
Cold chain logistics system	0.825	286.143	6	.000
Cold chain logistics warehousing and distribution system	0.801	246.485	6	.000
Cold chain logistics information sharing mechanism	0.865	275.456	6	.000

Chapter 4 Finding

4.1 Introduction

In the research process of cold chain logistics in Shuanghui Company, questionnaire survey is mainly used. Based on the above research design and data collection, this chapter mainly analyzes and summarizes the corresponding data, identifies specific problems, studies the relevant data of cold chain logistics of Shuanghui Company, analyzes the present situation and existing problems of cold noodle logistics of Shuanghui Company, and finally verifies the validity of the above assumptions.

4.2 Sample Size

The characteristics of the survey respondents are shown in Table 4.1 below. According to the age of the surveyed personnel, most of the customers in cold chain logistics of Shuanghui Company are relatively young, which indicates that the cold chain industry is sunrise. In terms of gender, the whole cold chain logistics customer of Shuanghui Company shows a situation that there are more men than women, and male customers are in the majority in logistics, accounting for 76.2% of men and 23.8% of women, with a huge difference. In terms of the positions of the surveyed customers, 12 of them are senior managers, accounting for 6.3% of the total number, 11.6% of the total number of middle managers, 22.7% of the total number of assistant-level employees, and 112 of them are general employees, accounting for 59.2% of the total number.

Table 4.1 Statistics on the Characteristics of Respondents

Survey Items	Category	Number of people	Percentage (%)
Gender	Male	144	76.2
	Female	45	23.8
Age	Under 30 years old	89	47.1
	30-40 years old	57	30.1
	40-50 years old	41	21.7
	50 years old or above	2	1.05
Position	First-line personnel	112	59.2
	Assistant level	43	22.7

personnel			
	Middle management	22	11.6
	Senior Management	12	6.3

4.3 Relationship between Cold Chain Logistics Standards on Customer Satisfaction

By using the method of correlation analysis, the correlation between standard clarity, standard compliance and customer satisfaction is studied respectively. As shown in Table 4.2.

Table 4.2 Correlation Analysis Results of Cold Chain Logistics Standards and Customer Satisfaction

Dimension	Standard clarity	Standard compliance	Customer satisfaction
Standard clarity	1		
Standard compliance	.814**	1	
Customer satisfaction	.698**	.680**	1

As can be seen from the above table, P values are all less than 0.01, which are significant through significance test, and the correlation coefficients of standard clarity, standard compliance and customer satisfaction are positive, which are 0.698 and 0.680 respectively. Therefore, the standard clarity, standard compliance and customer satisfaction of this study, that is, there is a significant positive correlation between cold chain logistics standards and customer satisfaction, and the correlation is strong.

The correlation analysis between cold chain logistics standards and customer satisfaction shows that there is a positive correlation between them. Here, the cold chain logistics standard is taken as the independent variable, and the customer satisfaction is taken as the dependent variable for regression analysis. The results are shown in Table 4.3.

Table 4.3 Regression Analysis Results of Cold Chain Logistics Standards and Customer Satisfaction

Non-standardized coefficient		Standardized coefficient	t	p	R^2	AdjustingR^2	F
B	Standard Error	Beta					

(Constant)	.504	.102	-	4.924	.000		
Cold Chain Logistics Standards	.732	.051	.723	14.331	.000	.523	.521	205.370

As can be seen from the above table, R^2 of the model is 0.523, which means that this research variable can explain 52.3% of the satisfaction change. The model passed the F test, which means that cold chain logistics standards have an impact on the customer satisfaction. As can be seen from the above table, B=0.732, P<0.05, indicating that cold chain logistics standards have a significant positive impact on customer satisfaction.

4.4 Relationship between Cold Chain Logistics System on Customer Satisfaction

By using the method of correlation analysis, the correlation between system functionality, system usability and customer satisfaction is studied respectively. As shown in Table 4.4.

Table 4.4 Correlation Analysis Results of Cold Chain Logistics System and Customer Satisfaction

Dimension	System functionality	System usability	Customer satisfaction
System functionality	1		
System usability	.941**	1	
Customer satisfaction	.649**	.551**	1

As can be seen from the above table, P values are all less than 0.01, which is significant through significance test, and the correlation coefficients of system functionality, system usability and customer satisfaction are positive, which are 0.649 and 0.551 respectively. Therefore, the system functionality, system usability and customer satisfaction of this study, that is, there is a significant positive correlation between cold chain logistics system and customer satisfaction, and the correlation is strong.

The correlation analysis of cold chain logistics system and customer satisfaction shows that there is a positive correlation between them. Here, the cold chain logistics

system is taken as the independent variable, and the customer satisfaction is taken as the dependent variable for regression analysis. The results are shown in Table 4.5.

Table 4.5 Regression Analysis Results of Cold Chain Logistics System and Customer Satisfaction

	Non-standardized coefficient		Standardized coefficient	t	p	R^2	AdjustingR^2	F
	B	Standard Error	Beta					
(Constant)	.537	.113		4.763	.000			
Cold Chain Logistics System	.760	.060	.679	12.652	.000	.461	.458	160.080

As can be seen from the above table, the R^2 of the model is 0.461, which means that this research variable can explain 46.1% of the satisfaction change. The model passed the F test, which means that cold chain logistics standards have an impact on the customer satisfaction. As can be seen from the above table, B=0.760, and $P<0.05$, indicating that the cold chain logistics system has a significant positive impact on the customer satisfaction.

4.5 Relationship between Cold Chain Logistics Warehousing and Distribution System on Customer Satisfaction

By using the method of correlation analysis, the correlation between warehouse management efficiency, distribution accuracy and customer satisfaction was studied respectively. As shown in Table 4.6.

Table 4.6 Correlation Analysis Results of Cold Chain Logistics Storage and Distribution System and Customer Satisfaction

Dimension	Warehouse management efficiency	Distribution accuracy	Customer satisfaction
Warehouse management efficiency	1		
Distribution accuracy	.666**	1	
Customer satisfaction	.537**	.626**	1

As can be seen from the above table, P values are all less than 0.01, which is significant through significance test, and the correlation coefficients of warehouse management efficiency, distribution accuracy and customer satisfaction are positive, which are 0.537 and 0.626 respectively. Therefore, the storage management efficiency, distribution accuracy and customer satisfaction in this study, that is, there is a significant positive correlation between cold chain logistics storage and distribution system and customer satisfaction, and the correlation is strong.

The correlation analysis between cold chain logistics warehousing and distribution system and customer satisfaction shows that there is a positive correlation between them. Here, the cold chain logistics warehousing and distribution system is taken as the independent variable, and the customer satisfaction is taken as the dependent variable for regression analysis. The results are shown in Table 4.7.

Table 4.7 Regression Analysis Results of Cold Chain Logistics Warehousing and Distribution System and Customer Satisfaction

	Non-standardized coefficient		Standardized coefficient	t	p	R^2	AdjustingR^2	F
	B	Standard Error	Beta					
(Constant)	.639	.117		5.449	.000			
Cold Chain Logistics Warehousing and Distribution System	.754	.067	.636	11.278	.000	.405	.402	127.187

As can be seen from the above table, the R^2 of the model is 0.405, which means that this research variable can explain 40.5% of the satisfaction change. The model has passed the F test, which means that it has an impact on the customer satisfaction. As can be seen from the above table, B=0.754, and $P < 0.05$, which shows that the cold chain logistics warehousing and distribution system has a significant positive impact on the customer satisfaction.

4.6 Relationship between Cold Chain Logistics Information

Sharing Mechanism on Customer Satisfaction

By using the method of correlation analysis, this paper studies the correlation among comprehensiveness of information collection, information security and customer satisfaction. As shown in Table 4.8.

Table 4.8 Correlation Analysis Results of Cold Chain Logistics Information Sharing Mechanism and Customer Satisfaction

Dimension	comprehensiveness of information collection	information security	customer satisfaction
comprehensiveness of information collection	1		
information security	.792**	1	
customer satisfaction	.662**	.766**	1

As can be seen from the above table, P values are all less than 0.01, which is significant by significance test. The correlation coefficients of comprehensiveness of information collection, information security and customer satisfaction are positive, which are 0.662 and 0.766 respectively. Therefore, the comprehensiveness of information collection, information security and customer satisfaction in this study, that is, there is a significant positive correlation between cold chain logistics information sharing mechanism and customer satisfaction, and the correlation is strong.

The correlation analysis between cold chain logistics information sharing mechanism and customer satisfaction shows that there is a positive correlation between them. Here, the cold chain logistics information sharing mechanism is taken as the independent variable, and the customer satisfaction is taken as the dependent variable for regression analysis. The results are shown in Table 4.9.

Table 4.9 Regression Analysis Results of Cold Chain Logistics Information Sharing Mechanism and Customer Satisfaction

	Non-standardized coefficient		Standardized coefficient	t	p	R^2	AdjustingR^2	F
	B	Standard Error	Beta					
(Constant)	.510	.095		5.390	.000	.562	.560	240.3237

Cold Chain Logistics Information Sharing Mechanism	.770	.050	.750	15.502.000

As can be seen from the above table, R^2 of the model is 0.562, which means that this research variable can explain 56.2% of the satisfaction change. The model has passed the F test, which means that it has an impact on the customer satisfaction. As can be seen from the above table, B=0.770, and $P < 0.05$, which shows that Cold Chain Logistics Information Sharing Mechanism has a significant positive impact on customer satisfaction.

Chapter 5 Conclusion and Recommendation

5.1 Introduction

This chapter mainly analyzes the current situation and existing problems of the company in the previous chapter, and draws corresponding conclusions. Meanwhile, based on this, some improvement measures have been provided for the future development of the company, and relevant guarantee suggestions have been elaborated.

5.2 Conclusion

According to the above analysis and the questionnaire survey results, Shuanghui Company mainly has problems in cold chain logistics standards, cost management, storage and distribution system, information sharing and other aspects, etc. The main problems of Shuanghui Company cold chain logistics are summarized as follows.

5.2.1 There is a Positive Correlation between Cold Chain Logistics Standards and Customer Satisfaction

According to the above empirical data, the P value between cold chain logistics standards and customer satisfaction is less than 0.01, which shows that it is significant at 10% significance level. The correlation coefficients between cold chain logistics standards (standard clarity and standard compliance) and customer satisfaction are 0.698 and 0.680 respectively. It shows that there is a significant positive correlation between the two dimensions of cold chain logistics standards and customer satisfaction, and the correlation is strong.

At present, the cold chain logistics of Shuanghui Company is in the stage of rapid development, but the lack of cold chain logistics standardization has become one of the important factors affecting the development of cold chain logistics. The problems exposed by Shuanghui Company show that the company currently lacks relevant unified norms and standards for cold chain logistics, and the existing products have different standards in different regions. The cold chain standards are generally single category or regional product standards, and no comprehensive and unified cold chain logistics standards for category or region have been formed.

In the period when the enterprise cold chain logistics standards are still yet to be perfect, due to the imperfection of logistics standards and the lack of supervision, the management risk of the supply chain link increases. Under the supply chain system, each node is mutual, the lack of enterprise cold chain logistics standards easy to make supply chain link increase a lot of uncertainty, the uncertainty factors will lead to the corresponding node risk on the supply chain, and the lack of enterprise cold chain logistics standards led to the risk of the whole supply chain cold chain logistics management.Therefore, improving the standardized cold chain logistics system of Shuanghui Company can be carried out from the following aspects:

1. Actively Mobilize Enterprises to Participate in the Formulation of Cold Chain Standards and Improve the Execution of Standards

Cold chain logistics standards are based on the participation of enterprises, and the state should actively carry out supporting preferential policies to mobilize the enthusiasm of enterprises, let enterprises actively participate in the discussion of cold chain logistics standards, become relevant participants and makers, let enterprises actively participate in it, and can also improve the operability and feasibility of cold chain logistics standards.

2 Strengthen the Implementation and Supervision of Enterprise Cold Chain Logistics Standardization

At present, under the promotion of the cold standard Committee, there are nearly 300 standards in cold chain logistics in China. At the same time of speeding up the formulation of relevant standards, the company should set up a relevant supervision mechanism to regularly supervise and explore the new trends of enterprises, so as to urge the implementation scope and intensity of the cold chain standards of enterprises. In addition, enterprises should do a good job in the supervision of cold chain logistics, but also use modern technical means to supervise the whole process of the product, and do a good job in quality inspection in the circulation transfer, so as to avoid the problem products into the market, affecting the brand image of the enterprise.

5.2.2 There is a Positive Correlation between Cold Chain Logistics System and Customer Satisfaction

According to the above-mentioned empirical data, the P value between the cold chain logistics system and customer satisfaction is less than 0.01, which shows that it

is significant at 10% significance level. The correlation coefficients between cold chain logistics system (system functionality and system availability) and customer satisfaction are 0.649 and 0.551 respectively. It shows that there is a significant positive correlation between the two dimensions of cold chain logistics system and customer satisfaction, and the correlation is strong.

According to the results of the questionnaire, Shuanghui Company has not established a perfect cold chain logistics system, and the cold chain transportation link still needs to be improved. The connection of all links in the front and back logistics is not smooth, and the overall linkage mechanism is poor. The imperfect cold chain logistics system of Shuanghui Company leads to the rising cost, and the overall cost remains high. Secondly, the management of transportation costs in the cold chain logistics transportation needs to be improved. Through the analysis of the cost formation elements in the supply chain, the truck air return rate, cold chain transportation line design, and cold storage layout setting will all affect the cost of cold chain logistics.

Increase in logistics cost management of cold chain will lead to the total cost of the supply chain also increase, so the need to improve the cold chain logistics management to achieve supply chain efficiency optimization, then the enterprise on the supply chain as an organic whole, from the supply chain overall comprehensive consideration and analyze the correlation between enterprises, a link in the supply chain or the enterprise sector activities cost increase or reduce the impact on supply chain costs, by effectively reduce the cost of cold chain logistics cost can realize the optimization of the total cost of supply chain.

In the management of cold chain logistics cost, Shuanghui Company analyzes the places that can be optimized in the operation process of the supply chain, so as to reduce the cold chain logistics cost of enterprises. The cold chain logistics cost of Shuanghui Company can be controlled from the following aspects:

1. Develop an Independent and Comprehensive cold Chain System

Cold chain logistics need enterprises to increase investment in cold chain system construction, through the establishment of perfect cold chain system, network order processing, transportation, distribution management, processing, warehousing, transportation and distribution each link keep low temperature environment, avoid problems such as broken chain, increase the enterprise overall linkage to reduce logistics costs.

2. Scientific Management of Transportation Costs

In the transportation costs, fuel costs always account for a large part of the logistics cost, so in the process of fuel control, the management should be specific for each vehicle, and the whole process such as fuel purchase, use and reimbursement should be well controlled. Second enterprise on the maintenance spending is larger, maintenance management plays an important role in cost control, so the maintenance management mode is very important, specific to the work to analyze the enterprise existing vehicle situation, according to the condition to establish reasonable maintenance management, for all kinds of emergency maintenance situation to cost control, so strictly control the management of maintenance fee, can realize the optimization of cost control and management of, also can make the cold chain logistics cost under control.

3. Optimize the Design of Cold Chain Transportation Lines and Cold Storage Layout

The cold chain transportation cost is affected by the transportation link. If the process is complicated, it will inevitably cause the increase of the cost of the cold chain logistics. Analyze all the links of the cold chain logistics of Shuanghui Company, so as to build a cold chain logistics operation and control platform. In the cold chain logistics transportation, the location of the cold chain transportation lines and the cold chain warehouse will have an important impact on the cost. Therefore, according to the logistics content and order situation, it is necessary to continuously plan the route design, transportation distance and oil consumption to achieve the cost reduction. The layout of the cold chain warehouse affects the decision of the transportation line, so the geographical location needs to be considered to ensure that the transportation cost is controllable.

5.2.3 There is a Positive Correlation between Cold Chain Logistics Warehousing and Distribution System and Customer Satisfaction

According to the above-mentioned empirical data, the P value between the cold chain logistics warehousing and distribution system and customer satisfaction is less than 0.01, which shows that it is significant at 10% significance level. The correlation coefficients between cold chain logistics warehousing and distribution system (warehousing management efficiency and distribution accuracy) and customer satisfaction are 0.537 and 0.626 respectively. It shows that there is a significant

positive correlation between the two dimensions of cold chain logistics warehousing and distribution system and customer satisfaction, and the correlation is strong.

According to the survey results, the storage and distribution system of Shuanghui Company need to be optimized and improved. However, Shuanghui Company has not established a scientific and comprehensive storage management system and cold chain distribution system, nor has it developed a perfect management system and operation standards, and the two links cannot be efficiently connected.

Shuanghui company cold chain logistics is the ultimate goal of products fast safely to customers, its operation efficiency is mainly reflected in warehousing and distribution, cold chain logistics link need standard between orderly docking, the last link and the next link have corresponding standards, and warehousing and distribution link cannot efficient cohesion operation will affect the product to customer time, so the warehouse management and distribution link affects the operation efficiency of the downstream supply chain.In this regard, Shuanghui Company should make some improvements:

First of all, the cold storage should have appropriate equipment, cold storage equipment and facilities can ensure the quality of products, the corresponding equipment should be able to be closely combined with the distribution of transport vehicles, to prevent the entry of external hot and humid air when loading and unloading goods. Each storage space of the cold storage storage should be equipped with a corresponding temperature device, so that it can know the average temperature of the area in a sensitive way, so as to ensure the safety of the cold chain food.

Secondly, in the storage operation management link, Shuanghui Company should establish a standardized storage operation management system, have the corresponding system record management, and can effectively realize the standardized operation in the storage management. Through the use of professional software to manage inventory, standardize the cold storage management of employees, regular product inspection, understand the product inventory and shelf life and other information, finally to improve the storage operation efficiency and management level of Shuanghui Company, effectively ensure product quality and safety.

On the other hand, according to the supply chain theory, it is also very necessary to realize the information transparency of the upstream and downstream cooperation among the three parties to establish a long-term cooperative relationship with the upstream and downstream enterprises of the supply chain. It is the common goal of all

enterprises to share interests in the supply chain, share risks together, and realize the integration of supply chain management. Realize cooperation of tripartite information transparency, can timely understand the market demand, and inventory plan according to market demand, cold chain logistics enterprises to inventory for reference scientific distribution plan, sales department again according to the inventory to choose the right sales strategy, on the premise of guarantee cost as much as possible to reduce the inventory. The warehouse operates efficiently and efficiently. If the online and offline inventory sharing can be achieved, it can also improve the inventory turnover rate and reduce the inventory cost.

In addition, to optimize the cold chain distribution mode, the process should be optimized to ensure that the cold chain food is fresh, high-quality, safe and timely. For example, in the community vegetable markets, fresh stores to increase refrigerated equipment, increase refrigerated vehicles, reduce storage and transportation loss. Enterprises should strengthen the promotion of cold-chain logistics facilities and infrastructure construction. In the logistics business, cold chain logistics has high requirements on distribution facilities and technical content. Cold chain logistics distribution facilities are usually the weak part of enterprises. Only by vigorously promoting the improvement of distribution facilities and equipment and logistics network construction can the distribution efficiency be improved.

By reasonably arranging a series of cold chain distribution logistics operations and improving the efficiency of logistics distribution, enterprises can ensure to timely and safely deliver cold chain products to customers. Enterprises coordinate according to space, time and inventory, reduce the number of product transportation, use more economical modes of transportation, and also control the inventory of products in time. The decline of inventory will lead to the decline of inventory cost.

5.2.4 There is a Positive Correlation between Cold Chain Logistics Information Sharing Mechanism and Customer Satisfaction

According to the above empirical data, the P value between cold chain logistics information sharing mechanism and customer satisfaction is less than 0.01, which indicates that it is significant at 10% significance level. The correlation coefficients between cold chain logistics information sharing mechanism (comprehensive information collection and information security) and customer satisfaction are 0.662 and 0.766 respectively. It shows that there is a significant positive correlation between the two dimensions of cold chain logistics information sharing mechanism and customer satisfaction, and the correlation is strong.

From the questionnaire survey results also pointed out that the current enterprise important problems including the lack of information sharing mechanism, in shuanghui cold chain logistics business, the lack of intelligent and efficient cold chain logistics information management system, the company's information sharing mechanism is low, affect the logistics management efficiency, lead to cold chain logistics business such as order query, order management, cold chain transportation efficiently, which hindered the enterprise sustainable rapid development in the future.

The failure of information flow to effectively connect will weaken the efficiency and cooperation mechanism of the supply chain, and then affect the business of cold chain logistics management, and the process implemented will become chaotic. Supply chain, cold chain logistics management information can effectively transfer is the basic requirement of smooth operation of supply chain, supply chain information sharing cannot effective docking will not be able to provide efficient information for decision makers, thus affect the operational efficiency, if shuanghui company management personnel in logistics management ignore information flow docking problem, will trigger a series of supply chain chain reaction. In order to improve the management level of logistics in cold chain of Shuanghui Company, we should first build logistics information construction, and then build the basic model of cold chain logistics intelligent information system, integrate logistics data resources, and establish the basic framework of logistics information sharing mechanism with the cooperation of departments.

Secondly, enterprises use advanced information technology to integrate logistics information resources, and establish a cold chain logistics information sharing mechanism based on this basis. In each link of cold chain logistics, cold chain logistics information sharing mechanism to provide information service for logistics operation, so cold chain logistics enterprise internal should actively use various advanced electronic information technology, such as can use positioning navigation, big data, emerging information technology, such as artificial intelligence research intelligent logistics management information system, establish intelligent information sharing mechanism, the demand of cold chain products organize specific data resources, make enterprise internal information service network can better service cold chain logistics link. Through timely transmission, exchange and feedback, the information can quickly provide logistics information for the processing, transportation, storage, distribution and other departments of Shuanghui Company.

Thirdly, enterprises also need to constantly improve the cold chain logistics sharing mechanism in their work. In the process of cold chain logistics information

transmission, every information data will be stored in a large database. Through big data analysis, data changes can be predicted in advance and the background data of cold chain logistics can be integrated, so as to analyze business data, adjust the business direction in time and assist the management in making decisions. In addition, in practical work, it is necessary to find out the shortcomings of the information sharing mechanism in time according to the working situation, and to provide more accurate data for employees better by updating or improving the system. By constantly improving the information sharing mechanism of cold chain logistics, it can also help enterprises to improve their brand building and realize the rapid development of modern cold chain logistics.

In addition, Shuanghui company can also develop a set of logistics information management system that can be shared with upstream and downstream enterprises in the supply chain, so as to realize system information resource sharing and communicate with enterprises, and realize enterprise resource sharing and achieve a win-win situation for both sides.

5.3 Recommendation

In the following operation, it is suggested that Shuanghui Company should do the following guarantees to ensure that the above optimization measures can be better implemented:

1. Supply Chain Strategic Guarantee

Supply chain strategy determines the development direction and the degree of importance of the cold chain logistics of Shuanghui Company. Shuanghui company gradually attaches importance to the impact of supply chain on the development of enterprises.In the supply chain strategy plan of Shuanghui Company, there are more and more improvement plans for cold chain logistics. Shuanghui Company takes cold chain logistics as an important part for optimization and restructuring. Therefore, in terms of enterprise strategy, it focuses on the development of cold chain logistics from the supply chain, which is also the premise for the optimization of cold chain logistics management of Shuanghui Company. Shuanghui company in the enterprise strategic development direction should be in accordance with the focus of the supply chain logistics development, supply chain strategy as an important development strategy to implement, cold chain logistics management will be in the supply chain node to find more can optimize, to ensure the efficient supply chain operation, so the supply chain strategy measures to guarantee can promote shuanghui company cold chain logistics

management optimization.

2. Logistics Talent Resources Guarantee

At present, a key link in the development of cold chain logistics is the construction of logistics talents, which has also become the strategic premise of the cold chain logistics management development of Shuanghui Company. At present, Shuanghui company carries out business training mainly through face-to-face meetings or online meetings, without practical operation training, and the form is relatively simple, so such a training method is difficult to attract trainees. The human resources department of the company needs to fully realize the importance of current talent training and the innovation of training methods, such as outdoor expansion or practical base operation, to enrich the training content and increase the flexibility and effectiveness of training activities. The company can also adopt school-enterprise cooperation and other ways to achieve full coverage of staff training, develop a set of perfect training system around cold chain logistics management talents, help them improve their professional quality, take multiple measures, and achieve practical results. Focusing on talent training, Shuanghui company can build a strong and powerful cold chain logistics elite team, and the construction of the elite team can effectively improve the efficiency of logistics operation.

3. Financial Security

The foundation of logistics management optimization lies in financial prediction and financial statistics. The optimization of enterprise cold chain logistics management is studied on the basis of financial prediction. Analythe actual financial data, and propose improvement measures from the link that can realize cost reduction. In the supply chain, capital flow plays a role in integrating capital resources and coordinating resource allocation. Through the effective capital operation mechanism and the rational utilization of capital resources, the effective cooperation between supply chains can be improved, and enterprises can ultimately obtain greater profits in the supply chain.

4. Internal Control System Guarantee

On the one hand, the human resources department should comprehensively investigate and analyze the responsibilities and requirements of employees, do a good job in the division of responsibilities and work requirements, and set up a reasonable organization and personnel post allocation, so that relevant departments and personnel

can successfully complete all tasks in strict accordance with the functional setting. According to the standardized operation and personnel demand analysis of each logistics post, the person-job matching can not only meet the needs of the whole business chain, but also highlight the advantages and strengths of employees, and comprehensively improve the efficiency of work management. Shuanghui company, on the other hand, in position right configuration need to set up the supervision mechanism, strengthen supervision and management within the company, the rights of the management to clear, job division is reasonable, achieve the purpose of the internal personnel management reasonable and legitimate, for the development of the company and the construction of personnel organization adjustment has a positive impact.

References

Anjiuyi. (2010). Research on the current situation and development ideas of cold chain logistics standardization in China. *Standard Science*, (07), 9-13.

Anderson, E. W., & Fornell, C. (1994). A customer satisfaction research prospectus. In *Service quality: New directions in theory and practice* (pp. 241-268). n.p.

Chen, G. (1999). Supply chain management. *China Soft Science*, (10), 101-104.

Chen, W. H. (2020). The development of supply chain logistics in the food industry. *Food Research and Development*, *41*(22), 244.

Chen, Y. Y. (2019). Research on the construction of cold chain logistics supply chain system for fresh agricultural products. *Logistics Engineering and Management*, *41*(04), 110-112.

Huo, H., Zhan, S., Wang, Z., & Zhang, J. (2017). *Logistics enterprise management: People's post and telecommunications*. Publishing House.

Hu, J. M. (2017). Problems and countermeasures for the development of cold chain logistics of fresh agricultural products in China. *Reform and Strategy*, *33*(05), 82-93.

Lan, B. X. & Zhang, Y. (2003). A new model of end-of-line logistics distribution service. *Management World*, (06), 147-148.

Li, J. (2017). Cold chain logistics supply chain efficiency index system construction and empirical research. *Business Economic Research*, (23), 93-95.

Li, J. C. (2014). *Cold chain logistics of agricultural products*. Beijing Jiaotong University Press.

Li, J. J., Guo, S. D. & Li, Ye. (2020) Research on the cost-constrained depletion control of fresh agricultural products cold chain logistics system. *Henan Science* *33*(03),472-476.

Li, Q., Wang, X., Zhang, H., Wu, X., Cai, C. Y & Liu, C. J. (2021). Research on the development of cold chain logistics, based on the perspective of supply chain network. *Shandong Chemical Industry*, (06), 119-121.

Li, Q. Y., Wang, X. P., Zhang, H. Y., Wu, X., Cai, C. & Liu, C. (2021). Research on the development of cold chain logistics, based on the perspective of supply chain network. *Shandong Chemical Industry*, (06), 119-121.

Li, W. B. (2021). Cold chain logistics system construction of fresh food - Review of "Agricultural Products Logistics and Supply Chain Management". *Food Industry*, *42*(01), 354.

Li, X. W. (2021). Exploring the development of China's cold chain logistics industry. *Agriculture and Technology* 41(20), 150-153.

Lin, Z. (2020). Fresh supply chain and cold chain logistics development status. *Logistics Technology and Applications*, *25*(S2), 50-52.

Liu, H. (2016). Research on the collaborative path and realization mechanism of fresh agricultural products cold chain logistics. *Agricultural Economics*, (07), 139-140.

Liu, X. (2021). The construction strategy of supply chain in agricultural products cold chain logistics - A review of Cold Chain Logistics. *Journal of Tropical Crops*, *42*(06),1842.

Liu, X., Li, Q. & Yang, Z (2017). Analysis of fresh agricultural products cold chain logistics and standardization countermeasures. *Logistics Engineering and Management*, *39*(07), 98-99.

Lu, H. L. & Zhang, J. M. (2021). *Innovative supply chain management*. People's University of China Press.

Ma, S. (2003). Supply chain management. *Logistics Technology*, (04), 41-42.

Ming, S. J. & Zhu, L. (2022). Research on the optimization technology of urban fresh food cold chain logistics distribution path. *Packaging and Food Machinery 40*(02), 76-81.

Oliver, R. L. (1997). *Satisfaction: A behavioral perspective on the consumer*. McGraw-Hill.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, *49*(4), 41-50.

Rust, R. T., & Oliver, R. L. (1994). Service quality: Insights and managerial implications from the frontier. *Sloan Management Review*, 75-86.

Song, H. (2021). *Supply chain finance*. People's University of China Press.

Song, Y. (2021). Cold chain distribution operation of fresh fruits under the change of logistics mode. *China Fruit Tree*, (08), 121.

Wang, C. (2022). Exploration of the current situation and optimization of food logistics management in the supply chain perspective--a review of Food Logistics Management. *ournal of Food Safety, Quality and Inspection*, *13*(02), 667.

Wang, G. (2018). The importance of cold chain logistics development in logistics enterprises. *Economic and Trade Practice*, (14), 239-241.

Wang, H. (2016). Research on the development of cold chain logistics of fresh agricultural products in China. *Agricultural Economy*, (02),132-133.

Wang, W. (2021). Research on the depletion control of fresh agricultural products cold chain logistics. *China Business Journal*, (24), 3.

Wu, J. & He, X. D. (2017). Research on the development of agricultural cold chain logistics in China. *Logistics Engineering and Management*, *39*(09), 1-9.

Wu, L. H. & Zhou, H. G. (2018). Research analysis of cold chain logistics of agricultural products with supply chain management. *China Business Journal*, (07), 10-11.

Wu, Q. (2021). Analysis of the construction of cold chain logistics standard system for agricultural products. *China Standardization*, (18), 73-75.

Yang, B. H. & Song, X. X. (2013). The road to innovation of agricultural cold chain logistics business model. *Productivity Research*, (12), 2.

Zhang, X. B., Lin, P. & Zhang, C. (2015). Supply chain management. *People's Post and Telecommunications Publishing House*, (07), 350.

Zhou, Y. & H, M. (2022). A review of fresh agricultural products cold chain logistics research. *China Market*, (17), 76-78.

Zhao, Z. F., Ye, X. L. & Shi, H. (2016). *Supply chain operation and management*. Chongqing University Press.

Appendix

Dear Sir/Madam, In order to have a more in-depth understanding of the current situation and future development of cold chain logistics management.

Now we need to do a questionnaire about cold chain logistics, please fill in the questionnaire according to your actual situation, thank you!

Thank you for your support and cooperation.

Part I: Basic information

1 Your gender:

☐ Male

☐ female

2 Your age:

☐ below 30 years old

☐ 30-40 years old

☐ 40-50 years old

☐ 50 years old or above

3 Your position in the company is:

☐ First-line employee

☐ assistant level employee

☐ middle management

☐ senior management

Part II: The company's cold chain logistics management survey, please tick under the option you think is most appropriate

Questionnaire on Influencing Factors of Shuanghui Customer Satisfaction

Factors	Title item	Degree of agreement				
		1	2	3	4	5
Standard clarity	The standard content is clear and easy to understand.					
	Clear standard scope.					
Standard compliance	The standard meets the requirements of relevant laws and regulations.					
	The standard conforms to international standards.					
System functionality	The system contains the functions required by the cold chain logistics business.					

	The function of the system meets the actual needs of users.					
System usability	The system is easy to install and deploy.					
	The system operation is simple and easy to learn.					
Warehouse management efficiency	The warehousing system can realize efficient warehousing and warehousing operations.					
	The warehousing system can timely and accurately carry out inventory management.					
Distribution accuracy	The distribution system can ensure the accuracy of the delivery time of goods.					
	The distribution system can handle the abnormal situation in the distribution process in time.					
Comprehensive information collection	The information sharing mechanism can collect comprehensive cold chain logistics information.					
	The information sharing mechanism can update the latest logistics information in time.					
Information security and protection mechanism	Information sharing mechanism can protect the confidentiality of cold chain logistics information.					
	Information sharing mechanism can ensure the integrity of cold chain logistics information.					
Customer satisfaction	Customer satisfaction with cold chain logistics service					
	Customer's trust in cold chain logistics service organizations					

Thank you for your active participation in this questionnaire, and have a nice life.