

**RELATIONSHIP BETWEEN RESPONSIBLE SUPPLY CHAIN MANAGEMENT  
OF THE FRESH FOOD E-COMMERCE PLATFORMS IN CHINA AND  
CUSTOMER LOYALTY**



**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF  
PHILOSOPHY IN INDUSTRIAL BUSINESS ADMINISTRATION  
KING MONGKUT'S INSTITUTE OF TECHNOLOGY LADKRABANG  
BUSINESS SCHOOL  
KING MONGKUT'S INSTITUTE OF TECHNOLOGY LADKRABANG**

**2025**

**KMITL-2025-KBS-D-128-009**

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.



**COPYRIGHT 2025**

**KING MONGKUT'S INSTITUTE OF TECHNOLOGY LADKRABANG BUSINESS SCHOOL  
KING MONGKUT'S INSTITUTE OF TECHNOLOGY LADKRABANG**

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

**Dissertation Title** Relationship between Responsible Supply Chain Management of the Fresh Food E-commerce Platforms in China and Customer Loyalty

**Student Name** Ms. Xiaohua Ke

**Student ID** 63611116

**Degree Program** Doctor of Philosophy  
Industrial Business Administration (International Program)

**Year** 2025

**Dissertation Advisor** Dr.Saichon Pinmanee

## ABSTRACT

The internet and e-commerce have become integral to daily life, with online shopping a key channel for consumption. China has emerged as the world's largest e-commerce market, a trend accelerated during the COVID-19 pandemic. Within this sector, fresh food e-commerce has experienced rapid growth, accounting for an increasing share of urban residents' food expenditures. However, the intrinsic perishability of fresh produce, coupled with high logistics and storage demands, presents significant challenges. Most providers struggle to achieve profitability, and issues with quality control, packaging, and distribution negatively impact the consumer experience, necessitating new research into customer satisfaction.

This dissertation investigates the factors influencing customer satisfaction and loyalty in China's fresh food e-commerce sector. The research adopts an extended European Customer Satisfaction Index (ECSI) model, incorporating the construct of Trust and grounded in theories of Customer Social Responsibility (CSR) and Responsible Supply Chain Management (RSCM). The conceptual model defines four exogenous variables—Image, Expectation, Hardware, and Software—and three endogenous variables—Perceived Value, Customer Satisfaction, and Loyalty. These latent variables were measured through manifest variables in a survey.

Data was collected via an online questionnaire distributed to users of fresh food e-commerce platforms, yielding 438 validated responses because of the invalid and empty questionnaires. The model was analyzed using SmartPLS for structural equation modeling (SEM). The results demonstrate that Customer Satisfaction, Trust, and Platform Image directly enhance Customer Loyalty. Satisfaction is positively driven by Perceived Value, Customer Expectations, and Perceived Quality. Critically, RSCM practices indirectly bolster loyalty through pathways of trust

and satisfaction, while platform image significantly shapes customer expectations and trust, highlighting the importance of corporate social responsibility.

The findings suggest that for long-term development and profitability, fresh food e-commerce platforms must prioritize RSCM transparency, optimize and integrate their supply chains to reduce intermediaries, streamline distribution networks, and deploy predictive analytics for demand forecasting. Ultimately, achieving integrated management across the entire industrial chain is essential for reducing costs and sustaining customer loyalty. The baseline should be meeting consumers' rational needs, while striving to fulfil their emotional needs as a breakthrough, thereby safeguarding the fundamental services of fresh food e-commerce and providing additional empathetic enhancements. As corporate social responsibility standards rise, market prices decline, while efforts to preserve freshness, consumer surplus, market demand and social welfare increase. Therefore, from the perspective of stimulating demand, stabilizing prices and enhancing social welfare, supply chain members should assume social responsibility. When members of the fresh produce supply chain jointly undertake social responsibilities and implement profit-sharing agreements, market prices reach their lowest point, while preservation efforts, consumer surplus and market demand peak. Under certain conditions, this arrangement can achieve a Pareto improvement in the profits of supply chain members.

# ACKNOWLEDGEMENT

First and foremost, I would like to extend my deepest gratitude to my beloved parents and family. Their unwavering faith in me has been a constant source of strength, and I am truly grateful for their endless support and patience throughout this journey.

I would also like to sincerely thank all those who have contributed their time, guidance, and encouragement along the way, as Associate Professor Dr. Singha Chaveesuk and Associate Professor Dr. Nuttawut Rojniruttikul. My heart felt appreciation goes to the members of the dissertation committee for their invaluable insights and feedback.

Lastly, I am especially indebted to respectable advisor Dr. Saichon Pinmanee for his exceptional mentorship, encouragement, and leadership. His guidance has been instrumental in my academic growth, and for that, I will always remain deeply thankful.

XiaoHua Ke

# TABLE OF CONTENTS

<b>Chapter</b>	<b>Page</b>
ABSTRACT.....	I
ACKNOWLEDGEMENT.....	III
TABLE OF CONTENTS.....	IV
LIST OF TABLES.....	VI
LIST OF FIGURES.....	VII
CHAPTER1 INTRODUCTION.....	1
1.1 Research background.....	1
1.2 Research problems.....	2
1.3 Research questions.....	3
1.4 Research objectives.....	4
1.5 Research scope.....	5
1.6 Research contribution.....	6
1.7 Research Significance.....	7
1.8 Definition.....	7
CHAPTER 2 LITERATURE REVIEW AND CONCEPTUAL MODEL.....	9
2.1 Research context.....	9
2.2 Theories applied in this research.....	23
2.3 Construct of the conceptual model.....	37
2.4 Conceptual model.....	54
CHAPTER 3 METHODOLOGY.....	56
3.1 Reasons to Adopt Quantitative Method.....	56
3.2 Samples and Data collection.....	56
3.3 Measurements.....	58
3.4 Questionnaire development.....	58
3.5 Estimation method.....	60
3.6 Ethics.....	61

# TABLE OF CONTENTS

	<b>Page</b>
CHAPTER 4 DATA ANALYSIS.....	62
4.1 Preliminary research.....	62
4.2 Formal research.....	70
CHAPTER 5 CONCLUSION.....	85
5.1 Discussion.....	85
5.2 Conclusion.....	93
REFERENCES.....	112
APPENDIX.....	138
Appendix A Questionnaire.....	139
Appendix B Instrument Validity And Reliability Assessment The Index of Congruence (IOC).....	151
Appendix C CFA Analysis Results.....	156
Appendix D SEM Analysis Results.....	161
AUTHOR BIOGRAPHY.....	165

# LIST OF TABLES

<b>Table</b>	<b>Page</b>
Table 2.1 Definitions of CSR.....	23
Table 2.2 Definitions of SCM.....	25
Table 2.3 Definitions of RSCM.....	27
Table 2.4 Definitions of CSI.....	31
Table 2.5 Relationships between CSI & CSR.....	32
Table 2.6 Questions on Variables.....	43
Table 2.7 Direct Hypotheses.....	54
Table 2.8 Indirect Hypotheses.....	55
Table 3.1 Sample size for $\pm 5\%$ and $\pm 10\%$ precision levels.....	57
Table 4.1 Frequency Distribution of Basic Information.....	63
Table 4.2 Abbreviation of Variables Used for Statistical Analysis.....	66
Table 4.3 Results of Cronbach's Alpha Value for Pilot Study.....	68
Table 4.4 KMO and Bartlett test.....	69
Table 4.5 Frequency Distribution of Basic Information.....	70
Table 4.6 Harman's Single-Factor Test.....	72
Table 4.7 Descriptive Statistics of Variables and Normality Test.....	73
Table 4.8 Reliability and Convergent Validity of Constructs.....	75
Table 4.9 HTMT Criterion of Constructs.....	77
Table 4.10 Discriminant Validity of Constructs.....	77
Table 4.11 multicollinearity test.....	78
Table 4.12 Effect Size of Exogenous Latent Constructs.....	80
Table 4.13 $R^2$ and $Q^2$ Value of Endogenous Latent Constructs.....	81
Table 4.14 Direct Path Hypothesis Testing.....	82
Table 4.15 Mediation Path Hypothesis Testing.....	83

# LIST OF FIGURES

Figure	Page
Figure 2.1 Retail Ecommerce Sales Worldwide, 2019-2024.....	10
Figure 2.2 Transact scale of fresh food e-commerce in China during 2014-2023.....	13
Figure 2.3 Decision Support System (DSS) for order management.....	14
Figure 2.4 Framework and path model of the quality factors which improve the satisfaction of logistics services.....	14
Figure 2.5 Conceptual model of integration of strategic, tactical and operational levels for the E-commerce food supply Chain.....	15
Figure 2.6 Framework for sustainable supply chain in e-commerce towards Circular Economy.....	15
Figure 2.7 Methodological framework for e-commerce implementation.....	16
Figure 2.8 Blockchain technology characteristics and fresh food e-commerce supply chain performance optimization demand coupling.....	16
Figure 2.9 Fresh Agricultural Products (FAPs) supply chain under consideration.....	17
Figure 2.10 Original Conceptual Model of ECSI.....	40
Figure 2.11 Conceptual Model.....	54
Figure 4.1 Path Coefficient and outer loadings of Structural Model.....	84

# CHAPTER 1

## INTRODUCTION

### 1. 1 Research background

After years of development, the internet and mobile networks have become an inseparable part of people's work and life. E-commerce has become a new growth point in many countries (Yang, Yang, Chen, & Yang, 2020) and online shopping has become one of the important channels to meet people's daily consumption needs, especially in the field of consumption. Online shopping provides consumers with more information and convenience to select products and compare prices (Wang, Chen, & Yang, 2021). E-commerce platforms are popular with consumers because they provide a shopping experience that is not limited by space, time, and product types (Zerbini, Bijmolt, Maestriperi, & Luceri, 2022).

Over recent years, as the e-commerce and other emerging industries grow by leaps and bounds, major e-commerce platforms have begun to introduce fresh agricultural products. This new shopping model has brought opportunities for the e-commerce industry while meeting the diverse needs of consumers. According to the relevant authorities, the penetration rate of the online market of fresh food e-commerce market will increase significantly in the future, and there is a large room for further development in the fresh food e-commerce. At the same time, the state's support for agricultural e-commerce has also been strengthened. With the implementation of relevant policies, fresh agricultural products have gradually started to be introduced by major e-commerce platforms, which triggers both fierce competitions among e-commerce platforms and research on the fresh agricultural products supply chain. Combined with China's current development of fresh produce supply chain, Luo (2023) pointed out the main factors restricting the development of China's fresh supply chain, and finally puts forward the strategy to improve the development level of China's fresh supply chain. Zhao (2023) discussed the problems to the current fresh produce supply chain development. She argued that it is necessary to improve the supporting services as soon as possible, establish a coordinating mechanism, standardize the distribution chain, attract social capital and technological inputs through government subsidies, and implement a response plan to deal with the risks that may occur. Through the SWOT analysis of the live e-commerce mode of fresh agricultural products in Doumen District, Xin (2023) puts forward the implementation path of fresh agricultural products supply chain innovation under the live e-commerce mode to help the development of rural e-commerce. Qi and Zhao (2023) proposed that digitalization is conducive to the cost reduction

and efficiency of the fresh agricultural products supply chain on the basis of analyzing the traditional supply chain system of fresh agricultural products and its problems. Further, they analyzed the specific paths of the supply chain of agricultural products empowered by digital technology from the production system, the processing system, the sales system and the cold-chain operation and service system respectively.

But given the intrinsic characteristics of fresh food (mainly perishability and vulnerability) and the combination of other factors, storage costs are relatively high. The whole process is extremely demanding in terms of logistics and transport, refrigeration and other conditions. As a result, most fresh food e-commerce providers have yet to achieve profitability and lack unified standards. At present, the mixed development of fresh food e-commerce in China leads to many problems for consumers in their shopping experience, such as packaging, fresh food quality control, logistics, preservation and other issues.

However, in recent years, various fresh food e-commerce platforms have been frequently complained about by consumers due to problems such as product quality, pricing standards and after-sales service. Food quality complaints are common in major third-party complaint platforms. The reporter searched the Black Cat complaint platform with the keyword "fresh food quality" and got over 600 results, with 9 of the last 10 related to fresh food e-commerce (Center, 2023). With the rapid development of fresh food e-commerce, the safety of fresh food has become more and more prominent, triggering the society to think about the issue of social responsibility of fresh food enterprises.

## 1.2 Research problems

The rapid expansion of China's fresh food e-commerce sector, accelerated by the COVID-19 pandemic, has positioned it as a critical component of urban food consumption. Despite its growth, the industry faces persistent and significant challenges that undermine its sustainability and profitability. The intrinsic perishability of fresh produce, coupled with high logistical demands for cold-chain storage and transportation, results in elevated operational costs and substantial product loss. Consequently, most fresh food e-commerce platforms struggle to achieve consistent profitability.

More critically, these operational difficulties manifest in the consumer experience as frequent problems with product quality control, packaging integrity, delivery timeliness, and after-sales service. These issues have led to a high volume of consumer complaints and negative publicity,

eroding customer trust and satisfaction. While supply chain management is recognized as the core determinant of success in this sector, the prevailing focus has often been on operational efficiency and cost reduction.

The central research problem addressed in this dissertation is the insufficient understanding of how Responsible Supply Chain Management (RSCM) practices specifically influence the key drivers of long-term business success—customer satisfaction and customer loyalty—within the context of China's fresh food e-commerce platforms. Existing customer satisfaction models, such as the European Customer Satisfaction Index (ECSI), have not been adequately adapted to incorporate the unique role of RSCM in this specific industry. While Corporate Social Responsibility (CSR) has been linked to customer loyalty in broader e-commerce studies, the mechanisms through which responsible practices within the supply chain—such as ethical sourcing, environmental sustainability, and transparency—translate into enhanced customer perception, trust, and ultimately, loyalty, remain underexplored.

Therefore, a clear gap exists in both theory and practice: the lack of an integrated model that connects RSCM antecedents to established customer satisfaction and loyalty frameworks. This research problem necessitates an investigation into the specific factors of RSCM that shape customer expectations, perceived quality, platform image, and trust, and how these factors collectively and indirectly foster the customer loyalty essential for the long-term viability of fresh food e-commerce platforms in China.

### 1.3 Research questions

In this dissertation, the following questions will be studied:

(1) How the theories of CSR, SCM and RSCM apply for the empirical studies of fresh food E-commerce in China? There are two sub-questions in detail:

(i) How the classic model of customer satisfaction index affects to the customer satisfaction/loyalty of fresh food E-commerce in China?

(ii) How RSCM of fresh food E-commerce apply for the customer satisfaction/loyalty in China?

(2) How the classic model of customer satisfaction index model fits for the specific conditions of fresh food E-commerce in China? There are two sub-questions in detail:

(i) What are the applicability and fitness of the classic customer satisfaction index model under the specific conditions of China's fresh food e-commerce sector?

(ii) What are antecedent factors of responsible supply chain management in the fresh food E-commerce in China?

(iii) How does responsible supply chain management in fresh food E-commerce affect the customer satisfaction?

## **1.4. Research objectives**

### **1.4.1 To broaden studies of CSR, SCI and RSCM**

Linton et al. (2007) call attention to the fact that the interaction between responsibility and the supply chain is the critical next step in the development of Corporate Social Responsibility. Supply Chain Management must integrate special issues, e.g. online shopping like fresh food e-commerce and CSR also must integrate new areas e.g. supply chain management. The open issues are fundamentally interdisciplinary in nature, which makes them real challenges.

### **1.4.2 To improve Model of the Customer Satisfaction Index (CSI)**

Although previous researches have discussed the relationship between the corporate social responsibility (CSR) and the customer satisfaction even customer loyalty, few studies have focused on the responsible supply chain management in detail which will affect the extent of customer satisfaction in the field of fresh food E-commerce. This research will improve the model of customer satisfaction index in the context of mainland China.

To sum up, the research objectives are as followed:

To investigate how the theories of Corporate Social Responsibility (CSR), Supply Chain Management (SCM), and Responsible Supply Chain Management (RSCM) apply to the empirical context of fresh food e-commerce in China, and to examine their impacts on customer satisfaction and loyalty.

Specific Objectives:

To analyze how the classic customer satisfaction index model influences customer satisfaction and loyalty in China's fresh food e-commerce platforms.

To examine how Responsible Supply Chain Management (RSCM) practices contribute to customer satisfaction and loyalty in the Chinese fresh food e-commerce industry.

To assess the applicability and fitness of the classic customer satisfaction index model under

the specific conditions of China's fresh food e-commerce sector.

To identify the antecedent factors of RSCM within the fresh food e-commerce supply chain in China.

To investigate the causal relationship between RSCM practices and customer satisfaction in the context of fresh food e-commerce in China.

## 1.5 Research scope

This study is deliberately bounded by a clearly defined scope to ensure focused and feasible research. The scope is delineated across four key dimensions: the unit of analysis, geographical boundaries, temporal considerations, and thematic coverage.

**Population:** The population for this research consists exclusively of Small and Medium-sized Enterprises (SMEs) registered on the Public Service Demonstration Platform of the Ministry of Industry and Information Technology of the People's Republic of China. The unit of analysis is the individual SME. The study specifically targets firms that are either currently implementing or have concrete plans to adopt information systems for enterprise management, ensuring the research context is relevant and the respondents possess the necessary experience or intention related to the study's core variables.

**Geographical Scope:** The research is confined to SMEs operating within Jiangsu Province, China. This geographical limitation allows for a concentrated analysis of a significant regional economy while controlling for broad national variances in policy implementation, economic development levels, and technological infrastructure that could confound the results.

**Temporal Scope:** This research adopts a cross-sectional approach, collecting data at a single point in time to examine the relationships between the defined variables. It captures the perceptions and performance of SMEs at this specific juncture, providing a snapshot of the phenomenon under investigation.

**Thematic and Conceptual Scope:** The conceptual boundaries of this study are framed by the specified research model. The investigation is strictly confined to the following constructs and their interrelationships:

**Exogenous Latent Variables:** Organizational Context, Technological Environment, Task Characteristics, Task-Technology Fit, Human Self-Efficacy, System Quality, Information Quality, and Service Quality.

**Mediating Latent Variables:** ERP System Use and User Satisfaction.

**Endogenous Latent Variable:** SME Performance.

## 1.6 Research contribution

This study makes significant and multifaceted contributions to both academic theory and industrial practice. Theoretically, it breaks new ground by systematically integrating the construct of Responsible Supply Chain Management (RSCM) into the established European Customer Satisfaction Index (ECSI) model. While previous research has often discussed Corporate Social Responsibility (CSR) in broad terms, this study is pioneering in its specific focus on the supply chain as a critical locus of responsibility that directly impacts consumer perception. It identifies and validates the key RSCM antecedents—Platform Image, Customer Expectation, and Perceived Quality of RSCM—and delineates their causal pathways to customer loyalty. The findings reveal that RSCM does not operate in a vacuum but exerts its influence primarily through indirect, yet powerful, mediators like trust and customer satisfaction. This nuanced understanding enriches the literature on sustainability in e-commerce and provides a more robust theoretical framework for analyzing customer loyalty in contexts where product integrity and ethical provenance are paramount.

From a practical standpoint, this research offers actionable insights for managers and stakeholders in China's highly competitive fresh food e-commerce industry. The empirically tested model serves as a strategic map, guiding platforms to move beyond competing solely on price and delivery speed. It demonstrates that investing in RSCM transparency—such as ethical sourcing, environmental care, and fair labor practices—is not merely a cost but a strategic investment that builds a reputable platform image, fosters deep-seated customer trust, and enhances perceived value. For policymakers, the study underscores the importance of promoting and incentivizing responsible supply chain practices, as these contribute not only to corporate profitability but also to broader social welfare, including increased consumer surplus and stabilized market demand. Ultimately, this dissertation provides a clear mandate: achieving integrated and responsible management across the entire industrial chain is the fundamental pathway to reducing costs, mitigating risks, and cultivating the enduring customer loyalty essential for sustainable development.

## 1.7 Research significance

### 1.7.1 Theoretical significance

Some researchers have studied the relationship between CSR and CSI, but as a specific field of CSR, RSCM should be discussed in more detail, esp. for the industry like fresh food E-commerce whose supply chain management is the core factor for its success. Connecting RSCM with CSI will emphasize the significance of supply chain management from the perspective of customers. This dissertation will try to investigate the concerned factors in this model and finally find out the suitable factors which will affect the RSCM and customer's satisfaction in the fresh food E-commerce, which will contribute in the following theoretical aspects:

- (1) To inspire future studies about the relationships between customer satisfaction and customer loyalty from the perspective of social responsibilities of supply chain management in the fresh food E-commerce platforms;
- (2) To further study which customer satisfaction index model is more suitable to be applied in discussing the factors influence customer loyalty in the fresh food E-commerce platforms.

### 1.7.2 Practical significance

The study findings of this dissertation will offer some pragmatic and pervasive suggestions to those fresh food E-commerce companies in China and their business strategies of supply chain management. The following stakeholders may be benefited from this study:

- (1) The sellers who operate the fresh food E-commerce platforms will make better of the relationship between them and their customers;
- (2) The suppliers who offer goods and services to the fresh food E-commerce platforms will pay attention to the social responsibilities.

## 1.8. Definition

This research defines the following key terms as follows.

**Fresh Food E-commerce:** This refers to the online buying and selling of perishable food products, such as fruits, vegetables, and meat, through digital platforms. In China, this sector has experienced rapid growth, characterized by business models that integrate online services with offline experiences to deliver fresh goods directly to consumers.

**Responsible Supply Chain Management (RSCM):** RSCM is the practice of managing

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

supply chain activities in a way that ensures ethical, social, and environmental responsibility. It integrates sustainability and transparency into traditional supply chain management, balancing economic goals with environmental care and fair labor practices from sourcing to delivery.

**Customer Loyalty:** This is a customer's deeply held commitment to consistently re-purchase or patronize a preferred product or service in the future. It manifests as immunity to competitors' influences and extends to positive behaviors like willingness to pay a premium and providing positive word-of-mouth recommendations.

**Customer Satisfaction:** This is a psychological state reflecting a customer's overall evaluation of a firm's post-purchase performance or service utilization. It is determined by the comparison between the customer's pre-purchase expectations and their actual perception of the product or service's performance.

**Perceived Value:** This represents a customer's assessment of the utility of a product or service based on their perception of what is received versus what is given. It is a trade-off between the total benefits received (e.g., quality, service) and the total sacrifices made (e.g., cost, time).

**Platform Image:** This is the overall impression and set of associations that customers hold in their memory about a specific e-commerce platform. It encompasses perceptions of the platform's innovativeness, success, ethical business conduct, and responsiveness to consumers.

**Customer Expectation:** This is the anticipated level of product or service quality that customers believe they will receive from a platform before a purchase. It is formed from prior consumption experiences, advertising, word-of-mouth, and forecasts of the platform's future ability to deliver quality.

**Perceived Quality:** This is the customer's subjective judgment about a product or service's overall excellence or superiority following its consumption. It is measured by evaluating recent experience against key customer requirements, including the reliability and standardization of the platform's offering.

**Trust:** In an e-commerce context, this is a customer's willingness to rely on an exchange partner, the platform, in whom they have confidence. It encompasses beliefs in the platform's credibility, benevolence, and its commitment to the customer's satisfaction.

## **CHAPTER 2**

# **LITERATURE REVIEW AND CONCEPTUAL MODEL**

This chapter will examine the main issues surrounding the theories and frameworks, as well as the variables. The following content will encompass three main sections that are closely correlated to the subject of this study (1) the research context will illustrate the status quo of the supply chain management of fresh food E-commerce platforms in China and the problems as well; (2) the main theories applied in this study including Corporate Social Responsibilities (CSR), Supply Chain Management (SCM), Responsible Supply Chain Management (RSCM) and Customer Satisfaction Index (CSI), (3) construct of the conceptual model by exogenous variables and endogenous variables and the relating hypotheses will be raised accordingly.

### **2.1 Research context**

#### **2.1.1 General introduction of E-commerce worldwide and in China**

##### **2.1.1.1 Development of E-commerce around the world**

The digital revolution of the first two decades of the new millennium have brought with them numerous changes in product sales channels and, as a result, in consumer habits and expectations (Bresciani, Ferraris, Santoro, & Kotabe, 2022; Weyer, Tiberius, Bican, & Kraus, 2020). It is significant to think that a company like Amazon, already a billionaire leader in the online channel, increased its revenues more than tenfold between 2010 and 2020, from 34 to 389 billion dollars (Coppola, 2021). In addition, the COVID-19 pandemic crisis has further irrevocably shaped consumer habits, who increasingly prefer to make purchases online (Vázquez-Martínez, Morales-Mediano, & Leal-Rodríguez, 2021). The online channel is thus progressively destined to acquire greater relevance in the total market, shaping the entire entrepreneurial ecosystem (Song, Escobar, Arzubíaga, & Massis, 2022). Undoubtedly, digital entrepreneurs have the opportunity to create new digitally native business models adapted to consumers' changing needs (Kraus, Palmer, Kailer, Kallinger, & Spitzer, 2018). During the past two decades, e-commerce has emerged as one of the most important marketplaces for transactions of goods and services, reshaping the whole retail experience. Global online sales represented 18% (USD 4.28 trillion) of total retail sales in

2020 and are expected to reach 21.8% by 2024 (eMarketer, 2021).



**Figure 2.1:** Retail Ecommerce Sales Worldwide, 2019-2024

Source: eMarketer (2021)

#### 2.1.1.2 Status quo of E-commerce in China

In the past ten years, online shopping has developed rapidly in China (Zheng, Chen, Zhang, & Wang, 2020), playing an increasingly important role in promoting the development of the consumer market. The number of online shopping users in China has reached 710 million, an increase of 100 million over the end of 2018, accounting for 78.6% of the total Internet users by March 2020. The online retail sales reached 10.63 trillion CNY, of which the online retail sales of physical goods reached 8.52 trillion CNY, accounting for 20.7% of the total retail sales of consumer goods in China (CNNIC, 2020). The rapid development of online shopping gave birth to two Chinese e-commerce retail giants, Alibaba and JD. They occupy more than 80% of China's online sales market share (Service, 2018).

E-commerce is gaining momentum in China during COVID-19 pandemic, with reports from the U.S. Project Syndicate indicating that China's e-commerce transactions have

reached more than 40% of the global share, making it the world's largest e-commerce market. Data from the e-commerce trading platform of the National Bureau of Statistics (CNNIC, 2020) shows that China's e-commerce transactions have reached 42 trillion yuan in 2021. Ministry of Commerce's data shows that China's online retail B2C reached 13 trillion yuan in 2021, with online retail sales of physical goods accounting for about a quarter of total retail sales of consumer goods, exceeding 10 trillion yuan for the first time. In August 2022, eMarketer from the U.S. released a report showing that China is the world's largest e-commerce market, with a projected e-commerce share ratio (EC) of 45.3% in 2022, about three times that of the United States (Hao & Xiaohong, 2022).

Besides the scale of e-commerce transaction, the number of e-commerce customers has increased year on year in China, which provides the market with huge potentials. "This Decade: 2012-2022" China E-commerce Development Data Report released by E-commerce Research Center (Center, 2023) on October 27th, 2022 shows that from 2012 to 2022, the size of e-commerce customers has been growing from 247 million year by year to 848 million, with ten-year-growth of 600 million people. Among them, the growth peak was reached in 2019 (Center, 2023), with a growth rate of nearly 30%. In the first half of 2022, the scale of domestic e-tailing users reached 880 million, up 7.3% year-on-year, and it is expected that the scale of users will reach 908 million by the end of 2022. Over the past decade, customers have developed the habit of shopping online, and have formed a reliance on all aspects of food, clothing, housing and transportation.

### 2.1.2 General information of fresh food E-commerce in China

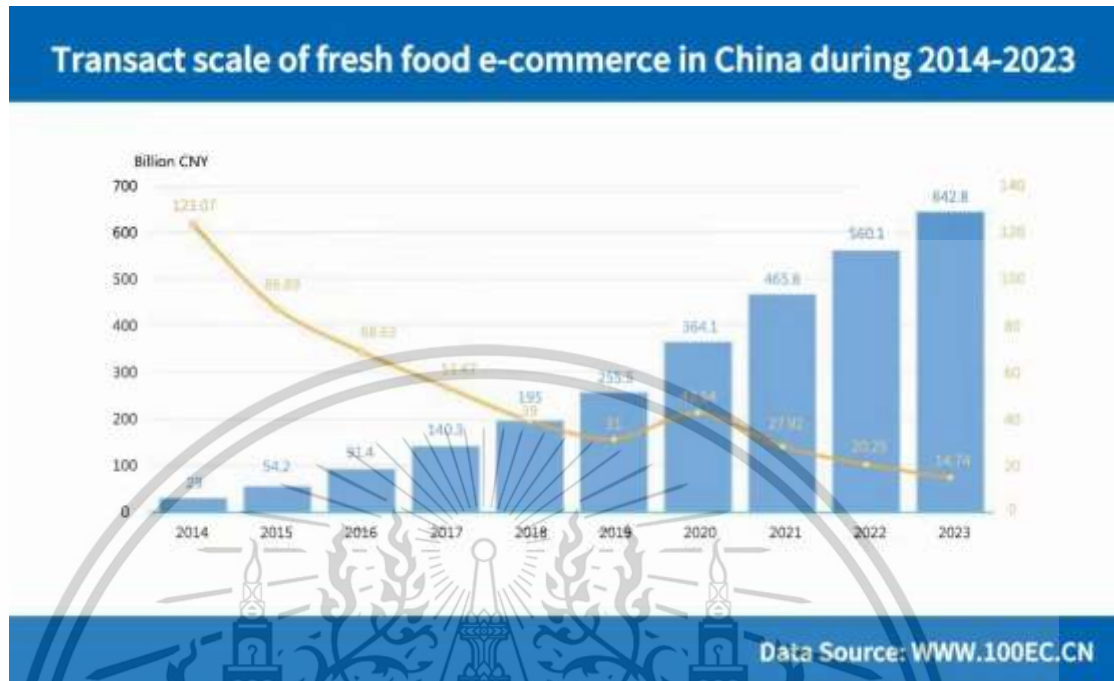
With the establishment of Ego.com to sell fruit online, China's fresh food e-commerce started in 2005, and then grew with the development of e-commerce. 2012 was considered the first year of development for China's fresh food e-commerce, with a large amount of capital entering the fresh food e-commerce industry. As of 2019, there were already more than 9,000 fresh food e-commerce companies operating in the fresh food e-commerce business in China. Meanwhile, in the context of new retail, internet giants have entered the fresh food e-commerce industry. Based on the Internet, the production, distribution and sales process of commodities is upgraded and transformed through the use of advanced technological means such as big data and artificial intelligence. By combining online services with offline experiences, a series of innovative business models have been created (X.-y. WANG & XU, 2022; ZAN, CHEN, & WANG, 2020).

Over recent years, with the rapid development of Internet technology, intelligent logistics, big data and artificial intelligence, online shopping has become a kind of consumption habit. Meanwhile, the new retail concept and the rapid integration of online and offline make people's consumption patterns and the Internet more closely linked. In the context of "Internet + agriculture",

e-commerce for fresh food has become the last promising field of e-commerce. Based on the requirements of transformation and upgrading of fresh agricultural products supply chain, Y. Feng (2021) proposed the ways of transformation and upgrading of fresh agricultural products supply chain from the aspects of standardization and personalized response of fresh agricultural products supply chain, integrated management of online and offline supply chain, application of science and technology and traceability management of supply chain information, brand management and high-quality development of supply chain, and application of multi-dimensional circulation mode and improvement of operational efficiency. Li, Zhu, and Wang (2021) identified the breakthrough point of fresh produce supply chain innovation and the digitalization+ fresh produce supply chain innovation scheme was proposed to enrich the theory of fresh produce supply chain innovation under new retail. Starting from the problems of high loss, redundant links, lack of monitoring, low processing level and difficult traceability in the current supply chain of fresh agricultural products, an innovative model for the supply chain of fresh agricultural products was proposed (Zhang, Wang, & Wu, 2021), and countermeasures for the realization of the innovative model were given from the aspects of infrastructure construction, cold-chain logistics system, quality traceability, marketing model and supply chain integration, thus put forward the reconstruction countermeasures of “Internet +” fresh agricultural product supply chain (Zhang, 2022).

According to the Report on China Fresh Food E-Commerce Industry Consumption in 2021 (hereinafter referred to as the Fresh Food Report) by iResearch, the author learned that fresh food e-commerce is bringing about an ever-growing market in China. In 2021, the total transaction in China's fresh food e-commerce market reached 400 billion Yuan. The fresh food e-commerce market is becoming increasingly prosperous. E-Commerce Research Center has released China Fresh Food E-Commerce Market Data Report 2023 (the first half of the year)(Center, 2023). The report shows that the transaction scale of fresh food e-commerce is expected to reach 642.76 billion RMB in 2023, up 14.74% year-on-year. From 2018 to 2022, the transaction scale (growth rate) of fresh food e-commerce in China were RMB 195 billion (39%), RMB 255.45 billion (31%), RMB 364.13 billion (42.54%), RMB 465.81 billion (27.92%), and RMB 560.14 billion (20.25%) respectively. It is expected that the transaction scale of fresh food e-commerce will reach RMB 642.76 billion by the end of 2023. The user scale of fresh food e-commerce platforms is expected to be 513 million in 2023, with a year-on-year growth of 11.52%. The growth rate has stabilized in the past three years. In addition, the user scale from 2019 to 2022 were 323 million, 376 million, 417 million, and 460 million, respectively. Fresh food e-commerce transactions accounted for a steady increase in the proportion of urban residents' food consumption expenditures over the past three years. In the first half of 2023, urban residents' food consumption expenditures amounted to

RMB 1,059.4 billion, in which fresh food e-commerce transactions accounted for 27.6%.

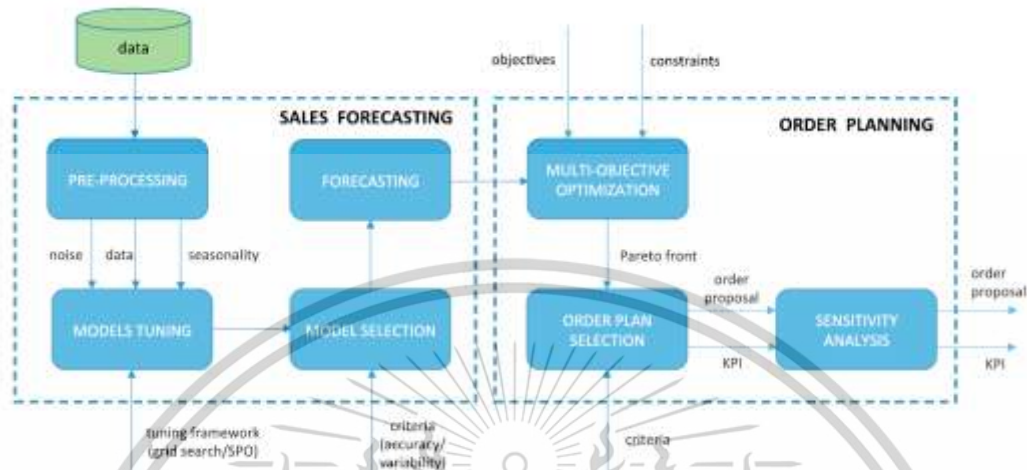


**Figure 2.2:** Transact scale of fresh food e-commerce in China during 2014-2023

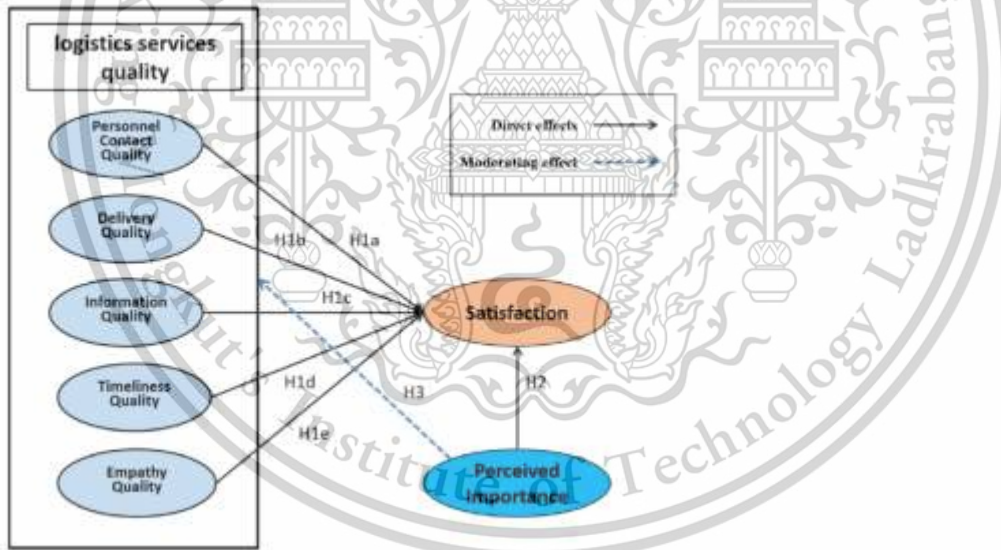
**Source:** Center (2023)

However, compared with foreign developed countries, China's fresh food e-commerce started late and is not mature enough, limited by cold chain logistic technology, front warehouse site selection and other problems (Wu, 2015). The fragmented and uncoordinated nature of the supply chain has led to a low consumer satisfaction at the end of the chain. More consumers choose to purchase from farmers' markets rather than large fresh food supermarket chains and online fresh food e-commerce platforms. Compared to China, foreign fresh food e-commerce platforms commenced early, and many large platforms have developed a large-scale, flat supply chain model and a scientific approach to selecting offline shop locations (Liu, Wang, & Zhang, 2016; Zeng, Wan, & Guo, 2016; Zhao, 2022).

2.1.3 Supply chain management in fresh food E-commerce

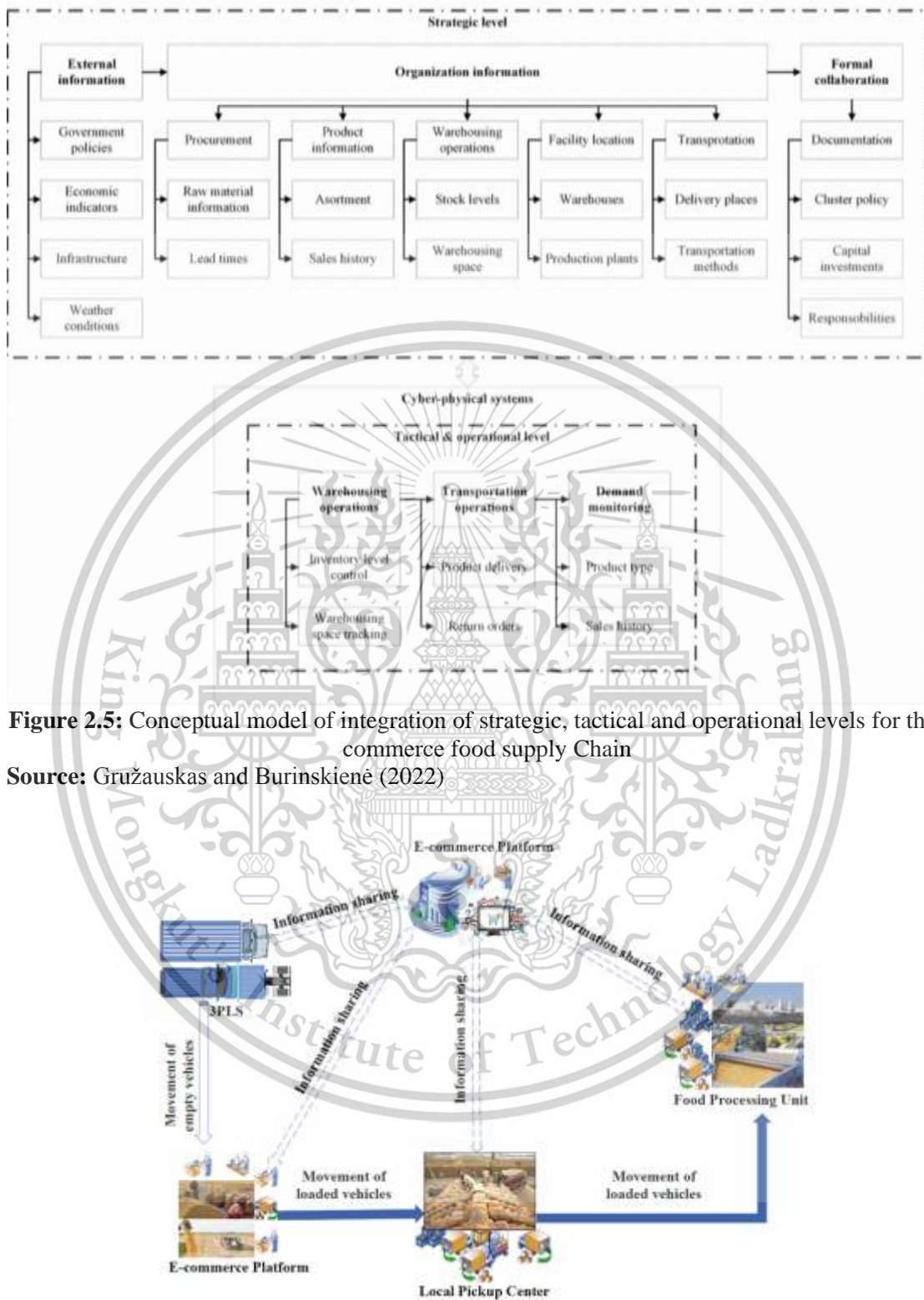


**Figure 2.3:** Decision Support System (DSS) for order management  
 Source: Gabriella, Teresa, Renato, Nicola, and Carlo (2017)



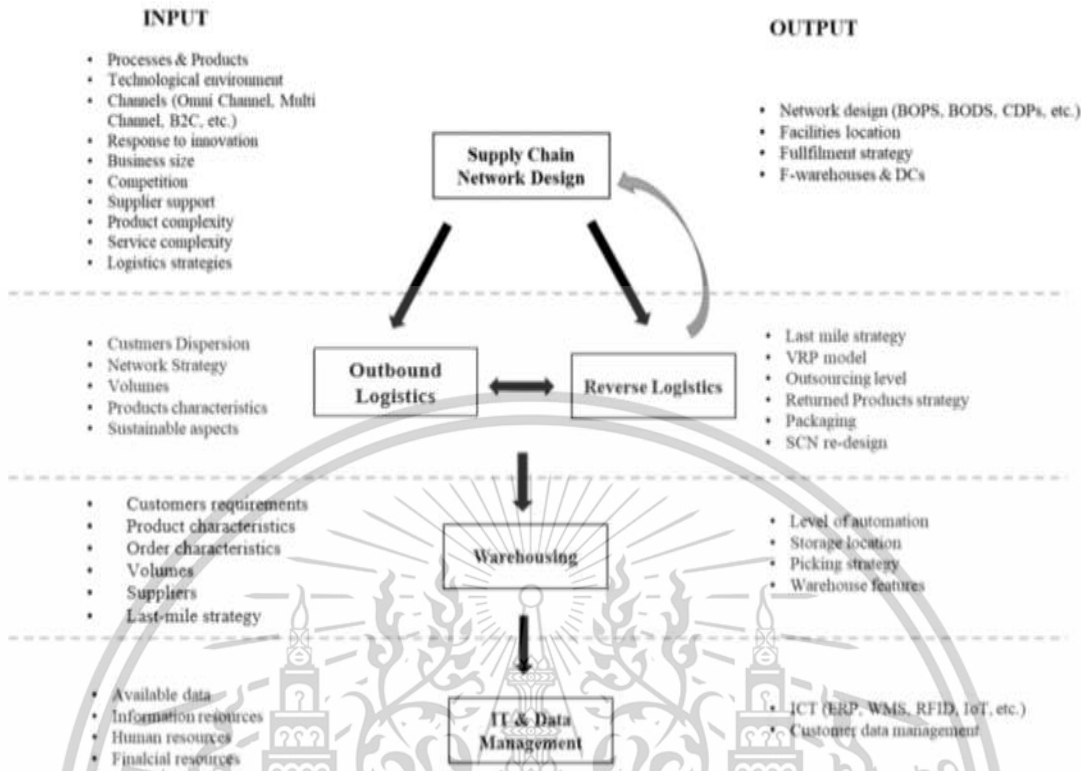
**Figure 2.4:** Framework and path model of the quality factors which improve the satisfaction of logistics services

Source: Jiang et al. (2021)

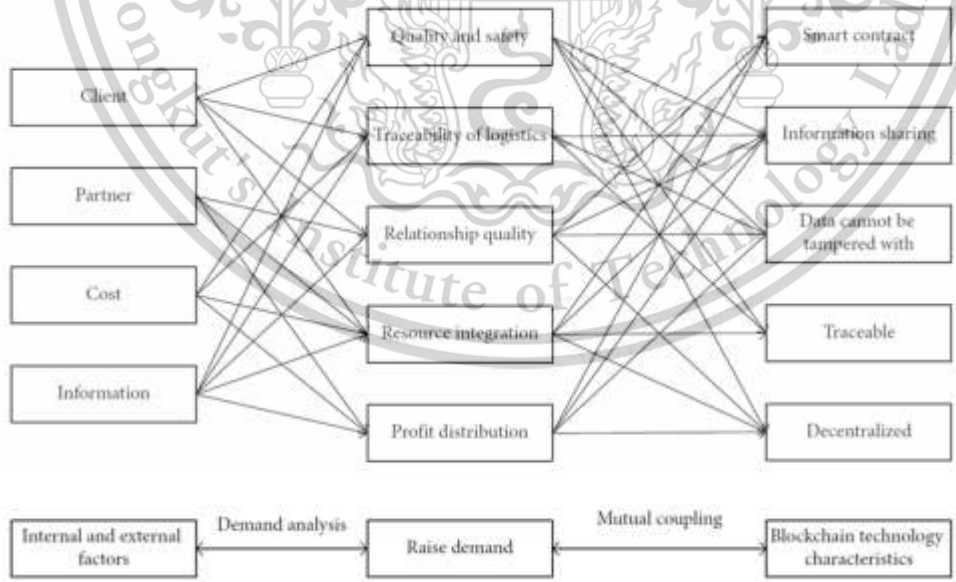


**Figure 2.5:** Conceptual model of integration of strategic, tactical and operational levels for the E-commerce food supply Chain  
**Source:** Gružasuskas and Burinskienė (2022)

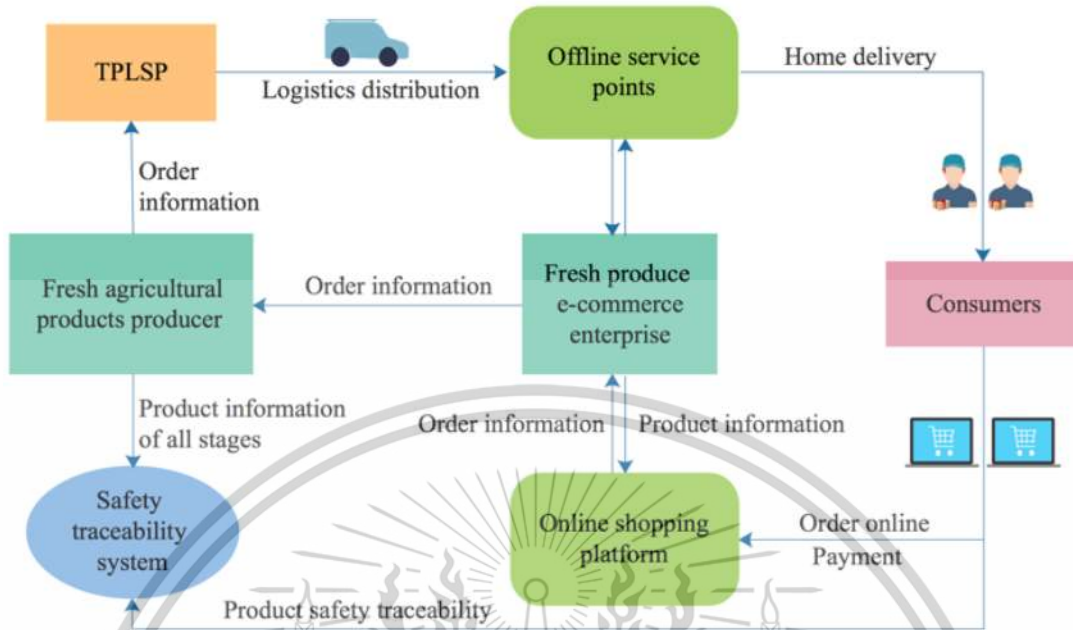
**Figure 2.6:** Framework for sustainable supply chain in e-commerce towards Circular Economy  
**Source:** Prajapati et al. (2022)



**Figure 2.7:** Methodological framework for e-commerce implementation  
**Source:** Implementing E-commerce from logistic perspective: Literature review and methodological framework (Zennaro, Finco, Calzavara, & Persona, 2022)



**Figure 2.8:** Blockchain technology characteristics and fresh food e-commerce supply chain performance optimization demand coupling  
**Source:** Liu and Guo (2021)



**Figure 2.9:** Fresh Agricultural Products (FAPs) supply chain under consideration  
**Source:** Song, He, and Xu (2018)

China's fresh food e-commerce supply chain is divided into a traditional model centered on farmers' markets and a modern model centered on supermarkets. The traditional "small-scale production, small-scale circulation" model is still dominant in the agricultural production process, and the logistics model of some fresh food e-commerce industries is still in the traditional supply mode of spot trading. This leads to a long time for fresh food in transit, easy to cause losses and waste at the source of the supply chain, difficult to guarantee freshness and safety and hard to achieve customer satisfaction. At the same time, most agricultural products need to go through multiple levels of wholesale before they finally reach the consumer, with high risk (Ge, 2018). This increases the cost and expense of distribution to a large extent. Problems such as untimely fresh food delivery, fresh food spoilage and difficulties in returning and exchanging goods have led to a number of e-commerce companies being complained about by consumers. The Report on Consumer Product Quality Complaints during the New Coronavirus Epidemic released by the People's Daily Online Public Opinion Data Centre shows that the most common problem complained about by consumers during COVID-19 pandemic period was after-sales service. According to the 2021 China E-commerce User Experience and Complaint Detection Report, the top issues of complaints received by fresh food e-commerce platforms in 2021 focused on problems with the quality of goods, long delays in delivery, delays in logistics, difficulty in refunding and

failure to return money in time, and poor after-sales service (Huang, Zhang, & Xing, 2020; HUANG et al., 2022; QIU, LI, & ZHANG, 2021). This resulted in the loss of a large number of customers and business failures, affecting the sound development of the fresh food market for Chinese enterprises.

Therefore, to sustain development, fresh food e-commerce companies must continue to focus on the consumer shopping experience and enhance the satisfaction of online fresh food shopping. However, there have been only fewer studies on online fresh food, and not much research has been done on consumers' satisfaction with online fresh food e-commerce. Meanwhile, the fresh food e-commerce market has gone through a period of exploration, rapid development and reshuffling. It is now marching into a period of transformation and upgrading in its formative years.

As new changes in the factors influencing customer satisfaction, online fresh food e-commerce requires new research. Research on customer satisfaction in the fresh food e-commerce sector has focused on exploring aspects that affect consumer satisfaction with fresh food purchases and willingness to repurchase. Some scholars (CHEN & ZHANG, 2021; Feng, 2021; HU, WANG, & CHEN, 2021) concluded that the aspects of fast delivery, temperature control, delivery frequency, delivery alternatives, labor, and user characteristics should be considered when delivering fresh food. Zhang (2020) focused on online review information as the research focus. The correlation analysis confirmed that convenience, communication, reliability and responsiveness have significant effects on customer satisfaction. In terms of satisfaction research, scholars constructed a fresh food e-commerce customer satisfaction influence factor model and verified that factors such as fresh food quality, sales price, logistics and delivery, after-sales service, web design, product packaging, merchant reputation, and brand image all affect consumer satisfaction with fresh food purchases through field research and python text analysis. However, there are still relatively few studies on the satisfaction of fresh food e-commerce supply chain (Qiu, Li, & Zhang, 2021).

#### **2.1.4 Fresh Food E-commerce Supply Chain Worldwide**

##### **2.1.4.1 Upstream supply chain**

From the perspective of the upstream, the source of agricultural products: the foreign fresh food supermarkets, represented by those in the United States, are relatively high in agriculture scale, specialization, mechanization and have a higher degree of concentration of planting land and farm production scale. Each agricultural production base will specialize in the division of labor and production and distribute a certain category nationally or even globally according to the climate and soil conditions of each place, making the high production efficiency and low-cost production.

This typical agricultural scale production not only can significantly reduce the procurement cost and operation cost, but also can enhance the bargaining power of upstream agricultural products through large-scale procurement and reduce the intermediate cost. (Miranda-Ackerman, Azzaro-Pantel, Aguilar-Lasserre, 2017)

#### 2.1.4.2 Midstream supply chain

From the perspective of the midstream storage and transportation capacity: in the midstream of the supply chain of foreign fresh food supermarkets, these platforms will build a large number of warehouses, provide transportation vehicles, and adopt positioning systems and barcode technology to ensure the transparency and safety of fresh agricultural products in the transportation process to meet the quality satisfaction of consumers (TAJBAKHSI, 2020).

#### 2.1.4.3 Downstream supply chain

At the level of the marketing model, downstream of the supply chain: foreign fresh food e-commerce supermarkets are operating in two types of business models: online-offline business and online only business. For supermarkets with physical shops, most companies will choose to establish partnerships with large fast-food chains, offering these consumers free food tastings and shop discount card campaigns to attract consumers and get them to spend more, thus rapidly expanding the market in a short period of time. Online only supermarkets are highly innovative in catering to consumers, such as Farmigo in the US, which uses the community concept and group buying as a basis for centralized distribution of products to the community, which not only reduces logistics costs but also allows consumers to benefit (Mani, Jabbour., Mani, 2020; Zhang, 2021)

### **2.1.5 Fresh Food E-commerce Supply Chain in China**

#### 2.1.5.1 Upstream supply chain

In the upstream part of the supply chain, the degree of standardization of fresh agricultural products in China is low. Consumers' requirements for the quality of agricultural products are getting higher and higher, and the demand for high-quality and safe agricultural products is rising rapidly. China's agricultural market is still dominated by bulk raw products, with a high supply of primary products and a processing and conversion rate of only 30% for agricultural products, making it difficult for a single primary product to meet consumer demand. The value-added benefits of processing fresh agricultural products are low, and most of the agricultural products in the distribution market are not standardized and scaled up, causing fresh products less standardized and less competitive (Bai, et al., 2021; Zhang, 2021).

#### 2.1.5.2 Midstream supply chain

In the midstream of the supply chain, the high logistics costs of fresh food and the high loss rate due to outdated technology also led to a high unit price of fresh food reaching consumers. The price, as one of the factors considered by consumers of fresh food in China, can reduce their willingness to consume satisfaction. The seasonal nature of agricultural production, the geographical dispersion of production areas, the perishability of fresh food, the perishability of freshness and the perishability of the transport process all contribute to the potential risk of increased costs throughout the distribution process. The above characteristics of fresh food also place higher demands on the processing, storage and transportation of agricultural products, requiring specific transport equipment and technical support, which increases the upfront cost (Bai, et al., 2021; Ji, 2021).

If the e-commerce platform makes a poor choice of logistics, with the limitations of cold chain technology development, the use of general logistics instead will result in a high rate of product loss during transport. The cost of cold chain delivery is 2-3 times higher than normal logistics delivery, which can significantly increase the sales price of fresh food (Zhang, 2021).

The cold chain logistics capacity in China only accounts for 20%-30% of the social demand, and the refrigerated transportation rate is only 15%-20%. 2/3 of fresh agricultural products are still mainly stored at room temperature, distributed and processed, and no coherent cold chain logistics technology has been formed, resulting in a high loss rate of fresh agricultural products during the circulation process due to poor storage capacity and low transportation efficiency. Some fresh food e-commerce platforms are increasingly professional, not only developing their own logistics but also choosing external third-party logistics service providers to optimise the efficiency of delivery to increase consumer satisfaction with fresh food e-commerce (Yi, 2020a; Zhang & Pan, 2018).

#### 2.1.5.3 Downstream supply chain

In the downstream of the supply chain, the degree consumers are satisfied with services provided by the fresh food e-commerce determines the frequency of purchase by consumers. In new retail mode, the main factors to consider are whether the coverage area of fresh supermarkets can bring consumer convenience, whether the internal environment of offline bricks-and-mortar stores can reach consumer satisfaction, and whether the delivery speed and service quality of online orders can meet the consumer expectations. For fresh products, the overtime delivery may make consumers' satisfaction with the consumption experience decrease. In this circumstance, consumers prefer offline brick-and-mortar purchases to online purchases of fresh products with low delivery efficiency and limited variety. This to a certain extent limits the further

development of fresh food e-commerce (Bai,et al., 2021; Wei & Li, 2022).

## 2.1.6 Problems in supply chain management in fresh food E-commerce

### 2.1.6.1 Status quo

At present, the head companies of fresh food e-commerce have gradually shifted their focus to supply chain construction. Dingdong (Cayman) Limited has committed itself to expand brands. The company's Q4 in 2021 (Center, 2023) results show that its own brand sales accounted for 10.2% of total merchandise transactions in the period, compared to 5.8% in the previous year. Miss Fresh, on the other hand, has been stepping up its direct sourcing efforts in recent years. Both companies are cutting out intermediate links wherever possible to create greater profit margins.

### 2.1.6.2 Main problems

The main problems in fresh food E-commerce supply chain management are as following:

#### High operational requirements and difficulties in profitability

As a special commodity with perishable characteristics, the cost of cold chain logistics for fresh food e-commerce is much higher than the cost of ordinary logistics, thus increasing the difficulty of the whole cold chain logistics and leading to many breakpoints in the whole supply chain. At the same time, problems such as untimely delivery of fresh agricultural products remain prominent, which leads to a high rate of damage during the circulation process.

#### **Farmers in a vulnerable position to trigger “moral hazard”**

In the fresh food supply chain, farmers are undercapitalized with small-scale and less competitive technologies. Due to the unequal trading status, e-commerce enterprises, a dominant party with abundant capital and technological advantages, tend to squeeze the upstream farmers in order to earn more profits when their own interests are not sufficiently protected. A series of problems such as increased production but not increased income of farmers occur frequently, and the interests of farmers in the supply chain are undermined. When farmers try to compensate for their losses, such problems can easily lead to “moral hazard”, for example, replacing substandard products for high-quality goods.

#### **Unstable supply chain relationships between quality and safety issues**

The fresh food e-commerce business is mainly sourced from external sourcing or self-run. Although external sourcing can easily meet the requirements of quantity and variety of fresh food, the requirements for supply chain cooperation are demanding. The relationship between e-commerce companies and farmers is usually a simple buying and selling relationship based on

short-term interests, which leads to a high risk of breach of contract. Moreover, business-farmer relationships are not strong In terms of interests, and supply chain relationships are fragile, leading to outstanding quality problems in the supply chain.

#### 2.1.6.3 Reasons to study

Before the era of e-commerce, the factors that affected purchase intention regarding fresh foods could be summarized as product factors (e.g., price, brand image, etc.), consumers' personal factors (e.g., habits, knowledge, income, etc.), and social situation factors (e.g., social norms, etc.) (Joshi & Rahman, 2015; Sharaf & Isa, 2017). With the rise and generalization of e-commerce, e-commerce quality has emerged as another decisive factor influencing consumers' decisions to make purchases (Jiong, Xu, Huang, & Li, 2013; Yu & Zhao, 2013). Based on the D&M information systems (IS) model proposed by DeLone and McLean (DeLone & McLean, 1992), it has been demonstrated that the information, system, and service quality (the updated IS success model) of e-commerce influences purchases. High-quality information, systems, and services make consumers trust in e-commerce (Unidha & Sentani, 2017) and generate purchase intentions (Hajli, Sims, Zadeh, & Richard, 2017; Kooli, Ben Mansour, & Utama, 2014; Lu, Fan, & Zhou, 2016).

In the post-epidemic era, in order to retain customers, it is necessary to rely on a more flexible and reliable fresh supply chain system. Compared with other commodities, the perishable nature of fresh commodities requires higher transportation and freshness requirements. Therefore, fresh e-commerce companies often outsource transportation, preservation and other services to professional third-party logistics service providers (TPL) based on the consideration of concentrating resources on core business and improving the efficiency of fresh cold chain transportation (Feng, Yu, & Zhang, 2015). However, TPL may falsely report its preservation efforts to maximize its own interests, causing supply chain members to make incorrect decisions based on this information, resulting in increased loss of fresh products, inconsistency between the quality and price of fresh products received by consumers, and reduced willingness of consumers to shop for fresh products online (Fan, Zhang, & Chen, 2022).

As the level of corporate social responsibility improves, market prices decrease, the level of preservation efforts increases, consumer surplus increases, market demand increases, and social welfare increases. Therefore, from the perspective of stimulating demand, stabilizing prices, and enhancing social welfare, supply chain members should assume social responsibility (Dingyu, 2013; Liu, Dan, & Ma, 2020; Zhang & Pan, 2018).

## 2.2 Theories applied in this research

### 2.2.1 Basic knowledge

#### 2.2.1.1 Corporate Social Responsibility (CSR)

In the academic study of relations between business and society, Corporate Social Responsibility (CSR) is one of the earliest and most vital concepts (Windsor, 2001). Bowen (1953), The pioneering work which contributed to the academic study of CSR raised the following vital question: "To what extent do the interests of business in the long run merge with the interests of society?" (Mintzberg, 1983). CSR are the "societal expectations of corporate behavior; a behavior that is alleged by a stakeholder to be expected by society or morally required and is therefore justifiably demanded of a business" (Whetten, Rands, & Godfrey, 2002).

**Table 2.1.** Definitions of CSR

Theories	Definitions	Authors & Years
CSR	1. The social responsibility of business encompasses the economic, legal, ethical and discretionary expectations that a society has of organizations at a given point in time	Carroll (1979, p. 500)
	2. the responsibility of enterprises for their impacts on society	European Commission (2011, p. 6)
	3. Situations where the firm goes beyond compliance and engages in actions that appear to further some social good, beyond the interests of the firm and that which is required by law	McWilliams and Siegel 2001, p. 117
	4. societal expectations of corporate behavior; a behavior that is alleged by a stakeholder to be expected by society or morally required and is therefore justifiably demanded of a business	Whetten et al. 2002, p. 374

**Table 2.1.** (Continue)

Theories	Definitions	Authors & Years
	5. a concept whereby companies integrate social and environmental concerns in their business operations and their interaction with their stakeholders voluntarily.” Furthermore, as per the stakeholder theory, CSR demonstrates an enterprise’s activity that benefits society beyond its immediate concerns and legal responsibilities	Wang,; Zhang,; Zhang, (2020) Hasan,; Kobeissi,; Liu,; Wang, (2018)

To sum up, the key components of CSR contains as followed:

Economic Responsibility-Conduct business operations efficiently and transparently.

Legal Responsibility-Comply with labor, environmental, tax, and other relevant laws and regulations.

Ethical Responsibility-Operate fairly and ethically without taking advantage of consumers.

Philanthropic Responsibility-Support social initiatives such as education and environmental protection.

Establishing social responsibility practices in the supply chain is a difficult task. In recent years, supply chain management issues arising from social responsibility have received more and more attention from researchers, making social responsibility gradually become a hot topic in supply chain management research (Dai & Yang, 2016; Zhang, Xiang, & Chen, 2022).

#### 2.2.1.2 Supply Chain Management (SCM)

Although the term Supply Chain Management (SCM) gained widespread popularity, both in academia and practice, there remains considerable confusion about its meaning. Some authors define SCM in operational terms, including the flow of materials and products, some regard it as a management philosophy, and some view it in terms of a management process. Mentzer et al. (2001) defined a supply chain as “a set of three or more entities (organizations or individuals) directly involved in the upstream and downstream flows of products, services, finances, and/or information from a source to a customer”.

**Table 2.2.** Definitions of SCM

<b>Theories</b>	<b>Definitions</b>	<b>Authors &amp; Years</b>
<b>SCM</b>	1. the management of all activities, information, knowledge and financial resources associated with the flow and transformation of goods and services up from the raw materials supplier, component suppliers and other suppliers in such a way that the expectations of the end users of the company are met or surpassed	Van Weele ( 2010, p.11)
	2. the supply chain encompasses all activities associated with the flow and transformation of goods from raw materials' stage (extraction) through to the end user, as well as the associated information flows	Handfield and Nichols (1999,p.2)
	3. a set of three or more entities (organisations or individuals) directly involved in the upstream and downstream flows of products, services, finances, and / or information from a source to a customer	Mentzer et al. (2001, p. 4)
	4. the management of products or services from the design phase to the different production stages starting with raw material extraction and ending with the delivery of the product/service to the end consumer and, eventually, the reuse, recycling, or disposal phase, depending on the product/service, industries, and business models of firms	Morgane M. C. Fritz (2019)
	5. the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole	Mentzer et al. (2001, p. 18)

To sum up, Supply Chain Management (SCM) refers to the process of managing the flow of **goods, services, information, and resources** from the very beginning of production (raw materials) to the end consumer, aiming to achieve **maximum efficiency and minimum cost**.

**Core Concept:** “Manage every step in the supply chain efficiently and seamlessly — from raw materials to the customer’s hands.”

**Key Processes of SCM:**

1. **Sourcing** – Procurement and selection of raw materials.
2. **Production / Manufacturing** – Transforming materials into finished products.
3. **Logistics / Distribution** – Storage, transportation, and delivery of goods.
4. **Inventory Management** – Controlling stock levels to balance supply and demand.
5. **Delivery & After-sales Service** – Delivering products to customers and providing support services.

2.2.1.3 Responsible Supply Chain Management (RSCM)

The United Nations Global Compact (Compact, 2010) refers to supply chain sustainability and defines this as “the management of environmental, social and economic impacts and the encouragement of good governance practices, throughout the lifecycles of goods and services. The objective of supply chain sustainability is to create, protect and grow long-term environmental, social and economic value for all stakeholders involved in bringing products and services to markets.”

These definitions are rather general and leave room for many different approaches. The well-known definitions by Opijnen and Oldenziel (2011) emphasized the importance of volunteering and the cooperation between companies and their suppliers and other stakeholders. This study regards Responsible Supply Chain Management and Sustainable Supply Chain Management as synonymous terms.

Therefore, Responsible Supply Chain Management (RSCM) refers to the practice of managing supply chain activities in a way that ensures ethical, social, and environmental responsibility throughout the entire supply chain — from sourcing raw materials to delivering products to consumers.

It integrates the principles of sustainability, transparency, and accountability into traditional Supply Chain Management (SCM) to minimize negative impacts on people and the planet while maintaining business efficiency and profitability.

**Key Principles of RSCM:**

**Ethical Sourcing** – Ensuring suppliers operate legally and fairly without labor

exploitation.

Environmental Sustainability – Reducing waste, carbon emissions, and resource consumption.

Social Responsibility – Promoting fair labor, workplace safety, and community well-being.

Transparency and Traceability – Making every stage of the supply chain auditable and accountable.

Compliance and Governance – Following international standards and ethical codes of conduct.

In summary:

RSCM is about managing the supply chain responsibly — balancing economic goals with environmental care, ethical practices, and social sustainability.

**Table 2.3.** Definitions of RSCM

Theories	Definitions	Authors & Years
Responsible Supply Chain Management (RSCM)	1. Supply chain responsibility, also referred to as responsible sourcing, can be broadly defined as a voluntary commitment by companies to manage their relationships with suppliers in a responsible way. As a result of their purchasing activities, companies may have some opportunities to influence constructively their suppliers' social and environmental performance. This can be done using several incentives, including information and training, as well as audits of suppliers' practices. Whatever mechanism is used, the most effective way to achieve sustained improvement over time is through the development of a long-term collaborative relation between corporate buyers and their suppliers, through which suppliers can internalize change by participating in the shaping of social and environmental performance objectives, based on their own perception of their business capacity and needs.	International Chamber of Commerce (2007, p. 2)

**Table 2.3.** (Continue)

Theories	Definitions	Authors & Years
	2. the management of environmental, social and economic impacts and the encouragement of good governance practices, throughout the lifecycles of goods and services. The objective of supply chain sustainability is to create, protect and grow long-term environmental, social and economic value for all stakeholders involved in bringing products and serves to markets.	United Nations Global Compact (2010, p. 7)
Responsible Supply Chain Management (RSCM) (Cont.)	3. Sustainable SCM is the management of material, information and capital flows as well as cooperation among companies along the supply chain while segregating goals from all three dimensions of sustainable development, i.e., economic, environmental and social, which are traced from customer and stakeholder requirements	Seuring and Müller (2008)
	4. the strategic, transparent integration and achievement of an organization's social, environmental, and economic goals in the systemic coordination of key inter-organizational business processes for improving the long-term economic performance of the individual organization and its supply chains	Carter and Rogers (2008)
	5. the management of supply chains (SC) in a way that integrates the sustainability objectives and requirements defined by the firm, suppliers, customers, and external stakeholders (e.g., consumers, policy-makers, associations)	Fritz (2019)

**Table 2.3.** (Continue)

Theories	Definitions	Authors & Years
	6. creating coordinated supply chains through [the] voluntary integration of environmental, social, and economic aspects with the most important interorganizational business systems; [they are] designed in order to effectively and successfully manage the flow of materials, information, and capital associated with the supply, [as well as] the production and the distribution of products and services in order to fulfill the requirements of interested subjects and the improvement in the profitability, the competitiveness, and the vulnerability of the organization in short and long-term prospect	Ahi,; Searcy, (2013)
	7. responsible SCM based on the triple-bottom line perspective as ‘the strategic effort of a firm to achieve social, environmental, and economic goals through the systematic coordination of buyer–supplier relationships and interorganizational business processes	Carter and Rogers (2008)

The study of the relationship between CSR and customer loyalty has gradually entered the scope of most scholars' inquiry. CSR is effective in enhancing consumer trust and in promoting alliances between consumers, companies and brands. Their studies showed that a large number of consumers explicitly state that they prefer to buy products from companies involved in social causes, and that individual consumers value more the company's efforts in donating, energy conservation or sponsorship of local events, and this strong positive attitude and support is reflected in the strong consumer loyalty to the company and brand. Based on the context of the online retail market, there is also usually a positive and significant relationship between online retailers' social responsibility and customer loyalty (Sun, 2021; WU & XIN, 2018; Y. Xie, Peng, & Peng, 2013).

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

The review of CSR-related studies on supply chains is divided into three aspects: considering upstream manufacturer social responsibility, downstream retailer social responsibility, and both manufacturer and retailer binary social responsibility. First, more literature focuses on upstream manufacturers' social responsibility. Manufacturers who produce products are usually at the centre of the supply chain, determining product quality, prices, and emissions, and are the primary bearers of social responsibility. Revenue-sharing contracts motivate manufacturers to fulfill their social responsibility, and manufacturers' social responsibility will improve the recovery rate of closed-loop supply chains and will not change their coordination nature, as well as reduce the risk of customer stock price collapse, but the information asymmetry will diminish the role of social responsibility. Second, less literature focuses on downstream retailer social responsibility. Retailer social responsibility increases retail prices, emission reduction levels, product greenness, product sales, manufacturer profits, and total supply chain system profits, and it contributes to enhanced economic and environmental sustainability of the supply chain. CSR will reduce product prices, increase the level of retailer sales effort, expand sales volume, improve marginal profits and overall supply chain system profits, and can achieve supply chain coordination under certain conditions, and credit support, government subsidies and cost subsidies will expand the role of CSR (Bai, Nikilaidis, Mingyuan, Xu, 2021; Wei & Li, 2022; S. Zhang, 2021).

In the e-commerce environment, fresh food e-commerce companies usually cooperate with fresh food suppliers to save storage costs and reduce the circulation of fresh food, and the fresh food suppliers should make the preparation and deliver the products directly to consumers. During the delivery process, the fresh food supplier will take measures such as refrigeration and shortening the delivery period to ensure the freshness of the products. With the improvement of the CSR level of supply chain members, freshness preservation efforts, market demand and consumer surplus increase, while the market price decreases (Bubicz, Barbosa-Povoa, Carcalho, 2021; Bai, et al., 2021).

#### 2.2.1.4 Customer Satisfaction Index (CSI)

In 1989, to assess companies' efforts in achieving customer satisfaction, the Swedish Customer Satisfaction Barometer (SCSB) was introduced (Claes Fornell, 1992). The successful experience of the SCSB has inspired the creation of the American Customer Satisfaction Index (ACSI). Many countries are conducting Customer Satisfaction Index (CSI) studies inasmuch as some researchers have argued that the CSI can serve as a predictor of companies' profitability and market value.

**Table 2.4.** Definitions of CSI

Theories	Definitions	Authors & Years
CSI	1. an overall evaluation of a firm's post-purchase performance or utilization of a service	Fornell, (1992)
	2. Satisfaction is the state felt by a person whose requirements have been met	Islam et al., (2011)
	3. satisfaction is a standard of how the offered "total" product or service fulfils the customer expectations	Gerson, (1993); Hill, (1996); Oliver, (1997); Vavra, (1997)
	4. a state in which his expectations match his perception of the actual service received	Islam et al., (2011); Radziszewska, (2013)

### 2.2.2 Connections between theories

#### 2.2.2.1 CSR in supply chain management

Recently, more and more studies have concerned about the effects of corporate social responsibility on the supply chain management focusing on the fields like ethical purchasing, the measurement of corporate social responsibility, and the performance effects of CSR in supply chain management, the supply chain practices based on corporate social responsibility, etc. (Huang, Tong, Ye, & Li, 2020; Jajja, Asif, Montabon, & Chatha, 2020; Modak et al., 2020; Feng, Zhu, & Lai, 2017) The studies on the CSR in supply chain have enriched the theories of supply chain management with directions of supply chain purchasing and performance evaluation. The research of CSR in supply chain has become more and more popular in management fields.

#### 2.2.2.2 RSCM, CSR and SCM

Responsible Supply Chain Management (RSCM) embodies an interaction between Corporate Social Responsibility (CSR) and Supply Chain Management (SCM). A practical guide for continuous improvement of Supply Chain Sustainability emphasizes that "more and more companies are extending their commitment to responsible business practices to their value chains, from subsidiaries to suppliers" and introduces supply chain sustainability as a key component of corporate responsibility (Compact, 2010).

#### 2.2.2.3 CSI and E-commerce

However, CSI for online customer satisfaction has not been validated and tested because the original CSI focuses on physical settings. Either the model or the specific findings of

the research on it needs to be re-examined in the context of online settings. Firstly, the conditions for online shopping differ from that of in-store shopping: website appearance and fulfilment systems take the place of front-line employees. Secondly, a great number of third parties, such as credit card clearance firms and delivery companies are involved in each online transaction involves. Lastly, the spatial and temporal separation between customers, retailers, and suppliers that are imposed by electronic markets raises different challenges for e-businesses (Hsu, 2008).

**Table 2.5.** Relationships between CSI & CSR

<b>Relationships between CSI &amp; CSR</b>	<b>Authors and Years</b>
1. This study examines CSR from the consumer rather than the corporate perspective by focusing on the value relevance (i.e., fit between a consumer's values and CSR) and the ethical standards of CSR activities as the two main determinants of CSR quality and commitment. We predict that higher value relevance and ethical standards lead consumers to perceive that the company is committed to its CSR activities, which, in turn, induces greater satisfaction with and trust in the company and its services. Consequently, consumers are likely to remain loyal to the company.	Park (2017)
2. We developed and examined a re- search model that suggests that CSR initiatives allow corporations to build a customer-centric approach to making existing customers more loyal. Thus, in this research, a conceptual model, including mediators, is used to examine the relationship between the con- structs in the telecom sector. With the clear objective of extending the prior literature, this study examines the association between CSR and customer loyalty by incorporating three mediator con- structs (customer satisfaction, corporate reputation, and customer trust) because scarce theoretical literature is available concerning the direct relationship between CSR and customer loyalty.	Islam (2021)
3. The relationship between CSR initiatives and customer satisfaction has been scarcely researched and consequently, our understanding of the disaggregated drivers and causes may be incomplete. We also argue that positive attitudes may be expected to trigger satisfaction and hence CSR must have a positive influence on satisfaction	Rivera, Bigne, Curras-Perez (2016)

**Table 2.5.** (Continue)

<b>Relationships between CSI &amp; CSR</b>	<b>Authors and Years</b>
4. scholars have started to consider the inclusion of corporate social responsibility (CSR) image in loyalty behaviour models. However, the results of these studies generate controversy because empirical evidence keeps showing contradictory results. the purpose of the authors of this paper is to test a conceptual model of CSR image and customer loyalty that overcomes the flaws prevalent in prior models and reflects the latest ideas discussed by scholars concerning both realities.	Pérez (2014)
5. It is noted that CSR can positively affect customer-company identification, customer donations , customer attitudes toward a product and financial outcomes. With positively perceived CSR, customers have a tendency of favourable evaluation of and attitudes toward a firm. Luo and Bhattacharya (2006) also found a direct relationship between CSR and CS by showing that a firm’s CSR initiatives could increase customer satisfaction. Therefore, we can consider the possible existence of the direct relationship between CSR and CS.	Shin & Thai (2015)
6. Numerous researchers have argued that positive image and satisfaction of customers are outcomes of CSR (Mulki & Jaramillo, 2011; Salmons, Perez, & Bosque, 2009). CSR enhances CI and increases the loyalty of customers (Navickas & Kontautienė, 2011). Positive image helps companies to attract new customers and to enhance confidence of stakeholders on companies (Falvian, Guinaliu, & Torres, 2005). It also helps companies create competitive advantage (Ward & Lewandowska, 2006).	Ali (2019)
7. The findings of this study confirm that CSR activities can enhance satisfaction and loyalty of banking customers. The results of data analysis indicated that CSR activities can increase customer satisfaction. CSR activities can be considered as having a significant and strong positive relation with customer satisfaction.	Al-Ghamdi & Badawi (2019)

**Table 2.5.** (Continue)

<b>Relationships between CSI &amp; CSR</b>	<b>Authors and Years</b>
<p>8. According to the findings, CSR affects both corporate image and customer loyalty positively. The main purpose of this study is to put forward how CSR creates customer loyalty in the hotel industry. In other words, it aims at revealing the mechanism underlying the relationship between CSR and customer loyalty. In the research, it has been found that corporate image has a partially mediating role in the relationship between CSR and customer loyalty, and the relationship between these variables has been explained through the principle of generalized reciprocity specified in the theory of social change.</p>	<p>Gürlek, Düzgün, Uygur, (2017)</p>
<p>9. Based on this review, we designed a conceptual model that links CSR dimensions to consumer satisfaction and perceived value. The results show that the perception of car brand CSR by the buyers and users of cars influences their satisfaction, but some CSR issues have a greater impact on customer satisfaction than others.</p>	<p>Loureiro (2012)</p>
<p>10. The theoretical and empirical evidence has suggested that CSR activities in consumers' evaluation situation that are perceived more positively lead to higher customer satisfaction and loyalty. This study focuses on CSR activities in China, such as philanthropic, ethical, legal, and economic responsibility, environmental contribution, and consumer protection. This study contributes to an overall understanding of CSR level in China by examining a nomological network of constructs leading to customer loyalty. Building a loyal customer base is an important foundation for developing a sustainable competitive advantage through customer satisfaction. This study examines whether CSR factors can play a role in enhancing customer satisfaction and loyalty or not in China. This study also investigates the moderating effects of corporate image in the relationships between CSR and customer satisfaction and loyalty.</p>	<p>Chung, Yu, Choi, and Shin (2015)</p>

**Table 2.5.** (Continue)

<b>Relationships between CSI &amp; CSR</b>	<b>Authors and Years</b>
11. The study's major goal is to find out how to measure the impact of corporate social responsibility on customer satisfaction in Cumilla city areas. After conducting the survey and analyzing the data, it can be concluded that the banking industry is a corporate social responsible company, with primary motive and environmental sustainability influencing the bank's decision to engage in CSR. Although the bank is involved in CSR, it is a centralized decision, and staff must be well-versed in the processes in order for everyone in the bank to be socially responsible.	Hossain (2022)
12. This research empirically proved that CSR, through underlying mechanisms, influences customer loyalty in the telecom sector. Based on the resource-based view and stakeholder theory, the current study provides empirical evidence that CSR is the right strategy to satisfy the existing customers which later became loyal. Moreover, CSR is a credible strategy to enhance the corporate reputation of the firm. the results reveal that customer satisfaction, trust, and corporate reputation mediated the relationship between CSR and customer loyalty.	Islam (2020)

Because customer satisfaction has a direct impact on the primary source of future revenue streams for most companies, the new index is expected to be an important complement to traditional measures of economic performance, providing useful information not only to the firms themselves, but also to shareholders and investors, government regulators, and buyers (Fornell, 1992).

<b>Relationship</b>	<b>Related Theory</b>	<b>Brief Explanation</b>
<b>Perceived Value → Customer Satisfaction</b>	Expectancy– Disconfirmation Theory (EDT)	Customers are satisfied when the value they receive exceeds their expectations.
<b>Customer Satisfaction → Customer Loyalty</b>	Customer Satisfaction– Loyalty Framework	Higher satisfaction leads to stronger customer loyalty and repeat purchase intention.

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

Relationship	Related Theory	Brief Explanation
<b>Perceived Value</b> →	ACSI / ECSI / EDT	A widely adopted model in marketing and service research to explain customer satisfaction and loyalty.
<b>Satisfaction</b> →	Combined	
<b>Loyalty</b>		

### 2.2.3 Application in this study

#### 2.2.3.1 Effect of CSR on CSI

CSR activities may leave impact on firm performance directly or indirectly. According to the stakeholder theory (Freeman, 1984), CSR activities may enhance brand image, not only for customers but also for employees and other stakeholders. Therefore, such activities can subsequently enhance customers' satisfaction, employees' morale and retention rates, and relationships with governments.

Some studies believed that CSR performance is a positive indicator of both attitudinal and behavioral loyalty by relationship quality variables (Yi, Lu-luo, & Si-qing, 2013). At present, the studies of the relationship between CSR and customer behavior focus on the customers' purchasing behaviors. There are a few studies on the relationship between CSR and customer satisfaction (Jie-yu, Meng-ying, & Wei, 2020).

#### 2.2.3.2 Necessary study on RSCM and CSI

Companies face many challenges when trying to manage social and environmental issues in the supply chain. These include, for example, a lack of traceability of raw materials and products in the supply chain, the large number of supply chains a company may be part of, and the lack of legislation or enforcement of legislation in some of the supplier countries (Commerce, 2007).

#### 2.2.3.3 Integrate RSCM into CSI model

The study of responsible supply chain management of enterprises can, on the one hand, help supply chain enterprises identify management problems so as to improve management capacity; on the other hand, it can exert enterprises' influence and enhance their reputation and competitiveness. In addition, enterprises which fulfill their social responsibility can, to a certain extent, avoid negative events, establish good corporate images and convey corporate values to consumers (Carvalho, Muralidharan, & Bapuji, 2015).

The existing research on supply chain's social responsibility covers the whole spectrum of business practice. In recent years, China has witnessed a boom in the traceable and organic products because of the increased demand for social responsibility in the supply chain,

from raw material procurement, production and processing to final transportation and distribution. Therefore, in the context of supply chain's social responsibility, irresponsible behaviors of any sectors may lead to difficulties in the operation of the whole supply chain. Empirical research has found that companies that are more consumer-conscious and actively take on social responsibilities can achieve greater corporate value. Customer will translate their positive attitudes towards responsible enterprises into product demand, that is potential value (Yi, 2020b).

### **2.3 Construct of the conceptual model**

Customer satisfaction refers to the emotional experience that customers have towards products, services, and related factors, which can affect the consumption behavior of customers themselves and others. The stronger the emotional experience of customers, the greater its influence on both the customers and others. Since the concept of customer satisfaction was first introduced by Cardozo in 1965 and the scientific concept of "customer satisfaction" was first proposed by American consumer psychologists in 1986, foreign scholars have gradually conducted research on customer satisfaction index models. Among them, the Sweden Customer Satisfaction Barometer (SCSB), American Customer Satisfaction Index (ACSI), European Customer Satisfaction Index (ECSI), and China Customer Satisfaction Index (CCSI) are currently four models with a relatively complete system and good application effects.

Customer Satisfaction Degree (CSD) is the abbreviation for customer satisfaction. It is a quantifiable statistical indicator of customer satisfaction that describes the difference between customers' perception (expectations) and their actual experience (perceived value) of a product. It measures the extent of customer satisfaction. When customers' perception is lower than their perception, their satisfaction is high, and they will praise the product. Conversely, when customers' perception is higher than their perception, their satisfaction is low, and they will complain about the product. Therefore, the customer satisfaction degree includes both positive customer satisfaction and negative customer dissatisfaction.

The American Customer Satisfaction Index (ACSI) was developed and introduced in 1994 by Professor Claes Fornell and his research team, based on the Sweden Customer Satisfaction Barometer. Compared with the SCSB, ACSI introduces a latent variable called "customer perceived value," separating it from perceived quality. Besides, it incorporates three indicators - customization of quality, reliability of quality, and overall evaluation of quality - to measure customer-perceived quality. The ACSI is currently widely used and has a significant impact as a

customer satisfaction model.

The European Customer Satisfaction Index (ECSI) is a breakthrough development based on the SCSB and the ACSI. It is co-funded by the European Organization for Quality (EOQ) and the European Foundation for Quality Management (EFQM). The model deletes the potential variable of customer complaints in the ACSI and adds corporate image as a potential variable, which refers to the associations related to the organization in the customer's memory, and these associations will affect people's expectations and the judgment of satisfaction.

The European Consumer Satisfaction Index (ECSI) is an economic indicator that measures customer satisfaction. It is an adaptation of the Swedish Customer Satisfaction Barometer (C. Fornell, 1992) and is compatible with the American Customer Satisfaction Index. The variable of customer complaint has been deleted from ACSI in this model but with the addition of the variable of business image, a kind of association between customer's memory and the organization which will affect the judgement of customer's expectation and satisfaction.

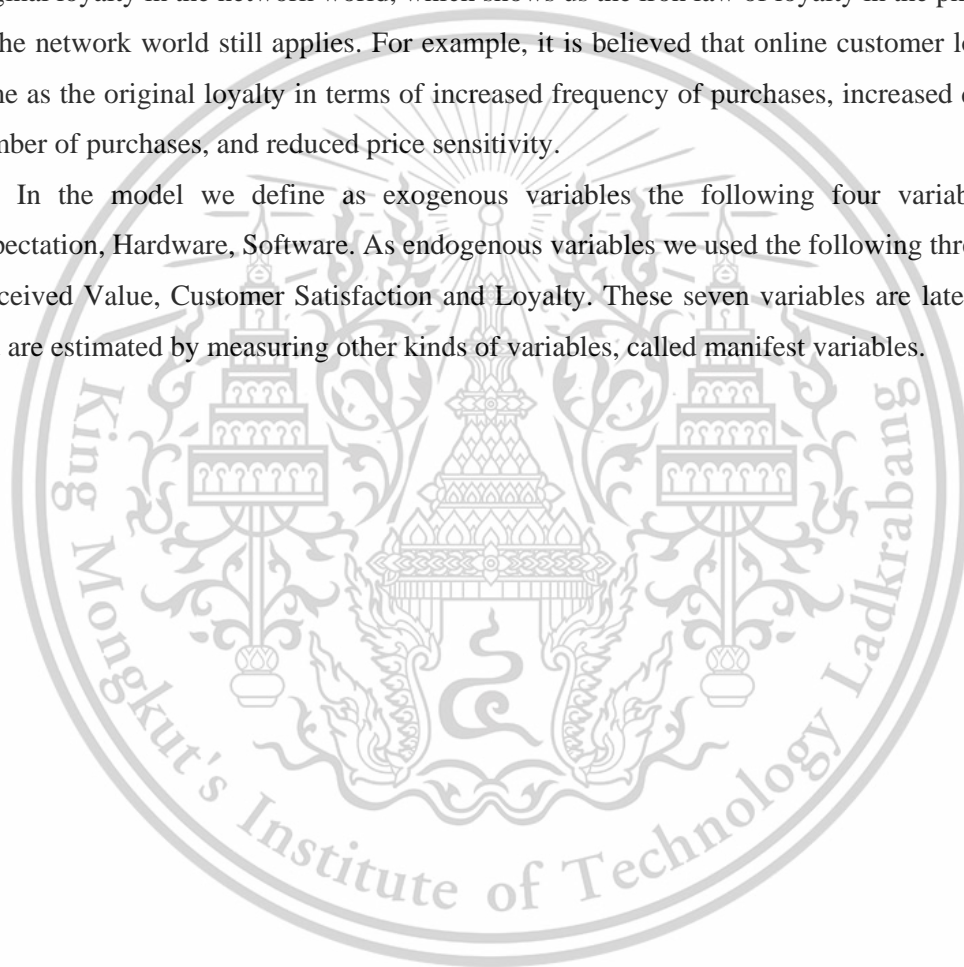
Customer satisfaction is the most effective way to cultivate customer loyalty. In the study of satisfaction-profit chain, customer loyalty is also regarded as the bridge between customer satisfaction and enterprise profit. The microscopic explanation of this bridge is that satisfied customers will become loyal customers, which will lead to an increase in corporate profits (Michael D Johnson, Gustafsson, Andreassen, Lervik, & Cha, 2001). When analyzing the micro process of customer satisfaction formation, researchers also tend to regard customer loyalty as a typical effect variable of customer satisfaction. This is most obvious in the national customer satisfaction index. The National Customer Satisfaction Index (NCSI) is a macroeconomic indicator (Taylor, 1995) that has been popular globally since the 1990s (McMullan & Gilmore, 2003). It is based on the same underlying measurement model that is used to evaluate customer satisfaction in consumer goods industries on a large scale at the national level on a regular basis and produces an index that is comparable at the firm, industry, sector, and even national levels. The base evaluation model is the core of this index, which is generally constructed by structural equation modeling, with customer satisfaction as the intermediate variable, combined with the cause-and-effect variables of customer satisfaction, to describe the process of customer satisfaction formation. In the current establishment of the national customer satisfaction index, the majority of the basic assessment model will consider customer loyalty as an effect variable of satisfaction.

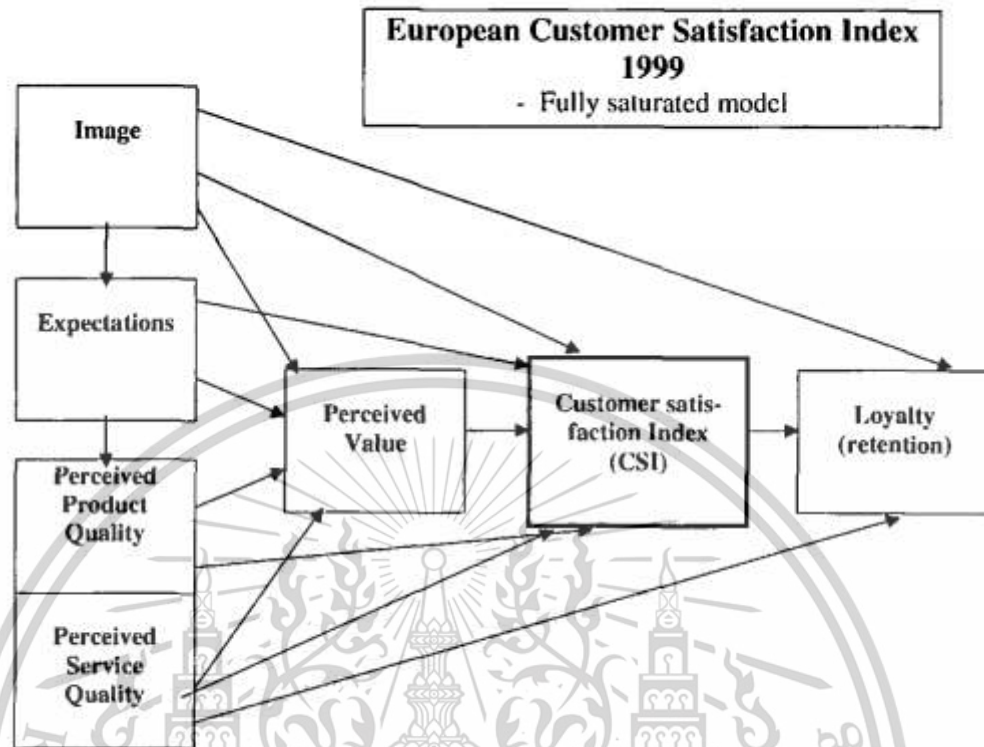
E-loyalty can be defined as the feeling, commitment, and preference of e-shoppers for the goods or services of an e-retailer in the face of potential switching behaviors that may be triggered by environmental influences or marketing tactics. Customers with E-loyalty are immune to other competitors, willing to continue to maintain a certain level of relationship with the e-retailer, and

intend to repurchase or continue to use the service in the future, which extends to the related behaviors such as reducing search efforts, recommending to others, providing positive word-of-mouth, and willingness to pay a higher price.

Online customer loyalty and traditional customer loyalty are essentially the same, whether online or offline, both are a combination of art and science, and the key to the success of the conversion to e-loyalty lies in the ability to appropriately use the digital tools to build a sustainable relationship with consumers. Therefore, the so-called network loyalty is the application of the original loyalty in the network world, which shows us the iron law of loyalty in the physical world in the network world still applies. For example, it is believed that online customer loyalty is the same as the original loyalty in terms of increased frequency of purchases, increased quantity and number of purchases, and reduced price sensitivity.

In the model we define as exogenous variables the following four variables: Image, Expectation, Hardware, Software. As endogenous variables we used the following three variables: Perceived Value, Customer Satisfaction and Loyalty. These seven variables are latent variables, and are estimated by measuring other kinds of variables, called manifest variables.





**Figure 2.10:** Original Conceptual Model of ECSI

**Source:** Use of PLS path modelling to estimate the European consumer satisfaction index (ECSI) model (Bayol, de la Foye, Tenenhaus, & Tellier, 2000)

### 2.3.1 Exogenous Variables

#### 2.3.1.1 Platform Image of Responsible Supply Chain Management (PI-RSCM)

In this study, the corporate image (CI) has been specified as platform image (PI) according to Chinese conditions and the characteristics of the online shopping like fresh food E-commerce.

Corporate image is described as the overall impression formed in the consumer's mind about a firm. Corporate image is measured by six items (overall opinion, reliability of what the firm says and does, reputation, social contribution for society, concern with customers, innovative and forward-looking and being professional) based on the items developed by Andreassen and Lindestad (1997), Bayol, Foye, Tellier, and Tenenhaus (2000) and Ball, Coelho, and Macha's (2003).

Many authors such as Andreassen and Lindestad (1997), Andreassen and Lindestad (1998), O'Loughlin and Coenders (2002), Kristensen, Martensen, and Gronholdt (1999) and Martensen, Gronholdt, and Kristensen (2000) assert that corporate image can have a positive effect on customer satisfaction and maintaining a loyal relationship with customers in B2C.

Therefore, this study assumes that platform image of responsible supply chain management of fresh food e-commerce will affect customer expectation of responsible supply chain management, customer satisfaction and customer loyalty.

#### 2.3.1.2 Customer Expectation of Responsible Supply Chain Management (CE-RSCM)

Expectation is the level of quality that customers expect to receive (O'Loughlin & Coenders, 2002). It merges from customers' prior consumption experience with the firm's offering including non-experiential information available through sources such as advertising, word-of-mouth and a forecast of the supplier's ability to deliver quality in the future (Anderson & Fornell, 2000).

Applying the ECSI methodology, Kristensen et al. (1999) confirm that expectation has a significant direct effect only on perceived value. On the other hand, P.G. Patterson, Johnson, and Spreng (1997) regarded expectation as an antecedent of disconfirmation and, in turn, satisfaction and repurchase intention in the context of business professional services and conclude that pre-purchase expectations indirectly generate negative impacts.

The present model assumed that expectation on responsible supply chain management in fresh food e-commerce will affect both perceived value and quality.

#### 2.3.1.3 Perceived Quality of Responsible Supply Chain Management (PQ-RSCM)

Perceived quality is the customer's evaluation of recent consumption experience. Two primary components of perceived quality are the degree to which a product or service provides key customer requirements (customization) and the degree to which a firm's offering is reliable, standardized and free from deficiencies (reliability) (Fornell, M.D. Johnson, Anderson, Cha, & Bryant, 1996). As various perceived quality dimensions are specified in different industries, the basic ECSI model measures must be extended in the way that they incorporate industry-specific drivers of the quality of products and services.

### 2.3.2 Endogenous Variables

#### 2.3.2.1 Customer Loyalty (CL)

Literature on loyalty has found that early views on loyalty focused on repeat purchase behavior while many authors support the use of a composite approach to loyalty which consists of both behavioral and attitudinal aspects (Jayawardhena, Souchon, Farrell, & Glanville, 2007). These authors believe that solely focusing on behavioral loyalty will raise negative impacts because it is difficult to tell which customers are loyal and identify different degrees of customer loyalty (Rauyrueen & Miller, 2007).

This study will focus on explaining loyalty with the most frequently mentioned constructs including satisfaction, trust, perceived quality and perceived value and some overlooked ones as corporate image, and customer expectation by extending the ECSI model which bears close resemblance to the model of Aydin and Özer (2005) and (Ball et al., 2003).

#### 2.3.2.2 Trust (TR)

Moorman, Deshpandé, and Zaltman (1993) define trust as “willingness to rely on an exchange partner in whom one has confidence”.

Authors such as Doney and Cannon (1997), Ganesan (1994) regarded trust as a second-order construct of credibility based on the extent to which the retailer believes that the vendor has the required expertise to perform the job effectively and reliably (cognitive dimension); and benevolence which represents the good intention of exchange partners, as well as the beneficial motivation of the vendor to the retailer when new conditions arise (Ganesan, 1994). In this paper, we adopt this approach.

#### 2.3.2.3 Customer Satisfaction (CS)

Customer satisfaction has been defined as an overall evaluation of a firm’s post-purchase performance or utilization of a service (Fornell, 1992).

Satisfaction can also be defined in terms of transaction-specific and cumulative aspects. Due to some of the advantages of cumulative satisfaction, including a more thorough measurement of customers' consumption utility, subsequent behaviour and economic performance, many researchers often view it in this way (Johnson, Gustafsson, Andreassen, Lervik, & Cha, 2001). This approach so far defines satisfaction as the customer's overall experience of the product or service provider (Johnson & Fornell, 1991).

Using ECSI methodology in this study, I assume that satisfaction will affect loyalty, i.e., it is mediation between the cause and effect system running from the antecedent variables (Image, Expectation, Quality and Value) and consequence variables (Loyalty).

### 2.3.2.4 Perceived Value (PV)

Customer value has been defined as a trade-off between total benefit received to total sacrifices by considering available suppliers' offerings and prices (Lam, Shankar, Erramilli, & Murthy, 2004). According to Zins (2001), the value can be conceptualized as the trade-off between quality and monetary and non-monetary sacrifices.

Several studies show that perceived value (Lam et al., 2004), perceived quality (Chumpitaz & Paparoidamis, 2004; Molinari, Abratt, & Dion, 2008; Spreng, Shi, & Page, 2009) and, in some cases, both lead to increase customer satisfaction and loyalty.

**Table 2.6.** Questions on Variables

Variables	Scales	Sources
<b>Platform Image of Responsible Supply Chain Management (PI-RSCM)</b>	1. The fresh food E-commerce platform is innovative and pioneering. 2. The fresh food E-commerce platform is successful. 3. The fresh food E-commerce platform is persuasive and shrewd. 4. The fresh food E-commerce platform does business in an ethical way. 5. The fresh food E-commerce platform is open and responsive to consumers.	Andreassen and Lindestad (1997) Andreassen and Lindestad (1998) McKinney, Yoon, and Zahedi (2002) Kandampully and Suhartanto (2003) Aghekyan-Simonian, Forsythe, Kwon, and Chattaraman (2012) Chen and Teng (2013) Kuo and Tang (2013) Roger and Vasconcelos (2014) Gvrlek, Dvzgvn, and Meydan (2017) Han, Zou, and Zhuang (2017) Herlinae (2019) Watanabe, Torres, and Alfinito (2019) Khoo (2020) Surjaatmadja and Saputra (2020) Vierdwiyani and Syafarudin (2020) Fan, Xiao, Zhang, and Guo (2021) Indarto, Suroso, Sudaryanto, and Qomariah (2022) Ma et al. (2022)

Table 2.6. (Continue)

Variables	Scales	Sources
<b>Customer Expectation of Responsible Supply Chain Management (CE-RSCM)</b>	1. This fresh food E-commerce platform should be used easily and quickly.	Zeithaml, Berry, and Parasuraman (1993) Pitt and Jeantrout (1994) Sheth and Mittal (1996) Sachdev and Verma (2002) Dean (2004) Gures, Arslan, and Tun (2014)
	2. This fresh food E-commerce platform should fulfill its promises about order delivery and item availability. 3. This fresh food E-commerce platform should function properly. This fresh food E-commerce platform should be safe and protect customer information. 4. The overall expectation of service quality to the fresh food E-commerce platform is very high.	Habel, Alavi, Schmitz, Schneider, and Wieseke (2016) Nobar and Rostamzadeh (2018) H. Kim and Lee (2018) Ashfaq, Yun, Waheed, Khan, and Farrukh (2019) Biswas, Nusari, and Ghosh (2019) Fu, Liu, Fang, Luo, and Cai (2020) Modica, Altinay, Farmaki, Gursoy, and Zenga (2020) Cunningham and De Meyer-Heydenrych (2021) Bonfanti, Rossato, Vigolo, and Vargas-Sánchez (2023) Pratap, Jauhar, Daultani, and Paul (2023) Rane, Achari, and Choudhary (2023)
<b>Perceived Quality of Responsible Supply Chain Management (PQ-RSCM)</b>	1.This Fresh food E-commerce platform provides correct information about the item that I want to purchase. 2.Overall, I think this Fresh food E-commerce platform provides useful information.	Tarn (1999) McDougall and Levesque (2000) Tam (2004) Chumpitaz and Papparoidamis (2004) Gounaris, Dimitriadis, and Stathakopoulos (2005) Jayawardhena et al. (2007) Ryu, Han, and Kim (2008) Molinari et al. (2008) Chang, Wang, and Yang (2009)

**Table 2.6.** (Continue)

Variables	Scales	Sources
	<p>3.This Fresh food E-commerce platform provides timely information on the item.</p> <p>4.This Fresh food E-commerce platform provides reliable information.</p> <p>5.This Fresh food E-commerce platform provides sufficient information when I try to make a transaction</p>	<p>Hu, Kandampully, and Juwaheer (2009)</p> <p>Kuo, Wu, and Deng (2009)</p> <p>Spreng et al. (2009)</p> <p>Jayawardhena (2010)</p> <p>Edward and Sahadev (2011)</p> <p>Ryu, Lee, and Kim (2012)</p> <p>Chinomona, Masinge, and Sandada (2014)</p> <p>Yu et al. (2014)</p> <p>Ali, Leifu, YasirRafiq, and Hassan (2015)</p> <p>Unidha and Sentani (2017)</p> <p>Keshavarz and Jamshidi (2018)</p> <p>El-Adly (2019)</p> <p>Fan, Ni, and Tang (2019)</p> <p>Hu, Ji, and Ma (2020)</p> <p>Samudro, Sumarwan, Simanjuntak, and Yusuf (2020)</p> <p>Liang, Wang, and Zhao (2022)</p> <p>Lei Zhang et al. (2022)</p> <p>Naini, Santoso, Andriani, and Claudia (2022)</p> <p>Asha, Dulal, and Habib (2023)</p> <p>Kuwornu, Khaipetch, Gunawan, Bannor, and Ho (2023)</p> <p>Andreassen and Lindestad (1997)</p>

**Table 2.6.** (Continue)

Variables	Scales	Sources
<b>Customer Loyalty (CL)</b>	<p>1.I seldom consider switching to another fresh food E-commerce platform.</p> <p>2.As long as the present service continues, I doubt that I would switch fresh food E-commerce platforms.</p> <p>3.I try to use the fresh food E-commerce platform whenever I need to make a purchase.</p> <p>4.When I need to make a purchase, this fresh food E-commerce platform is my first choice.</p> <p>5.I like using this fresh food E-commerce platform.</p> <p>6.To me this fresh food E-commerce platform is the best retail Fresh food E-commerce platform to do business with.</p> <p>7.I believe that this is my favorite fresh food E-commerce platform.</p>	<p>Andreassen and Lindestad (1998)</p> <p>Martensen et al. (2000)</p> <p>Johnson et al. (2001)</p> <p>Zins (2001)</p> <p>Ball et al. (2003)</p> <p>McMullan and Gilmore (2003)</p> <p>Lam et al. (2004)</p> <p>Rauyruen and Miller (2007)</p> <p>Gee, Coates, and Nicholson (2008)</p> <p>McMullan and Gilmore (2008)</p> <p>Li (2011)</p> <p>Aksoy (2013)</p> <p>Turkyilmaz, Oztekin, Zaim, and Fahrettin Demirel (2013)</p> <p>Chen (2014)</p> <p>Skačkusienė, Vilkaitė-Vaitonė, and Vojtovic (2015)</p> <p>Pérez and Bosque (2015)</p> <p>Srivastava (2015)</p> <p>Lee, Chang, and Lee (2017)</p> <p>Gvrlek et al. (2017)</p> <p>Sánchez-Rebull, Rudchenko, and Martín (2018)</p> <p>SHEN and WAN (2019)</p> <p>Kataria and Saini (2020) Jie-yu et al. (2020). WANG, QIAO, and SUN (2020)</p> <p>Chanthasaksathian and Nuangjamnong (2021)</p> <p>Huang (2021)</p> <p>Mitchev and Nuangjamnong (2021)</p> <p>Ratnasari, Siregar, and Maulana (2021)</p> <p>Sen (2021)</p>

**Table 2.6.** (Continue)

Variables	Scales	Sources
		<p>Manyanga, Makanyeza, and Muranda (2022)</p> <p>Sitthipon, Limna, Jaipong, Siripipattanakul, and Auttawechasakoon (2022)</p>
<b>Trust (TR)</b>	<p>1.This fresh food E-commerce platform is trustworthy.</p> <p>2.I can trust the performance of this fresh food E-commerce platform to be good.</p> <p>3.I am prepared to give private information to this fresh food E-commerce platform.</p> <p>4.I am willing to give my credit card information to this fresh food E-commerce platform.</p> <p>5.I feel that this fresh food E-commerce platform would provide me with good service.</p> <p>6.I believe in the information that this fresh food E-commerce platform provides me.</p> <p>7.This fresh food E-commerce platform is genuinely committed to my satisfaction</p>	<p>Moorman et al. (1993)</p> <p>Doney and Cannon (1997)</p> <p>Ball et al. (2003)</p> <p>Kooli et al. (2014)</p> <p>Lu et al. (2016)</p> <p>Hajli et al. (2017)</p> <p>Park, Kim, and Kwon (2017)</p> <p>Unidha and Sentani (2017)</p> <p>Zhang and Pan (2018)</p> <p>Yu, Li, and Cui (2019)</p> <p>Joo and Han (2021)</p>

**Table 2.6.** (Continue)

Variables	Scales	Sources
<b>Customer Satisfaction (CS)</b>	<p>1.I am satisfied with my decision to purchase from this fresh food E-commerce platform.</p> <p>2.If I had to purchase again, I would feel differently about buying from this fresh food E-commerce platform.</p> <p>3.My choice to purchase from this fresh food E-commerce platform was a wise one.</p> <p>4.I feel badly regarding my decision to buy from this fresh food E-commerce platform.</p> <p>5.I think I did the right thing by buying from this fresh food E-commerce platform.</p> <p>6.I am unhappy that I purchased from this fresh food E-commerce platform.</p>	<p>Fornell (1992)</p> <p>Fornell et al. (1996)</p> <p>Andreassen and Lindestad (1997)</p> <p>Patterson et al. (1997)</p> <p>Kristensen et al. (1999)</p> <p>Anderson and Fornell (2000)</p> <p>Bayol et al. (2000)</p> <p>Martensen et al. (2000)</p> <p>Johnson et al. (2001)</p> <p>O’Loughlin and Coenders (2002)</p> <p>Chumpitaz and Paparoidamis (2004)</p> <p>Lam et al. (2004)</p> <p>Aydin and Özer (2005)</p> <p>Hsu (2008)</p> <p>Lee and Heo (2009)</p> <p>Zhu (2013)</p> <p>Chavez, Yu, Feng, and Wiengarten (2016)</p> <p>Zhang and Pan (2018)</p> <p>Hult, Sharma, Morgeson, and Zhang (2019)</p> <p>Khosroshahi, Rasti-Barzoki, and Hejazi (2019)</p> <p>Kim and Joon (2019)</p> <p>Hu et al. (2020)</p> <p>Zheng et al. (2020)</p> <p>Fan et al. (2021)</p> <p>HUANG, Li, and Lin (2021)</p> <p>Wangwacharakul, Márquez Medina, and Poksinska (2021)</p> <p>Asha et al. (2023)</p> <p>Tiganis, Grigoroudis, and Chrysochou (2023)</p>

**Table 2.6.** (Continue)

Variables	Scales	Sources
<b>Perceived Value (PV)</b>	<p>1.Products purchased at this Fresh food E-commerce platform are value for money.</p> <p>2.Products purchased at this Fresh food E-commerce platform are considered as a good buy.</p> <p>3.You get what you pay for at this Fresh food E-commerce platform.</p> <p>4.Products purchased at this Fresh food E-commerce platform are worth the money paid.</p>	<p>Patterson and Spreng (1997)</p> <p>McDougall and Levesque (2000)</p> <p>Lam et al. (2004)</p> <p>Molinari et al. (2008)</p> <p>Frank and Enkawa (2009)</p> <p>Hu et al. (2009)</p> <p>Ismail, Abdullah, and Francis (2009)</p> <p>Edward, George, and Sarkar (2010)</p> <p>Hume and Sullivan Mort (2010)</p> <p>Boksberger and Melsen (2011)</p> <p>Hur, Kim, and Park (2013)</p> <p>Zameer, Tara, Kausar, and Mohsin (2015)</p> <p>Makanyeza, Macheyo, and du Toit (2016)</p> <p>Kraft, Valdes, and Zheng (2018)</p> <p>HE, LI, CAI, and ZHANG (2020)</p> <p>Kusumawati and Rahayu (2020)</p> <p>Özkan, Süer, Keser, and Kocakoç (2020)</p> <p>Liu et al. (2020)</p> <p>Devi and Yasa (2021)</p> <p>Tukiran, Tan, and Sunaryo (2021)</p> <p>Tuncer, Unusan, and Cobanoglu (2021)</p> <p>Uzir et al. (2021)</p> <p>Song and Xu (2022)</p> <p>Yin and Lertbuasin (2022)</p> <p>Ahmad, Muregesu, Masri, Shamsudin, and Yazid (2023)</p> <p>Chen (2023)</p> <p>Ghorbani et al. (2023)</p>

### 2.3.3 Hypotheses

#### 2.3.3.1 Factors Affect Customer Loyalty

Han et al. (2017) argued that there is an intrinsic link between customer satisfaction, corporate image and customer loyalty, thus verifying that an increase in customer satisfaction can directly affect customer loyalty. Richard L Oliver (1999) stated that customer loyalty will increase significantly with an increase in customer satisfaction and that customer loyalty decreases significantly with a decrease in customer satisfaction. McMullan and Gilmore (2003) states that the stronger the level of customer satisfaction, the more loyal customers will be. In addition, studies by several scholars have shown that the higher the customer's satisfaction after consumption, the more likely they will tend to make another purchase and also actively recommend it to those around them.

The altruistic nature of responsible corporate social behavior propels consumers into believing that the company is ethical and trustworthy, thus reducing uncertainty in the purchase process. CSR behavior also communicates a company's values to customers, and Park et al. (2017) found that incorporating ethical principles into a company's strategic decisions increases trust in the company among all stakeholders, including consumers. Many existing studies have also confirmed the positive relationship between CSR behavior and customer trust. For example, B.-q. Yu et al. (2019) found that one of the most significant effects of active corporate social responsibility is to earn customers' trust in the company. Trust is often considered to be a core element in maintaining successful relationships. Because of the risks and uncertainties in the marketplace, the level of trust consumers place in a brand becomes an important factor in influencing their purchase decisions. In a trusting relationship, both parties show mutual dependence and are willing to make modest sacrifices. Consumers have confidence that the trusted company will act in their favor in the future and are therefore willing to continue the relationship in terms of both attitude and behavior. Numerous studies have shown that trust enhances people's willingness to maintain relationships and increases word-of-mouth communication among customers. Park et al. (2017) argue that corporate social responsibility directly or indirectly affects customer Loyalty. Ji (2020) study concluded that CSR and service quality leads to higher customer satisfaction and trust in services.

Therefore, the following hypotheses have been raised: H1a: *Customers satisfaction on fresh food e-commerce in China has a positive effect on customer loyalty.*

H1b: *Trust on fresh food e-commerce in China has a positive effect on customer loyalty.*

H1c: *Platform image of responsible supply chain in fresh food e-commerce in China has a positive effect on customer loyalty.*

### 2.3.3.2 Factors Affect Trust

When studying the relationship between perceptions of CSR (Corporate Social Responsibility) and consumers' purchase intentions, Xie and Zhou (2009) found that a good corporate image directly influences consumers' confidence in the company's products and willingness to repurchase. Deng, Zhang, Xu, and Long (2016) explored CSR and consumer behavior by taking leading agricultural enterprises as an example and found that when consumers perceive that the enterprise is actively fulfilling its social responsibility, it will enhance trust and satisfaction with the enterprise. Miranda-Ackerman et al. (2017) found through an empirical study that there is a close relationship between consumers' feedback to the enterprise and consumers' impression of the enterprise, and when consumers perceive that a company actively undertakes social responsibility, consumers will have a good impression of the company and actively recommend the company's products to people around them. HSUEH (2014) explored the relationship between CSR perception and customer loyalty, and found that the active fulfillment of corporate social responsibility directly affects customers' perception of corporate product and service quality and their overall evaluation of the company, thus improving customer satisfaction and customer trust, and ultimately having a positive impact on customer loyalty.

The trust of all stakeholders, including consumers, will be increased by demonstrating the company's efforts to increase social welfare through CSR, communicating the company's internal characteristics and values to consumers, and injecting a responsible brand image into the company's strategic management process. Trust contributes to the effectiveness of CSR implementation, as consumers have a high level of trust in CSR-compliant companies, and this trust is gradually transformed into commitment over time (Yu et al., 2019). According to this view, the fulfillment of CSR can have a positive impact on a company's brand reputation, which, in turn, enhances consumers' trust in the company.

Therefore, the following hypotheses have been raised:

H2a: *Customers satisfaction on fresh food e-commerce in China has a positive effect on trust.*

H2b: *Platform image of responsible supply chain management in fresh food e-*

*commerce in China has a positive effect on trust.*

### 2.3.3.3 Factors Affect Customer Satisfaction

Oliver and Swan (1989) proposed the uncertainty theory, which suggests that customers will be satisfied if the service quality they perceive at the time of purchase exceeds their pre-purchase expectations. Customers' perception of good quality is an important prerequisite for forming customer satisfaction, and there is a positive influence effect between perceived quality and customer satisfaction. Gounaris et al. (2005) argues that perceived quality is a comprehensive judgment of customers based on their own consumption experience and the surrounding environment, which then forms the perceived value of this consumption and customer satisfaction based on consumption costs.

Claes Fornell, Michael D Johnson, Eugene W Anderson, Jaesung Cha, and Barbara Everitt Bryant (1996) conducted an empirical study of the retail industry in the U.S. and concluded that customer expectations have a direct effect on perceived quality, perceived value, and customer satisfaction. Wang and Wu (2012) pointed out that customer expectations have a critical impact on consumer experience and customer satisfaction. This study concludes that the higher the customer's expectation of the fresh food supermarket in the new retail model, the stronger the desire to have a good outcome for the fresh food they want to purchase or the service process they enjoy, which propels the higher actual perceived quality and perceived value at the end of the purchase process, and the customer satisfaction level.

Perceived value not only has a direct effect on customer satisfaction but also varies according to customer expectations and perceived quality. Claes Fornell (1992) also suggested in his study that perceived value positively contributes to customer satisfaction. McMullan and Gilmore (2003) showed the positive effect of perceived value on customer satisfaction.

Therefore, the following hypotheses have been raised:

H3a: *Perceived value of fresh food e-commerce in China has a positive effect on customer satisfaction.*

H3b: *Customer expectation of responsible supply chain management in China has a positive effect on customer satisfaction.*

H3c: *Perceived quality of responsible supply chain management in China has a positive effect on customer satisfaction.*

H3d: *Platform image of responsible supply chain management in China has a positive*

*effect on customer satisfaction.*

#### 2.3.3.4 Factors Affect Perceived Value

Fresh food is a rigid demand in people's daily life, with a high repurchase rate and a certain dependence of consumers on fresh supermarkets. Fresh food is not easy to store with a short shelf life, and a high repurchase rate, so the shortcomings in transportation and management can make the goods purchased by customers not match with expectations (Zhu, 2013).

If consumers' real experience after consumption in fresh food e-commerce platforms is equal to or higher than their pre-purchase expectations, then it naturally increases consumers' satisfaction with the platform. For fresh food e-commerce platforms in the context of new retail, the degree of consumer expectation confirmation is reflected in two levels; the first is in the degree of expectation confirmation for online shopping and the second is in the degree of expectation confirmation for offline physical stores (TU, Xu, & ZHAO, 2021; Xu & Gursoy, 2015).

In recent years, academia and industry have agreed that CSR has a positive impact on consumers, and its use in business practices has increased significantly as a differentiator that can generate competitive advantage. By fulfilling CSR, the company's brand influence is enhanced, its financial performance is optimized, and consumer purchases of its products are increased (Ren & Le, 2018). CSR can have a positive impact on consumer behavior, and this perspective, based on consumer expectations, requires that CSR be implemented in accordance with consumer wishes and understood as “strategic and forward-looking management that integrates stakeholder concerns and transforms into increased perceived value for consumers. (Qiu et al., 2021)” Since the perceived value of consumers is considered to be "a trade-off between gain and sacrifice," CSR can effectively enhance the perceived value of the goods provided by the company to the stakeholder groups represented by consumers (HUANG et al., 2021).

Therefore, the following hypotheses have been raised:

H4a: *Customer expectation of responsible supply chain management in China has a positive effect on perceived value.*

H4b: *Perceived quality of responsible supply chain management in China has a positive effect on perceived value.*

## 2.4 Conceptual Model

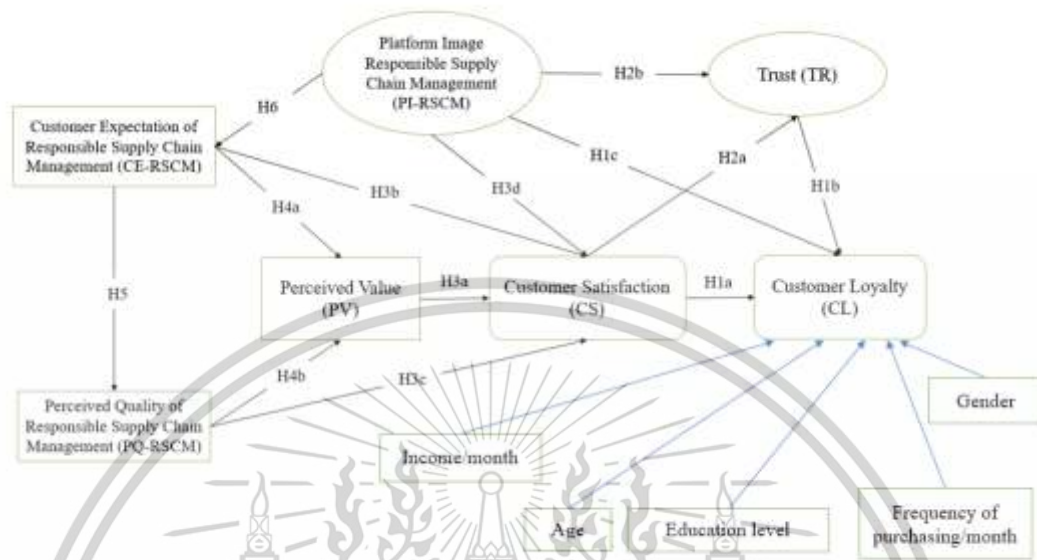


Figure 2.11: Conceptual Model

Table 2.7. Direct Hypotheses

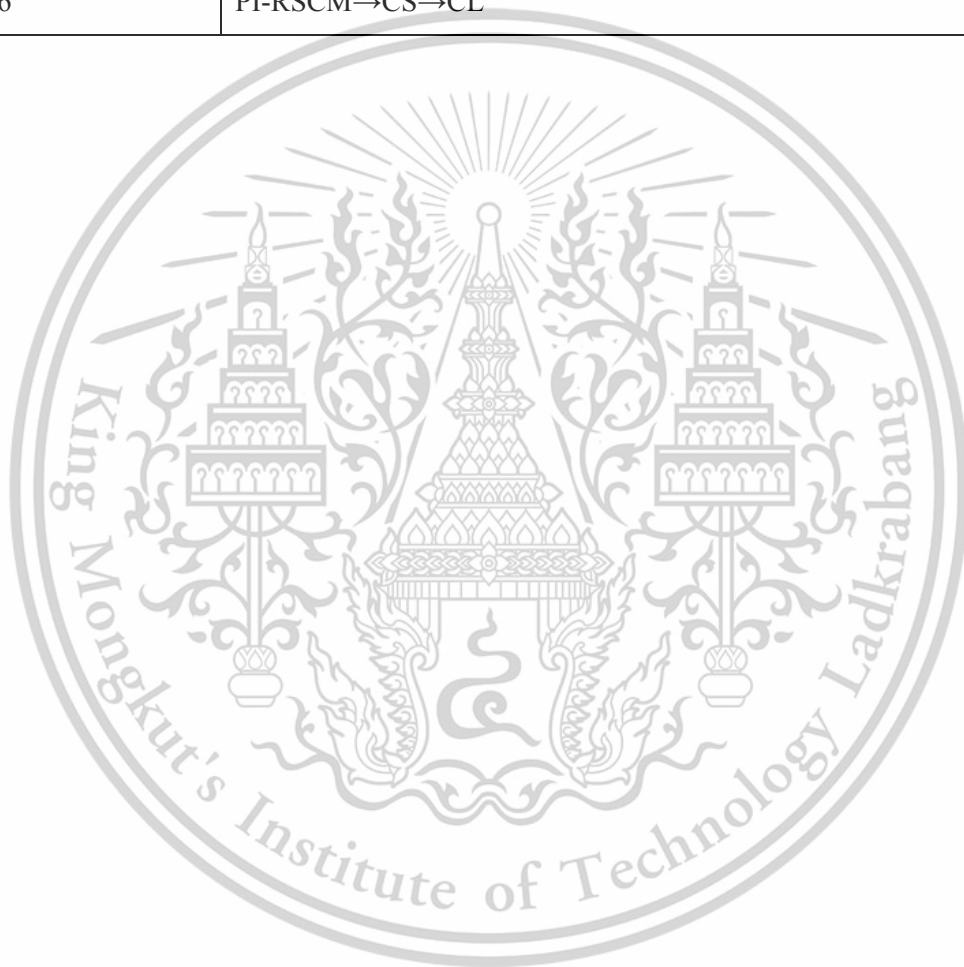
Hypotheses	Variables	Relationship
H1a	CS→CL	Positive
H1b	TR→CL	Positive
H1c	PI-RSCM→CL	Positive
H2a	CS→TR	Positive
H2b	PI-RSCM→TR	Positive
H3a	PV→CS	Positive
H3b	CE-RSCM→CS	Positive
H3c	PQ-RSCM→CS	Positive
H3d	PI-RSCM→CS	Positive
H4a	CE-RSCM→PV	Positive
H4b	PQ-RSCM→PV	Positive
H5	CE-RSCM→PQ-RSCM	Positive
H6	PI-RSCM→CE-RSCM	Positive

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

**Table 2.8. Indirect Hypotheses**

Mediation	Variables
M1	CS→ TR→CL
M2	PQ-RSCM→PV→CS
M3	CE-RSCM→PV→CS
M4	CE-RSCM→PQ-RSCM→PV
M5	PI-RSCM→CS→TR
M6	PI-RSCM→CS→CL



# CHAPTER 3

## METHODOLOGY

### 3.1 Reasons to Adopt Quantitative Method

The reasons why this research will adopt quantitative method depend on the two reasons as follows. Firstly, according to previous studies concluded in Chapter 2, more studies about the supply chain management of fresh food E-commerce were from the perspective of suppliers instead of platform customers. There should be some samples collected via customers. Secondly, the context of this research is the fresh food E-commerce around China, thus the quantitative which has the advantage of generalizability would like to show the studying results representing the common situations existing in the context.

### 3.2 Samples and Data collection

#### 3.2.1 Target population identification

The target respondents are supposed to be those who have experience of buying fresh food from any of the online platforms. According to two reports by Ariadne and Econet Qianfan, fresh food e-commerce users are mainly young people with a high level of education. Therefore, the main respondents of this study were university students and working people. They are characterized by a high level of personal innovation and a positive and optimistic attitude towards new information technologies. Using the platform allows them to buy their favorite fresh food and enjoy the convenience of service without having to leave home. Therefore, the study will be conducted with university students and young people at work. According to the following table of sample size, this research will collect no less than 500 questionnaires.

**Table 3.1.** Sample size for  $\pm 5\%$  and  $\pm 10\%$  precision levels where confidence level is 95% and  $P=0.5$

Size of population	Sample size (n) for precision (e)	
	$\pm 5\%$	$\pm 10\%$
500	222	83
1000	286	91
2000	333	95
3000	353	97
4000	364	98
5000	370	98
7000	378	99
9000	383	99
10000	385	99
15000	390	99
20000	392	100
25000	394	100
50000	397	100
100000	398	100
>100000	400	100

**Source:** Singh and Masuku (2014)

### 3.2.2 Data collection

The questionnaires will be distributed in two ways, namely random sampling and snowball sampling. The only purpose is to guarantee higher rate of collecting questionnaires.

#### 3.2.2.1. Random sampling

One of the random ways is that the emails will be sent to those supply chain managers of fresh food E-commerce platforms. Firstly, I will search the websites of these platforms and then find out their email addresses. Then, the emails including a cover letter and the questionnaire will be sent to these addresses. To make sure they have received the emails, I will call them according to the telephone numbers shown in the website, which usually are the available numbers for their contact with the potential clients.

Another important way is through the internet technology, i.e. Wenjuanxing

(www.sojump.com), a website which is professional for the investigation in China. This research is to cooperate the website by applying its charge service to guarantee the higher level of questionnaires completing.

Either emailing or internet investigating, the regular tracing is necessary. Once a week the researcher will check the conditions of questionnaire collecting and then continue the process.

#### 3.2.2.2 Snowball sampling

One of the snowball methods is to utilize some online customer groups of fresh food E-commerce platforms. I will contact my friends who are in such groups to help me in distributing the questionnaires. Further, the members in such kind of groups will enlarge their distribution of my questionnaires to more related groups or E-communities.

### 3.3 Measurements

The study will develop the questionnaires from three main aspects, namely endogenous variables (customer satisfaction, perceived value and customer loyalty) (Anderson & Srinivasan, 2003; Dai & Yang, 2016; Harris & Goode, 2004; Hou, 2005; Lindgreen & Swaen, 2009; Park et al., 2017; Sun, 2021; Thomas, 2013; Toufaily, Ricard, & Perrien, 2013; WU & XIN, 2018; Wu, 2006; Xie et al., 2013; Zhang et al., 2022), exogenous variables (platform image of responsible supply chain management, customer expectation of responsible supply chain management, and perceived quality of responsible supply chain management) (Cui, Li, & Wang, 2019; Han et al., 2017; Ji, 2020; Kim, Ferrin, & Rao, 2008; Luarn & Lin, 2003; Wang & Wu, 2012; Wu, 2006) and additional variables of trust (Anderson & Srinivasan, 2003; Harris & Goode, 2004; Yu et al., 2019) plus control variables.

Besides, there are demographic variables namely gender, age, income/monthly, education level, frequency of purchasing /monthly (Chikazhe, Makanyeza, & Chigunhah, 2021; Klopotan, Buntak, & Drozdjek, 2014; Manyanga et al., 2022; Patterson, 2007; Razak, 2018)

### 3.4 Questionnaire development

#### 3.4.1 Initial questionnaire designing

##### 3.4.1.1 Integration and adaptation

The items in each section and dimension will integrate and adapt from the previous

studies and the real conditions of the target respondents. The first part required demographic information of respondents, including age, gender, educational level and frequency of online shopping. This paper will be based on the European Customer Satisfaction Index (ECSI) as a framework, combined with the responsible supply chain of fresh food e-commerce industry (Agus, Yudoko, Mulyono, & Imaniya, 2021; Askariazad & Babakhani, 2015). Based on previous research findings, the scale was adapted to suit the characteristics of the research population. The final questionnaire will be developed based on previous research findings, with some refinements to suit this study (Huang et al., 2021; TU et al., 2021; Zhu, 2013). Thus, the second part involved a seven-point Likert scale (from 1 = strongly disagree to 7 = strongly agree) for evaluating the variables based on the original questionnaires as customer expectation (Cui et al., 2019; Gao & Jia, 2019; Wu, 2006), perceived quality (Wu, 2006), platform image (Wu, 2006), perceived value (Cui et al., 2019; Wu, 2006), customer satisfaction (Anderson & Srinivasan, 2003; Harris & Goode, 2004; Hou, 2005; Thomas, 2013), and customer loyalty (Anderson & Srinivasan, 2003; Harris & Goode, 2004; Toufaily et al., 2013; Wu, 2006) which have been adapted accordingly. In addition, a pilot study of 40 sample subjects was conducted to ensure the reliability and validity of the questionnaire. The results of the pilot study presented that all constructs met the threshold of Cronbach's alpha (CA) and composite reliability (CR) of 0.7, along with average variance extracted (AVE) of 0.5 (Hair et al., 2019).

#### 3.4.1.2 Translation and back-translation

Since the original scales are all written in English, the questionnaire will be translated into Chinese firstly. Secondly, back-translation is necessary when the researcher conduct a cross-cultural research that need to translate the question statements from one language to another (Hult et al., 2008). The final step is to translate the Chinese version into English one again and compare it to the original one to see whether they have the same meaning or not.

#### 3.4.2 Pilot-test and suggestions collection

Before distributing the questionnaires, the pilot-test has been conducted firstly among some VIP members of typical fresh food E-commerce platforms around China. All these members have enough experience of purchasing on the fresh food E-commerce platforms who can offer valid answers for the questionnaires. After pilot-test, I will collect the suggestions from them about the questionnaires.

The purpose of pilot-test is to check the convergent validity and discriminant validity of the model construct through factor analysis and item-to-total correlation. The levels of internal consistency which has been valued through Cronbach's alpha have been above 0.7. The items

whose correlation scores and factor loading values lower than 0.5 have been deleted. Then the final questionnaire has been achieved.

### **3.4.3 Initial analysis**

#### **3.4.3.1 Factors analysis**

The factors analysis should be conducted before distribution to the samples, which includes the analyses both on validity and reliability. After completing all the above steps, the final version of questionnaire will be ready to distribute to those customers of fresh food E-commerce platforms around China.

#### **3.4.3.2 Reliability and validity analysis**

Since the items in the questionnaire have been adapted by the researchers and then the reliability of them should be tested and constructed. All the Cronbach alphas coefficient of the results should exceed the suggested value of 0.7. This indicates that the reliability of all constructs is satisfactory.

Convergent validity is assessed in terms of factor loadings and average variance extracted (AVE). Item loadings  $>0.70$  and significant at the  $p < 0.01$  level and/or AVEs  $>0.50$  suggest acceptable convergent validity. Discriminant validity is assessed mainly by comparing the square root of the AVE of each construct with the correlations between the focal construct and other constructs. A higher square root of AVE than the correlations with other constructs for each individual construct indicates discriminant validity.

### **3.5 Estimation method**

A statistical method of PLS-SEM will be applied for measuring the reliability and validity of the construct, hypotheses testing, mediating effects and moderating effects of demographic variables. There are several reasons for employing PLS-SEM in this study. Firstly, this study is an exploratory study that proposed a new framework to predict the loyalty of customers on the supply chain management of fresh food E-commerce platforms around China. The proposed framework is not proposed by other studies to the best of our knowledge, thereby PLS-SEM is more suited to assess exploratory research with a purpose of prediction and theory development. Secondly, it was impossible to contact all customers of fresh food E-commerce platforms around China. However, PLS-SEM analysis requests 10 times the largest construct with the largest number of indicators

(Marcoulides & Saunders, 2006), making it better choice for this study. Therefore, SmartPLS 3.2.9 (Ringle et al., 2015) was applied to investigate this study.

### 3.6 Ethics

The key ethical issues are primarily whether the research is justifiable in terms of the balance of possible benefits and harms for the research subject and, if it is justifiable, whether the subjects properly consent to participation (Evans et al., 2002). Ethical principles have been debated for centuries; historically they reflected philosophical and religious thoughts, advances in science, historical events, political orientation, morality, and many other considerations (Asai, Nakayama, & Naito, 2003).

The U.S. Congress established a milestone in human subjects research in 1974 with the *National Research Act*. In 1979 the Department of Health, Education, and Welfare issued the *Belmont Report*, which emphasized 3 ethical principles:

- (1) **Respect for persons**, the ability to control his/her own actions and requirements to obtain informed consent.
- (2) **Beneficence**, minimizing harms and risks and maximizing benefits from study participation.
- (3) **Justice**, equitable distribution of benefits and risks/harms and equitable subject selection (to avoid social inequalities and disparities in subjects' selection).

The National Research Act and the Belmont Report stimulated and directed the creation of informed consent principles and policies that remain in use today.

In 2010 the National Institute of Justice in the United States published and recommended human research subjects rights:

- (1) Voluntary participation and informed consent
- (2) Respect for persons: treated as autonomous agents
- (3) The right to end participation in research at any time
- (4) Right to safeguard integrity
- (5) Benefits should outweigh cost
- (6) Protection from physical, mental and emotional harm
- (7) Access to information regarding research

In the research, I should ensure the whole process meet the standard of ethics without any violation.

## **CHAPTER 4**

### **DATA ANALYSIS**

#### **4.1 Preliminary research**

##### **4.1.1 Distribution of sample basic information**

SPSS26.0 data analysis software was used to perform descriptive statistics on the collected data, mainly involving basic information such as demographic characteristics. Regarding the distribution of age, those under 18 years old accounted for 1.67%, those aged 18-25 accounted for 31.67%, those aged 26-30 accounted for 25%, those aged 31-35 accounted for 13.33%, those aged 36-40 accounted for 6.67%, those aged 41-45 accounted for 11.67%, and those aged 50 and above accounted for 10%. The distribution of age groups shows that most respondents are concentrated between 18 and 30 years old. In terms of gender, males accounted for 30% and females accounted for 70%, indicating that female respondents accounted for a high proportion in the sample. In terms of occupation, students accounted for 16.67%, teachers accounted for 28.33%, personnel from enterprises and institutions accounted for 26.67%, civil servants accounted for 11.67%, private business owners accounted for 8.33%, and other occupations accounted for 8.33%. In terms of education level, 71.67% had a bachelor's degree, 25% had a master's degree, and 3.33% had a doctorate degree. The vast majority of respondents had a bachelor's degree. In terms of monthly income before tax, 1.67% earned less than 3,000 yuan, 16.67% earned between 3,001 and 5,000 yuan, 46.67% earned between 5,001 and 8,000 yuan, 25% earned between 8,001 and 10,000 yuan, and 10% earned more than 10,000 yuan. The respondents' income was concentrated between 5,001 and 8,000 yuan.

In terms of shopping frequency on fresh food e-commerce platforms, 1-5 times accounted for 25%, 6-10 times accounted for 28.33%, 11-15 times accounted for 28.33%, 16-20 times accounted for 11.67%, and more than 20 times accounted for 6.67%. Most respondents shopped on fresh food e-commerce platforms 6-15 times a year. Regarding the average consumption amount, 100 yuan or less accounted for 16.67%, 101-200 yuan accounted for 45%, 201-300 yuan accounted for 25%, 301-500 yuan accounted for 8.33%, and more than 500 yuan accounted for 5%. Most respondents' consumption amount on fresh food e-commerce platforms was concentrated between 101-200 yuan. In terms of platform use, JD.com (68.33%), PuPu (63.33%) and Hema (61.67%) were the most commonly used platforms, and users had a more diverse choice of platforms, with

53.33% of users choosing other platforms.

**Table 4.1.** Frequency Distribution of Basic Information

Items	Categories	N	Percent (%)
age	Under 18 years old	1	1.67
	18--25 years old	19	31.67
	26-30 years old	15	25
	31-35 years old	8	13.33
	36-40 years old	4	6.67
	41-45 years old	7	11.67
	Over 50 years old	6	10
gender	male	18	30
	female	42	70
Profession	student	10	16.67
	teacher	17	28.33
	Personnel of enterprises and institutions	16	26.67
	Civil servants	7	11.67
	Private business owner	5	8.33
	other	5	8.33
	Education	Undergraduate	43
Master		15	25
PhD		2	3.33
Monthly before tax income	Below 3000 yuan	1	1.67
	3001-5000 Yuan	10	16.67
	5001-8000 Yuan	28	46.67
	8001-10000 Yuan	15	25
	10000 and above	6	10

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

**Table 4.1.** (Continue)

Items	Categories	N	Percent (%)
Frequency of shopping on fresh food e-commerce platforms in a year	1-5 times	15	25
	6-10 times	17	28.33
	11-15 times	17	28.33
	16-20 times	7	11.67
	More than 20 times	4	6.67
Average amount spent on shopping on fresh food e-commerce platforms	100 yuan or less	10	16.67
	101-200 Yuan	27	45
	201-300 Yuan	15	25
	301-500 Yuan	5	8.33
	500 yuan or more	3	5
Fresh food e-commerce platforms commonly used in the past year	JD.com Home Delivery	41	68.33
	Dingdong Shopping	30	50.00
	Pu Pu	38	63.33
	Yonghui Life	27	45.00
	Meituan Best Selection	34	56.67
	Hema	37	61.67
	other	32	53.33

#### 4.1.2 Pre-survey reliability and validity test

In order to evaluate the construct validity of the questionnaire in this study, we conducted a pilot study on 60 fresh food consumers on e-commerce platforms. In this process, the corrected item-to-total correlation (CITC) was used to evaluate the research construct and its corresponding measurement indicators (DeVellis & Thorpe, 2021). The corrected item-to-total correlation can help researchers determine the degree of correlation between each measurement indicator and the overall scale score, thereby determining whether the indicator can effectively reflect the measured construct. Generally, when the corrected item-to-total correlation value is between 0.35 and 0.80, it indicates that the indicator is suitable for retention and can effectively measure the construct under discussion (Hair et al., 2013). This range is not set arbitrarily, but is an empirical standard based on a large number of empirical studies and statistical principles. Indicators within this range will neither be too weakly associated with the construct, resulting in ineffective measurement, nor will they lose the value of independent measurement due to excessive redundancy. According to the standards proposed by Hair et al. (2017), the grading standard of Cronbach's Alpha coefficient is as follows:  $>0.9$  is considered very good,  $0.8-0.9$  is good,  $0.7-0.8$  is acceptable,  $0.6-0.7$  is questionable, and  $<0.6$  is unacceptable. This standard provides a clear reference for evaluating the internal consistency of the scale. The reliability coefficients of the seven research variables in this study ranged from 0.756 to 0.884, which is at an acceptable-good level. Therefore, the pilot study showed that the data quality has good reliability.

In the academic community, there is some controversy about the threshold of CITC. Field (2009) suggested that the CITC value should be higher than 0.30, while other scholars proposed different standards, such as greater than 0.35, or between 0.50 and 0.80. In this study, we adopted a more stringent standard, that is, items with CITC values between 0.35 and 0.80 will be retained. This range can ensure that the correlation between the items and the constructs is strong enough, while avoiding the problem of items being too redundant or independent.

According to the analysis results, the CITC values of all items ranged from 0.449 to 0.808, and most of them met the preset retention criteria. The CITC value of item PV4 slightly exceeded the threshold of 0.8 (reaching 0.808), but in order to ensure the integrity of the questionnaire and the comprehensiveness of the content, it was decided to retain the item. Therefore, all items were retained in the end to ensure that the scale can comprehensively and accurately measure the target construct.

**Table 4.2.** Abbreviation of Variables Used for Statistical Analysis

Kind of Variables	Abbreviation	Meaning
Latent Variable	CL	Customer Loyalty
Observed Variable	CL1	Seldom switching to another platform
Observed Variable	CL2	As the present service continues, I will not switch
Observed Variable	CL3	I try to use platform whenever I purchase
Observed Variable	CL4	When I purchase, this platform is my first choice
Observed Variable	CL5	I like using this platform
Observed Variable	CL6	To me this platform is the best
Observed Variable	CL7	I believe this is my favorite platform
Latent Variable	CS	Customer Satisfaction
Observed Variable	CS1	I am satisfied to purchase from this platform
Observed Variable	CS2	If I had to repurchase, I will buy from this platform
Observed Variable	CS3	My choice to purchase from this platform was wise
Observed Variable	CS4	I feel badly to buy from platform
Observed Variable	CS5	I did the right thing by buying from this platform
Observed Variable	CS6	I am unhappy I purchased from this platform
Latent Variable	PV	Perceived Value
Observed Variable	PV1	Products of this platform are value for money
Observed Variable	PV2	Products of this platform are a good buy
Observed Variable	PV3	Get what you pay for at this platform
Observed Variable	PV3	Get what you pay for at this platform
Observed Variable	PV4	Products of this platform are worth the money paid
Latent Variable	CE	Customer Expectation
Observed Variable	CE1	This platform should be used easily and quickly
Observed Variable	CE2	This platform should delivery and item availability
Observed Variable	CE3	This platform should function properly
Observed Variable	CE5	Expectation of service quality to platform is high

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

**Table 4.2.** (Continue)

Kind of Variables	Abbreviation	Meaning
Latent Variable	TR	Trust
Observed Variable	TR1	This platform is trustworthy
Observed Variable	TR2	Can trust the performance of this platform to be good
Observed Variable	TR3	Prepared to give private information to this platform
Observed Variable	TR4	Willing to give card information to this platform
Observed Variable	TR5	I feel this platform would provide good service
Observed Variable	TR6	This platform provides me true information
Observed Variable	TR7	This platform committed to my satisfaction
Latent Variable	PQ	Perceived Quality
Observed Variable	PQ1	This platform provides correct information
Observed Variable	PQ2	This platform provides useful information
Observed Variable	PQ3	This platform provides timely information
Observed Variable	PQ4	This platform provides reliable information
Observed Variable	PQ5	This platform provides sufficient information
Latent Variable	PI	Platform Image
Observed Variable	PI1	The platform is innovative and pioneering
Observed Variable	PI2	The platform is successful
Observed Variable	PI3	The platform is persuasive and shrewd
Observed Variable	PI4	The platform does business in an ethical way
Observed Variable	PI5	The platform is open and responsive to consumers

**Table 4.3.** Results of Cronbach's Alpha Value for Pilot Study

Structures	Items	CITC	Alpha if item deleted	Cronbach's alpha
CL	CL1	0.688	0.866	0.884
	CL2	0.605	0.876	
	CL3	0.696	0.864	
	CL4	0.793	0.854	
	CL5	0.57	0.88	
	CL6	0.656	0.87	
	CL7	0.721	0.862	
CS	CS1	0.643	0.828	0.853
	CS2	0.64	0.828	
	CS3	0.732	0.812	
	CS4	0.544	0.845	
	CS5	0.644	0.827	
	CS6	0.638	0.829	
PV	PV1	0.692	0.864	0.878
	PV2	0.74	0.843	
	PV3	0.72	0.85	
	PV4	0.808	0.817	
CE	CE1	0.634	0.668	0.756
	CE2	0.466	0.733	
	CE3	0.475	0.729	
	CE4	0.523	0.713	
	CE5	0.523	0.713	
TR	TR1	0.692	0.848	0.872
	TR2	0.663	0.852	
	TR3	0.617	0.858	
	TR4	0.642	0.854	
	TR5	0.688	0.848	
	TR6	0.549	0.867	
	TR7	0.698	0.847	

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

**Table 4.3.** (Continue)

Structures	Items	CITC	Alpha if item deleted	Cronbach's alpha
PQ	PQ1	0.584	0.748	0.792
	PQ2	0.611	0.741	
	PQ3	0.449	0.798	
	PQ4	0.659	0.723	
	PQ5	0.579	0.751	
PI	PI1	0.512	0.764	0.787
	PI2	0.655	0.719	
	PI3	0.519	0.761	
	PI4	0.683	0.704	
	PI5	0.462	0.779	

For factor analysis, the minimum sample size recommended by Hair et al. (2017) is 50, but this is only applicable to simple studies with a small number of variables and strong correlations. This study has many variables and a complex model. Due to the small sample size ( $n=60$ ), only KMO and Bartlett tests were performed in the pre-survey. According to the results, the KMO value of this survey is 0.6, which basically meets the requirements of exploratory factor analysis. The Bartlett sphericity test is significant, supporting the assumption that there is common cause between the data. This shows that the survey data is suitable for factor analysis.

**Table 4.4.** KMO and Bartlett test

KMO		0.6
Bartlett test	Approx. Chi-Square	1663.462
	<i>df</i>	741
	<i>p</i> value	0

## 4.2 Formal research

### 4.2.1 Basic characteristics of the sample

The demographic characteristics and consumption behavior analysis of the sample in this study showed that the main user group of fresh food e-commerce platforms is as the following table.

**Table 4.5.** Frequency Distribution of Basic Information

Items	Categories	N	Percent (%)
age	Under 18 years old	27	6.16
	18--25 years old	73	16.67
	26-30 years old	112	25.57
	31-35 years old	114	26.03
	36-40 years old	45	10.27
	41-45 years old	38	8.68
	Over 50 years old	29	6.62
gender	male	153	34.93
	female	285	65.07
Profession	student	51	11.64
	teacher	125	28.54
	Personnel of enterprises and institutions	126	28.77
	Civil servants	65	14.84
	Private business owner	51	11.64
Education	other	20	4.57
	Undergraduate	259	59.13
	master	151	34.47
	PhD	28	6.39

**Table 4.5.** (Continue)

Items	Categories	N	Percent (%)
Monthly before tax income	Below 3000 yuan	19	4.34
	3001-5000 Yuan	84	19.18
	5001-8000 Yuan	168	38.36
	8001-10000 Yuan	103	23.52
	10000 and above	64	14.61
Frequency of shopping on fresh food e-commerce platforms in a year	1-5 times	107	24.43
	6-10 times	172	39.27
	11-15 times	86	19.63
	16-20 times	48	10.96
	More than 20 times	25	5.71
Average amount spent on shopping on fresh food e-commerce platforms	100 yuan or less	83	18.95
	101-200 Yuan	177	40.41
	201-300 Yuan	95	21.69
	301-500 Yuan	51	11.64
	500 yuan or more	32	7.31
Fresh food e-commerce platforms commonly used in the past year	JD.com Home Delivery	247	56.39
	Dingdong Shopping	242	55.25
	Pu Pu	279	63.70
	Yonghui Life	230	52.51
	Meituan Best Selection	232	52.97
	Hema	288	65.75
	other	206	47.03

#### 4.2.2 One-way common method bias test

Kock (2015) proposed a method to diagnose and alleviate common method bias (CMB) through factor analysis. He suggested using a single factor model for testing and pointed out that if the variance explained by the first factor is less than 50%, it can be considered that there is no serious common method bias in the data (Kock, 2015). This criterion can be used to assess whether

the data is significantly affected by CMB. In this study, the data were first subjected to KMO (Kaiser-Meyer-Olkin) and Bartlett sphericity tests to assess whether the data are suitable for factor analysis. The judgment criterion for the KMO value is greater than 0.7, and the KMO value of this study is 0.933, indicating that the data has a high correlation. At the same time, the Chi-Square value of the Bartlett sphericity test is 12327.874, and the significance level ( $p$  value) is close to 0, which further confirms that the data is suitable for factor analysis.

To test the influence of common method bias (CMB), this study used the Harman single-factor test. The results showed that a total of 7 factors were extracted, of which the eigenvalue of the first factor was 12.119, explaining 31.08% of the total variance. In addition, the cumulative variance ratio (including the first 3 factors) did not reach the threshold of 50%. According to the criteria proposed by Kock (2015), when the variance explanation ratio of the first factor is less than 50%, it can be considered that there is no serious common method bias in the data. Therefore, the results of this study show that the potential impact of common method bias on the data is not significant.

**Table 4.6.** Harman's Single-Factor Test

Eigenvalues (Initial)	% of Variance (Initial)	% of Cum. Variance (Initial)
12.119	31.08%	31.08%
3.497	8.97%	40.04%
3.299	8.46%	48.50%
2.977	7.63%	56.13%
2.634	6.75%	62.89%
2.41	6.18%	69.07%
1.452	3.72%	72.79%
KMO	0.933	
Bartlett's Test of Sphericity (Chi-Square)	12327.874	
df	741	
p	0	

### 4.2.3 Variable descriptive statistics

The descriptive statistics of each variable include the central tendency, degree of dispersion, distribution pattern and other relevant statistical information of the variable. This study involves statistical indicators such as mean, standard deviation, kurtosis and skewness of numerical variables. The details are as following:

**Table 4.7.** Descriptive Statistics of Variables and Normality Test

Structures	Mean	Std. Deviation	Kurtosis	Skewness
CL	3.465	0.849	-0.268	-0.499
CS	3.546	0.906	-0.444	-0.368
PV	3.61	0.926	-0.966	-0.223
CE	3.774	0.893	-0.807	-0.44
TR	3.516	0.874	-0.123	-0.433
PQ	3.51	0.908	-0.483	-0.324
PI	3.5	0.828	-0.405	-0.525

**Note:** CL(Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)

The mean of each structure is 3.465 for customer loyalty (CL), 3.546 for customer satisfaction (CS), 3.61 for perceived value (PV), 3.774 for customer expectations of responsible supply chain management (CE), 3.516 for trust (TR), 3.51 for perceived quality of responsible supply chain management (PQ), and 3.5 for platform image of responsible supply chain management (PI). Overall, the means of each structure are concentrated between 3.4 and 3.8, indicating that the respondents' evaluation of these factors is relatively medium to high. In terms of standard deviation, the standard deviation of each structure ranges from 0.828 to 0.926, indicating that the respondents' evaluation of each factor is somewhat dispersed, and the overall distribution is relatively concentrated, and the score differences between different respondents are small. In terms of variable normality, according to the results, Hair (2010) suggested that the skewness value between +3 and -3 can be considered normal. Kline (2011) suggested that if the absolute value of kurtosis is less than 10 and the absolute value of skewness is less than 3, it means that although the data is not absolutely normal, it is basically acceptable to be normally distributed. The kurtosis

range of each dimension is -0.966--0.123, and the skewness range is -0.525--0.223, which basically accepts that each dimension is normally distributed.

#### **4.2.4 Measurement model reliability and validity test**

This research model contains 7 first-order reflective constructs, and the model is relatively complex. Based on this, the PLS-SEM method based on partial least squares is used to verify the model. The reliability and validity test of the reflective model in this study is evaluated by Cronbach's  $\alpha$ , composite reliability, average variance extraction, and cross loading. The comparison method of AVE square root and correlation coefficient between constructs proposed by Fornell and Larcker (1981) and HTMT as a discriminant validity test proposed by Kock (2015) are used as the test criteria for discriminant validity. In addition, Cross Loadings is used to test whether each measurement item is only loaded on the construct to which it belongs, which helps to evaluate discriminant validity. Specifically, the comparison method of AVE square root and correlation coefficient between constructs calculates the AVE square root of each construct and compares it with the correlation coefficient between other constructs. If the AVE square root is greater than the correlation coefficient, the construct has good discriminant validity. HTMT is a ratio that measures the correlation between two constructs. A low HTMT value means that the two constructs have good discriminant validity in measurement. Usually, HTMT values less than 0.85 or 0.90 are considered to have good discriminant validity. In Cross Loadings, if the loading of a measurement item on its construct is higher than that on other constructs, then the measurement item is considered to have good discriminant validity. Factor Loadings should be greater than 0.7, indicating that the measurement item has a strong explanatory power for the construct (Hair, Hult, Ringle, & Sarstedt, 2017). Cronbach's Alpha (CA) and composite reliability (CR) are usually required to have a value greater than 0.7, representing good reliability (Fornell & Larcker, 1981; Hair, Hult, et al., 2017). AVE values greater than 0.5 usually indicate good convergent validity and that the measurement items of the construct effectively reflect the latent variables.

The measurement model results of the constructs in this study showed that all constructs had good reliability and validity: the combined reliability (CR) was between 0.899 and 0.949, all higher than the threshold standard of 0.7, indicating that the measurement model had high internal consistency; Cronbach's  $\alpha$  coefficient (CA) was distributed in the range of 0.850-0.932; the factor loading of each item was greater than the minimum standard of 0.7 (range 0.798-0.899), and the average variance extracted (AVE) exceeded the critical value of 0.5 (range 0.689-0.787), indicating that the measurement model had good convergent validity.

**Table 4.8.** Reliability and Convergent Validity of Constructs

Structures	Item	Loading	CA	CR	AVE
	CE1	0.899			
	CE2	0.894			
CE	CE3	0.888	0.932	0.949	0.787
	CE4	0.878			
	CE5	0.876			
	CL1	0.821			
	CL2	0.833			
	CL3	0.828			
CL	CL4	0.844	0.926	0.94	0.692
	CL5	0.821			
	CL6	0.824			
	CL7	0.852			
	CS1	0.883			
	CS2	0.863			
	CS3	0.879			
CS	CS4	0.831	0.928	0.943	0.735
	CS5	0.855			
	CS6	0.832			
	PI1	0.84			
	PI2	0.833			
PI	PI3	0.821	0.888	0.917	0.69
	PI4	0.834			
	PI5	0.825			
	PQ1	0.852			
	PQ2	0.884			
PQ	PQ3	0.884	0.925	0.943	0.769
	PQ4	0.87			
	PQ5	0.893			

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

**Table 4.8.** (Continue)

Structures	Item	Loading	CA	CR	AVE
PV	PV1	0.839			
	PV2	0.837	0.85	0.899	0.689
	PV3	0.837			
	PV4	0.807			
TR	TR1	0.869			
	TR2	0.866			
	TR3	0.837			
	TR4	0.842	0.932	0.945	0.712
	TR5	0.855			
	TR6	0.837			
	TR7	0.798			

**Note:** CL(Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)

The following table shows the results of the first-order construct discriminant validity test based on the HTMT (Heterotrait-Monotrait Ratio) criterion. The results show that the HTMT values between all constructs are significantly lower than the conservative standard of 0.85 (range 0.244-0.553), and the correlation between perceived value (PV) and customer loyalty (CL) is the highest (HTMT=0.553), but it is still far below the discrimination threshold, indicating that each construct has good discriminant validity.

**Table 4.9.** HTMT Criterion of Constructs

	CE	CL	CS	PI	PQ	PV	TR
CE							
CL	0.341						
CS	0.352	0.341					
PI	0.342	0.327	0.251				
PQ	0.327	0.359	0.382	0.279			
PV	0.458	0.553	0.401	0.447	0.42		
TR	0.381	0.346	0.301	0.244	0.357	0.477	

**Note:** CL(Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)

The following table shows the discriminant validity test results of constructs based on the Fornell-Larcker criterion. The bold values on the diagonal are the AVE square roots of each construct, and the non-diagonal values are the correlation coefficients between constructs. The results show that the AVE square roots of all constructs (between 0.830 and 0.887) are greater than the correlation coefficients of their rows and columns, meeting the requirements of the Fornell-Larcker criterion, further confirming the discriminant validity of the measurement model. The results are consistent with the conclusions of the HTMT test, and together support the discriminant validity of the measurement model.

**Table 4.10.** Discriminant Validity of Constructs

	CE	CL	CS	PI	PQ	PV	TR
CE	<b>0.887</b>						
CL	0.319	<b>0.832</b>					
CS	0.329	0.318	<b>0.857</b>				
PI	0.312	0.297	0.229	<b>0.831</b>			
PQ	0.306	0.332	0.355	0.254	<b>0.877</b>		
PV	0.409	0.491	0.359	0.388	0.376	<b>0.83</b>	
TR	0.356	0.327	0.284	0.222	0.331	0.425	<b>0.844</b>

**Note:** CL(Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)

#### 4.2.5 Collinearity test

Studies have shown that performing VIF tests in PLS path models helps ensure the independence of constructs, thereby improving the explanatory power and predictive power of the model. Liu Ruiling et al. (2022) believe that the detection of VIF values is crucial to avoid the impact of multicollinearity on the model, especially in the case of highly correlated latent variables and observed variables. In the collinearity test results of this study, the VIF values of the external model ranged from 1.797 to 3.388, and the VIF values of the internal model ranged from 1 to 1.408, both less than 5, indicating good independence between model constructs.

**Table 4.11.** multicollinearity test

Outer model VIF		Inner model VIF	
CE1	3.388	CE -> CS	1.275
CE2	3.228	CE -> PQ	1
CE3	3.048	CE -> PV	1.103
CE4	2.984	CS -> CL	1.144
CE5	2.87	CS -> TR	1.055
CL1	2.393	PI -> CE	1
CL2	2.482	PI -> CL	1.091
CL3	2.414	PI -> CS	1.23
CL4	2.633	PI -> TR	1.055
CL5	2.402	PQ -> CS	1.215
CL6	2.403	PQ -> PV	1.103
CL7	2.778	PV -> CS	1.408
CS1	3.213	TR -> CL	1.145
CS2	2.82	Age -> CL	1.003
CS3	3.093	Education level -> CL	1.009
CS4	2.423	Frequency of purchasing -> CL	1.036
CS5	2.482	Gender -> CL	1.009

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

**Table 4.11.** (Continue)

Outer model VIF		Inner model VIF	
CS6	2.375	Income -> CL	1.063
PI1	2.367		
PI2	2.157		
PI3	2.147		
PI4	2.314		
PI5	2.072		
PQ1	2.547		
PQ2	2.989		
PQ3	2.964		
PQ4	2.741		
PQ5	3.125		
PV1	2.011		
PV2	1.906		
PV3	1.915		
PV4	1.797		
TR1	3.229		
TR2	3.031		
TR3	2.532		
TR4	2.61		
TR5	2.766		
TR6	2.58		
TR7	2.259		

#### 4.2.6 Path effect evaluation

The  $f^2$  value is an indicator used to evaluate the size of the path effect in the PLS-SEM model. It reflects the degree of change in the explanatory power of an independent variable (or construct) on the dependent variable (or other construct). Hair, Black, Babin, and Anderson (2017) believed that small effect ( $F^2 \leq 0.02$ ): When the  $F^2$  value is small, it means that the path has a very small impact on the dependent variable and can be almost ignored. Medium effect ( $0.02 < F^2 \leq 0.15$ ): When the  $F^2$  value is within this range, it means that the path has a certain impact on the dependent variable, but the influence is moderate. Large effect ( $F^2 > 0.15$ ): When the  $F^2$  value is large, it means

that the path has a strong impact on the dependent variable and is an important influencing factor in the model.

**Table 4.12.** Effect Size of Exogenous Latent Constructs

Relationships	f-square	Outcome
CE -> CS	0.029	Middle
CE -> PQ	0.103	Middle
CE -> PV	0.125	Middle
CS -> CL	0.044	Middle
CS -> TR	0.064	Middle
PI -> CE	0.109	Middle
PI -> CL	0.05	Middle
PI -> CS	0.002	Small
PI -> TR	0.029	Middle
PQ -> CS	0.051	Middle
PQ -> PV	0.091	Middle
PV -> CS	0.032	Middle
TR -> CL	0.046	Middle
Age -> CL	0.001	Small
Education level -> CL	0.029	Middle
Frequency of purchasing -> CL	0.002	Small
Gender -> CL	0.005	Small
Income -> CL	0.016	Small

**Note:** CL(Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)

#### 4.2.7 Model explanatory power test

The  $R^2$ , adjusted  $R^2$  and  $Q^2$  prediction values were used to evaluate customer expectations (CE), customer loyalty (CL), customer satisfaction (CS), perceived value (PV), perceived quality (PQ), trust (TR) and customer expectations of responsible supply chain management (CE). The  $R^2$  value represents the proportion of variance explained by the model for each constructed variable,

the adjusted  $R^2$  takes into account the complexity of the model by penalizing unnecessary predictors, and the  $Q^2$  prediction value reflects the predictive relevance of the model. The  $R^2$  of customer expectation (CE) is 0.098, the adjusted  $R^2$  is 0.096, and the  $Q^2$  prediction value is 0.093; the  $R^2$  of customer loyalty (CL) is 0.238, the adjusted  $R^2$  is 0.224, and the  $Q^2$  prediction value is 0.112; the  $R^2$  of customer satisfaction (CS) is 0.213, the adjusted  $R^2$  is 0.205, and the  $Q^2$  prediction value is 0.041; the  $R^2$  of perceived quality (PQ) is 0.093, the adjusted  $R^2$  is 0.091, and the  $Q^2$  prediction value is 0.039; the  $R^2$  of perceived value (PV) is 0.236, the adjusted  $R^2$  is 0.233, and the  $Q^2$  prediction value is 0.082; the  $R^2$  of trust (TR) is 0.107, the adjusted  $R^2$  is 0.103, and the  $Q^2$  prediction value is 0.043. The results show that the model as a whole has good explanatory and predictive abilities.

**Table 4.13.**  $R^2$  and  $Q^2$  Value of Endogenous Latent Constructs

Construct	R-square	R-squared adjusted	$Q^2$ predict
CE	0.098	0.096	0.093
CL	0.238	0.224	0.112
CS	0.213	0.205	0.041
PQ	0.093	0.091	0.039
PV	0.236	0.233	0.082
TR	0.107	0.103	0.043

**Note:** CL(Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)

### 4.2.8 Hypothesis Testing

The direct path results show in the following table.

**Table 4.14.** Direct Path Hypothesis Testing

H	Direct Path	$\beta$	Standard Error (SE)	P	Decision
H1a	CS—CL	0.195	0.045	0	Supported
H1b	TR—CL	0.199	0.045	0	Supported
H1c	PI—CL	0.203	0.045	0	Supported
H2a	CS—TR	0.247	0.045	0	Supported
H2b	PI—TR	0.165	0.05	0.001	Supported
H3a	PV—CS	0.188	0.05	0	Supported
H3b	CE—CS	0.17	0.051	0.001	Supported
H3c	PQ—CS	0.221	0.047	0	Supported
H3d	PI—CS	0.046	0.044	0.296	Not Supported
H4a	CE—PV	0.324	0.043	0	Supported
H4b	PQ—PV	0.276	0.045	0	Supported
H5	CE—PQ	0.306	0.045	0	Supported
H6	PI—CE	0.313	0.045	0	Supported
-	Age—CL	0.026	0.044	0.554	Not Supported
-	Education level—CL	0.15	0.041	0	Supported
-	Buying Frequency—CL	0.035	0.044	0.428	Not Supported
-	Gender—CL	0.124	0.092	0.179	Not Supported
-	Income—CL	0.115	0.044	0.008	Supported

**Note:** CL(Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)

The direct path results show that among the research variable path results, customer satisfaction (CS) has a significant positive impact on customer loyalty ( $B=0.195$ ,  $p<0.001$ ), supporting H1a; trust (TR) has a significant positive impact on customer loyalty ( $B=0.199$ ,  $p<0.001$ ), supporting H1b; platform image (PI) has a significant positive impact on customer

loyalty ( $B=0.203$ ,  $p<0.001$ ), supporting H1c; customer satisfaction (CS) has a significant positive impact on trust ( $B=0.247$ ,  $p<0.001$ ), supporting H2a; platform image (PI) has a significant positive impact on trust ( $B=0.165$ ,  $p=0.001$ ), supporting H2b; perceived value (PV) has a significant positive impact on customer satisfaction ( $B=0.188$ ,  $p<0.001$ ), supporting H3a; customer expectations (CE) have a significant positive impact on customer satisfaction ( $B=0.188$ ,  $p<0.001$ ), supporting H3a; The influence of perceived quality (PQ) on customer satisfaction was significant ( $B=0.170$ ,  $p=0.001$ ), supporting H3b; perceived quality (PQ) had a significant positive impact on customer satisfaction ( $B=0.221$ ,  $p<0.001$ ), supporting H3c; the influence of platform image (PI) on customer satisfaction was not significant ( $B=0.046$ ,  $p=0.296$ ), not supporting H3d; customer expectation (CE) had a significant positive impact on perceived value ( $B=0.324$ ,  $p<0.001$ ), supporting H4a; perceived quality (PQ) had a significant positive impact on perceived value ( $B=0.276$ ,  $p<0.001$ ), supporting H4b; customer expectation (CE) had a significant positive impact on perceived quality ( $B=0.306$ ,  $p<0.001$ ), supporting H5; platform image (PI) had a significant positive impact on customer expectation ( $B=0.313$ ,  $p<0.001$ ), supporting H6;

In the influence path of control variables on dependent variables, education level has a significant positive impact on customer loyalty ( $B=0.150$ ,  $p<0.001$ ); income level has a significant positive impact on customer loyalty ( $B=0.115$ ,  $p=0.008$ ). Age ( $B=0.026$ ,  $p=0.554$ ), purchase frequency ( $B=0.035$ ,  $p=0.428$ ) and gender ( $B=0.124$ ,  $p=0.179$ ) have no significant impact on customer loyalty.

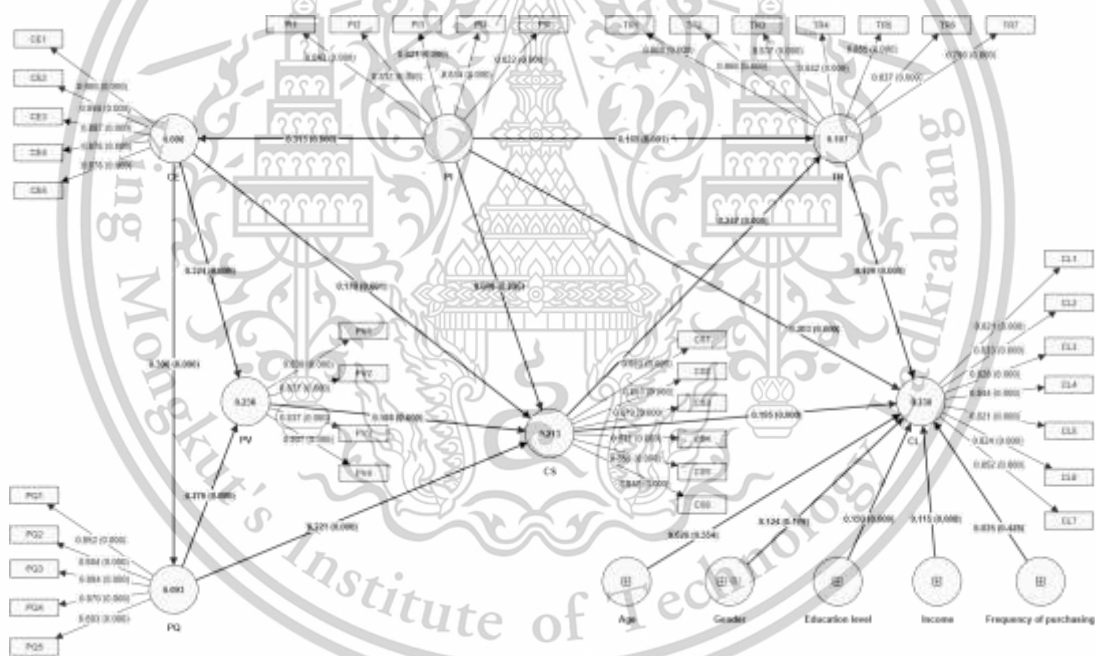
The mediation effect results show in the following table.

**Table 4.15.** Mediation Path Hypothesis Testing

H	Direct Path	$\beta$	Standard Error (SE)	P	Decision
H7	CE -> CS -> CL	0.033	0.013	0.008	Supported
H8	PI -> CS -> CL	0.009	0.009	0.308	Not Supported
H9	PI -> TR -> CL	0.034	0.013	0.012	Supported
H10	PQ -> CS -> CL	0.043	0.014	0.002	Supported
H11	PV -> CS -> CL	0.037	0.015	0.013	Supported
H12	CS -> TR -> CL	0.05	0.015	0.001	Supported

**Note:** CL(Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)

The mediation effect results show that customer expectation (CE) has a significant positive mediation effect on customer loyalty (CL) through customer satisfaction (CS) ( $B=0.033$ ,  $p=0.008$ ), supporting hypothesis H7. Platform image (PI) has a significant positive mediation effect on customer loyalty (CL) through trust (TR) ( $B=0.033$ ,  $p=0.012$ ), supporting hypothesis H9. The mediation path of platform image through customer satisfaction is not significant ( $B=0.009$ ,  $p=0.308$ ), not supporting hypothesis H8. Perceived quality (PQ) has a significant positive mediation effect on customer loyalty (CL) through customer satisfaction (CS) ( $B=0.043$ ,  $p=0.002$ ), supporting hypothesis H10. Perceived value (PV) has a significant positive mediation effect on customer loyalty (CL) through customer satisfaction (CS) ( $B=0.037$ ,  $p=0.013$ ), supporting hypothesis H11. Customer satisfaction (CS) has a significant positive mediating effect on customer loyalty (CL) through trust (TR) ( $B=0.049$ ,  $p=0.001$ ), supporting hypothesis H12.



**Figure 4.1:** Path Coefficient and outer loadings of Structural Model

# CHAPTER 5

## CONCLUSIONS

### 5.1 Discussion

#### 5.1.1 The Factors Affect Customer Loyalty on Fresh-food E-commerce Platform

In online environments where consumers cannot physically interact with products or services, purchasing decisions predominantly rely on satisfaction derived from individual transactions, which critically influences repurchase intentions and loyalty cultivation. As repurchase frequency increases, e-commerce platforms must prioritize sustained customer satisfaction, given that a single unsatisfactory transaction may lead to severe customer attrition (Aimin, Bao, & Yingying, 2014; Zarrin, 2022).

Scholarly research on e-commerce loyalty frameworks typically integrates traditional loyalty drivers with digital environmental factors. Kataria and Saini (2020) identified direct impacts of online trust, customer satisfaction, and perceived value on e-commerce loyalty. Chanthasaksathian and Nuangjamnong (2021) further demonstrated that online service quality affects perceived value, trust, and satisfaction, with perceived quality influencing trust and subsequently satisfaction, collectively shaping loyalty outcomes. This synthesis reveals customer satisfaction's pivotal role across both traditional and digital commerce contexts as a fundamental determinant in loyalty formation processes.

E-commerce platforms serve as the primary interface connecting service providers and consumers, where consumer perceptions directly influence attitudes and purchasing behaviors, with customer satisfaction emerging as a critical performance metric. Previous studies (Manyanga et al., 2022; Ratnasari et al., 2021; Sithipon et al., 2022; Zhaoquan & Yun, 2017) demonstrate that higher customer satisfaction significantly enhances the likelihood of repeat purchases and generates greater economic returns for enterprises. Consequently, e-commerce platforms must augment consumer value perception to elevate satisfaction levels, thereby strengthening competitive advantages in intense market competition.

In virtual consumption contexts, internet customer satisfaction emerges as a critical exogenous antecedent of loyalty. When consumers perceive the delivered value from product selection and service experiences on e-commerce platforms to substantially exceed their internal expectations, they demonstrate enhanced platform reputation evaluations and heightened

repurchase intentions.

Platform content significantly influences customer loyalty. Brands must elevate content quality and reinforce brand persona through strategic initiatives. This involves establishing distinctive brand-specific private platforms with clearly defined target demographics, employing audience-appropriate linguistic and visual communication styles that align with brand identity. Proactive customer engagement, particularly through value-based and emotional interactions, fosters deeper brand value recognition, cultivating high-engagement, stable customer relationships. Consistent delivery of coherent content – including brand philosophy expositions and design theme narratives – serves to articulate brand essence and amplify brand personality.

Optimizing functional perception of e-commerce platforms through enhanced usability and utility, coupled with user-friendly interfaces and comprehensive functionalities, represents a critical strategy. Functional perception derives both from platform operational efficiency and the significance of products/services in enhancing consumers' quality of life (Herlinae, 2019). To improve shopping efficiency, platforms should implement prominent search features facilitating rapid brand identification, alongside supplementary functions like product bookmarks and browsing history tracking to encourage repeat purchases (Khoo, 2020).

Consumer trust in e-commerce platforms and merchants holds paramount importance, as a credible online shopping environment enables consumers to conduct transactions with greater reassurance, thereby boosting consumer confidence and enhancing purchasing willingness (Hajli et al., 2017). Within such a trustworthy framework, consumers demonstrate increased propensity to acquire high-quality products and value-added services, which undeniably contributes to elevating consumption standards, expanding consumption domains, and optimizing consumption structures—ultimately driving qualitative improvements and efficiency enhancements in consumption patterns (Zhang & Pan, 2018).

Interactivity and virtual community convenience substantially impact online shopping satisfaction and brand loyalty. Enhanced interactivity fosters a stronger “community identity” (Yu et al., 2019) between consumers and brands, cultivating greater trust in online platforms and consequently improving satisfaction. Concurrently, virtual community convenience reduces decision-making costs (e.g., time, cognitive effort), thereby elevating satisfaction and loyalty toward e-commerce platforms.

Customer trust significantly enhances customer loyalty, serving as a mediating mechanism between service rituals and sustained brand allegiance. The value of customer loyalty to retail enterprises manifests through long-term stability and multifaceted economic benefits. When retail enterprises effectively implement service rituals to secure customer trust, customers voluntarily

maintain close relationships with the business, even overcoming purchasing obstacles to acquire products from trusted retailers (Joo & Han, 2021; Unidha & Sentani, 2017). This mutual commitment facilitates deeper enterprise-customer bonds, incentivizing retailers to deliver personalized products and services that further reinforce loyalty. Consequently, a virtuous cycle emerges where ritualized service excellence strengthens trust, which in turn amplifies loyalty through reciprocal value creation.

Enhancing customer satisfaction constitutes the fundamental prerequisite for strengthening customer loyalty, as heightened product satisfaction directly amplifies brand trust and allegiance while increasing customers' propensity to share positive shopping experiences within their social networks. Enterprises must prioritize experiential optimization by strategically integrating brand distinctiveness into store location selection, interior design, and product arrangement. This approach effectively caters to consumers' personalized and diversified demands, elevates perceived shopping value, and ultimately cultivates sustained brand commitment.

Hajli et al. (2017) longitudinal study demonstrated that trust effectively mitigates consumers' subjective perceptions of information asymmetry risks in virtual transactions, thereby positively reinforcing online consumption intentions. Lu et al. (2016) empirical findings further revealed that customer trust in digital consumption contexts influences loyalty through dual pathways—both directly and indirectly. Elevated trust levels significantly reduce information search costs and transaction expenses while positively moderating behavioral intentions, ultimately fostering improvements in both attitudinal loyalty (brand commitment) and behavioral loyalty (repeat purchases).

### **5.1.2 The Factors Affect Customer Satisfaction on Fresh-food E-commerce Platform**

Within digital commerce environments, consumer concerns regarding platforms' data collection, control, and utilization of personal information encompass subjective perceptions of risks, benefits, and potential losses associated with privacy issues. Elevated privacy concerns may lead consumers to prioritize uncontrollable costs of data disclosure over positive platform perceptions, ultimately attenuating the impact of platform perception on satisfaction.

The functional layout of e-commerce platforms negatively impacts customer satisfaction, primarily due to standardized website designs and templated functional configurations that induce aesthetic fatigue among consumers. Furthermore, such layouts often fail to accommodate evolving consumer demands. A platform's functional architecture critically shapes users' initial impressions of pharmaceutical e-commerce platforms (hereafter "platforms"), with critical determinants of continued patronage including website color schemes, pharmaceutical product categorization,

interactive experiences, and operational convenience (Wang et al., 2021).

Service quality and perceived value exert direct positive effects on customer satisfaction, indicating that actual user experience constitutes the primary determinant of platform satisfaction. Most scholars (He et al., 2020; Liu et al., 2020; Song & Xu, 2022) conceptualize perceived value as consumers' comparative assessment between the total benefits derived from products/services and the monetary costs incurred during acquisition. Higher satisfaction with acquired products/services corresponds to elevated perceived value and consequently enhanced satisfaction levels. Platforms must not only adhere to conventional e-commerce service standards but also address specialized requirements for pharmaceutical products and health consultation services.

Customer perceived value is a loyalty driver. Both emotional and functional perceived values positively affect loyalty, with emotional dimensions exhibiting greater influence. When customers achieve satisfying emotional experiences—feeling recognized as empowered consumption subjects—they develop trust, maintain brand interactions, and prioritize the retailer for future purchases. Over time, such customers evolve into brand advocates, organically expanding loyal consumer cohorts through social referrals (Kraft et al., 2018; P.G. Patterson & Spreng, 1997). Thus, heightened emotional perceived value directly correlates with elevated loyalty levels.

While ensuring basic service quality, greater emphasis should be placed on enhancing the online shopping experience for fresh agricultural products. With accelerating lifestyles and changing purchasing habits among younger generations, online fresh produce shopping has become a prevailing trend. Key factors (Hu et al., 2020; Wangwacharakul et al., 2021) influencing customer satisfaction include product selection and sourcing, shopping convenience, product quality, and logistics service quality. Fresh produce e-commerce platforms can offer 24/7 ordering with prompt delivery services while maintaining product quality through efficient logistics, making online purchases increasingly attractive to consumers. Additionally, perceived ease of use and entertainment value significantly impact customer satisfaction. Platform design should prioritize intuitive operation while incorporating engaging elements, such as scannable QR codes that provide detailed information about the product's origin, farm practices, and growth cycle, enriching the consumer's knowledge and enjoyment (Asha et al., 2023). Furthermore, platforms can enhance the experience by offering pre-processed fresh produce—washed, cut, and paired with complementary ingredients—along with corresponding recipes and preparation methods. This hands-on approach not only improves convenience but also transforms online fresh produce shopping into an enjoyable and interactive experience.

Service quality has been empirically validated as the secondary determinant influencing

customer satisfaction. This finding indicates that when agricultural e-commerce platforms meet or exceed consumers' anticipated service levels during product acquisition, substantial enhancements in satisfaction toward the platform can be achieved. Within agricultural e-commerce ecosystems, customer satisfaction demonstrates a robust causal relationship with loyalty formation, suggesting that satisfactory purchasing experiences significantly reinforce consumers' commitment to recurring platform engagement.

Customer participation positively influences emotional perceived value, thereby enhancing customer loyalty. Under retail industry modernization, three dimensions of customer participation—pre-purchase preparation, information sharing, and interpersonal interaction—significantly affect emotional perceived value (Fan et al., 2021), with interpersonal interaction demonstrating the strongest impact. Firstly, Proactive consumer research enables customers to acquire product knowledge in advance, mitigating negative perceptions caused by information asymmetry and enhancing satisfaction with the shopping process. Secondly, by communicating personalized needs to service staff, customers enable tailored service delivery, substantially elevating emotional engagement. Thirdly, in upgraded retail environments, optimized interactive experiences strengthen customers' sense of accomplishment (Kim & Joon, 2019). High-quality staff-customer interactions maximize experiential value, foster emotional connections, and generate shopping delight.

To ensure service quality and build consumer trust, effective control over the entire supply chain—from production to end consumers—is essential. Trust in the platform is a critical factor influencing repeat purchases. Unlike other goods, fresh agricultural products in China face challenges due to fragmented production and lack of standardization, making quality and quantity control difficult at the production stage (Feng et al., 2015; Liang et al., 2022). Therefore, fresh produce e-commerce platforms should adopt vertical integration strategies, maintaining oversight from production to consumption. This includes implementing strict quality monitoring, traceability systems, and standardized processes to guarantee product consistency and reliability. By strengthening supply chain control, platforms can enhance consumer confidence, ensuring that online fresh produce shopping remains a trustworthy and satisfying experience.

### **5.1.3 The Factors Affect Customer Trust on Fresh-food E-commerce Platform**

In marketing, the pivotal role of trust lies in developing and sustaining relationships among exchange participants, particularly within buyer-seller interactions for goods/service acquisition. Trust is operationally defined as one party's perceived reliability of another within

specific exchange relationships. Securing customer trust proves critical for commercial success, given customers' dual capacity as brand advocates or detractors. B.-q. Yu et al. (2019) emphasize that trust fundamentally operates through relational bonds. Enterprises cultivating intimate customer relationships—via premium product quality, innovation, and responsive demand fulfillment—effectively safeguard consumers' fundamental rights. Such trust enables firms to develop and retain customer loyalty, as trusting consumers expect promised commitments to be honored, and corporate actions aligned with their interests. Empirical studies (Joo & Han, 2021; B. Zhang & Pan, 2018) reveal trust's dual conceptualization functions as a mediating variable in consumer-brand relationship models and serves as an outcome of multifaceted evaluations (e.g., benefit-cost assessments) and commitment levels within exchange processes.

Park et al. (2017) analyzing customer trust through the lens of digital marketing, identified webpage design, product quality, user reviews, and individual consumption levels as critical influencing factors. Unidha and Sentani (2017) proposed that enterprises can cultivate differentiated customer trust by implementing brand marketing strategies tailored to specific customer segments and product categories. Empirical work by Joo and Han (2021) revealed that customer trust directly enhances purchase intention. Hajli et al. (2017) adopting a perceived-value perspective, established the significant impact of customer trust on loyalty. Complementing this, Park et al. (2017) demonstrated that trust positively affects both behavioral loyalty (repeat purchases) and attitudinal loyalty (brand advocacy).

#### **5.1.4 The Factors Affect Perceived Value on Fresh-food E-commerce Platform**

Within agricultural e-commerce environments, empirical evidence reveals that perceived value and service quality exert significant impacts on customer satisfaction, with perceived value demonstrating stronger predictive power. Customer satisfaction subsequently emerges as a critical antecedent to loyalty formation. Notably, switching costs were found to lack moderating effects on the satisfaction-loyalty relationship. This study (Liu et al., 2020) operationalizes perceived value through utilitarian and hedonic dimensions, with statistical analysis indicating consumers prioritize utilitarian value followed by hedonic value. These findings (HE et al., 2020; Kraft et al., 2018) suggest that when agricultural e-commerce platforms align with consumers' value systems and consumption philosophies, particularly through utilitarian value realization, significant enhancements in customer satisfaction can be achieved. This satisfaction-loyalty paradigm underscores the strategic importance of value co-creation in digital agricultural marketplaces.

Rapid societal advancement and elevated living standards have shifted consumer priorities,

with price sensitivity yielding to premium lifestyle aspirations. Consequently, enterprises must ensure product excellence across omnichannel platforms while delivering premium-tier services spanning pre-purchase consultation, in-transaction support, and post-sale assistance to achieve genuine shopping fulfillment. Furthermore, enterprises should prioritize supply chain service optimization, enabling customized procurement aligned with individualized consumer demands, thereby elevating customers' perceived shopping value.

Asha et al. (2023) emphasize that electronic service quality should encompass comprehensive service delivery rather than being confined to transactional elements. In the context of e-commerce platforms, this extends to informational provision, promotional activities, and technical support functions. The researchers (Hu et al., 2020; Zhang & Xu, 2018) consequently define e-service quality as “customers' evaluative judgment regarding both process quality and outcome quality derived from interactions with service providers through electronic channels.” Liu et al. (2020) posit that customer value constitutes a comparative perception between benefits and sacrifices, where benefits extend beyond mere quality considerations and sacrifices encompass more than just price. Two predominant perspectives on value emerge in academic discourse: the first relates to utilitarian outcomes derived from intentional pursuit of predetermined objectives, while the second pertains to spontaneous hedonic responses. This dichotomy reflects the fundamental distinction between goal-oriented acquisition (obtaining something necessary) and intrinsic enjoyment (engaging in an activity for its own sake). Notably, the shopping experience demonstrates capacity to generate both utilitarian and hedonic value dimensions.

Zerbini et al. (2022) in their seminal research on service quality and behavioral intentions, identified a robust correlation between the two. When consumers perceive high service quality, they tend to develop favorable attitudes toward the enterprise and exhibit repeat purchase behaviors; conversely, they readily switch to substitutable alternatives. Huang (2021) further corroborated this linkage, demonstrating that elevated perceived service quality exerts a statistically significant positive influence on customer loyalty and purchase intent. Sen (2021) findings align with this paradigm, confirming a marked positive correlation between perceived service quality and users' continuance intention.

Enhancing enterprise-customer interaction to elevate perceived value through flow experience has been empirically validated as critical for loyalty cultivation. Research findings demonstrate that customer flow experience exerts a positive influence on brand loyalty, necessitating e-commerce entities to prioritize technological interactivity in website design. This involves optimizing experiential dimensions that induce psychological immersion, particularly the temporal distortion and hedonic enjoyment derived from seamless human-website interaction

(Wangwacharakul et al., 2021). Technologically mediated engagements through interactive interfaces and vivid platform architectures generate authentic convenience perceptions, effectively simulating offline shopping presence through virtual environments. Strategic improvements should encompass interface aesthetics, navigation logic, and browsing fluidity, leveraging advanced technologies to sustain user engagement (Schwering, Sonntag, & Kühn, 2022; Lei Zhang et al., 2022). Exemplary implementations like Alibaba's VR-enabled shopping ecosystems illustrate how immersive scenarios and multimedia communication tools not only enhance satisfaction but also mitigate purchase hesitation, reduce product return rates, and strengthen customer-brand alignment. These technological interventions ultimately translate interactive experiences into sustained brand commitment through heightened cognitive and emotional value co-creation.

## **5.2. Conclusion**

### **5.2.1 Implications**

### **5.2.2 Customer Loyalty of Fresh-food E-commerce Platform**

Given the fresh produce e-commerce market's high concentration and intense competition, investigating CSR (Noyal, Raut, Yadav, Priyadarshinee, & Narkhede, 2022) in competitive environments presents a promising research direction. Furthermore, rapid internet technology development has enabled continuous market expansion, with platforms establishing hybrid offline stores that combine retail operations with online distribution hubs. Future research could explore how CSR adoption influences decision-making (Song & Xu, 2022) in these "in-store + home-delivery" supply chain models, particularly examining the operational dynamics and value co-creation mechanisms in such innovative retail formats. This extension would provide insights into CSR's role in emerging omnichannel fresh produce distribution systems.

The burgeoning development of e-commerce markets presents enterprises with external opportunities while simultaneously exposing them to unprecedented challenges. Within the network economy, the mitigation of information asymmetry among economic entities has enhanced market transparency, narrowed the operational distances between enterprises, customers, and competitors, and significantly reduced customer switching costs. These dynamics (Lan, Shi, Feng, & He, 2022) have unprecedentedly amplified consumer bargaining power. While acquiring new customers may expand a firm's consumer base, it concurrently tests the organization's capacity to

retain existing clientele. Consequently, in the e-commerce context, ensuring customer loyalty emerges as the linchpin of corporate success. Research on customer relationship management (CRM) (Zhao, 2022) within digital commerce environments, aimed at enhancing customer loyalty, provides actionable frameworks for business practices and carries substantial practical significance.

Customer satisfaction and loyalty stem from the fulfillment of e-commerce service demands, directly reflecting consumer service experiences, while latent needs remain implicit and difficult for consumers to articulate. Therefore, proactively translating pre-purchase multidimensional needs into service offerings effectively prevents “marketing myopia”, fostering customer loyalty, expanding market share, and building client equity. Specifically, e-commerce firms can capture consumer demands through post-purchase feedback by extracting insights from unbiased online reviews, then implementing “Kanban-style” service improvements that bridge historical evaluations and potential needs to deliver personalized services (Schwering et al., 2022; Zhang et al., 2022).

Under the rapid development of the market economy, the role of customers has undergone a fundamental transformation—they are no longer passive recipients awaiting resource allocation but have evolved into active subjects shaping economic activities (Asha et al., 2023; Fan et al., 2021). Customer participation has become pivotal for retail industry advancement, as only through full engagement can enterprises secure competitive advantages. Consequently, retail operators must proactively stimulate customer involvement through multifaceted strategies. Firstly, pre-establishing diversified shopping channels with comprehensive pre-shopping guidance systems to ensure prompt resolution of customer inquiries. Secondly, leveraging omnichannel resources to pre-research customers’ individualized needs and pain points, thus developing tailored marketing strategies through data analytics. Thirdly, amplifying participatory mechanisms. Retailers can introduce self-checkout stations with dedicated staff assistance to enhance transactional autonomy and enjoyment. They can also design gamified co-creation experiences that transform shopping into interactive journeys. Fourthly, there are three ways to enrich interpersonal engagement, e.g., dedicate communication platforms (WeChat groups, official accounts, Weibo Super Topics), incentivized interactions (e.g., prize draws fostering customer-merchant and peer-to-peer exchanges), and continuous operational refinement based on customer feedback to deepen participatory ownership.

In an era of proliferating product homogeneity and diminishing store distinctiveness, retailers must evoke unique emotional resonance by delivering superior services that stimulate consumers’ affective responses and purchasing impulses. This necessitates mastery of advanced sales techniques and context-appropriate communication strategies to decode consumer psychology,

address latent needs, and craft personalized shopping experiences. Perceived service quality and customer trust not only directly enhance loyalty but also mediate the relationship between experiential marketing and loyalty outcomes (Kuwornu et al., 2023; Lee et al., 2017; Tu et al., 2021). To amplify perceived service quality, firstly, frontline staff should engage customers with proactive enthusiasm, directly boosting satisfaction and affinity. Secondly, sales personnel must undergo rigorous professional training to ensure service excellence surpassing industry benchmarks. To foster customer trust, retailers should rigorously verify product information, ensuring transparent disclosure of garment specifications and abstaining from misleading claims or unfulfillable promises. Meanwhile, consumer complaints and grievances must be prioritized, with systematic mechanisms for timely resolution.

Customer participation enhances functional perceived value to strengthen loyalty (Asha et al., 2023). Within retail transformation contexts, information sharing and interpersonal interaction significantly influence functional perceived value (with interaction again being most impactful), while pre-purchase preparation shows no statistically significant correlation. The new retail paradigm—distinct from traditional models through its online-offline integration—emphasizes customer agency. Consumers can experience products through omnichannel touchpoints, resolve queries via digital customer service personnel systems, customize logistics through platform interfaces. These services require seamless enterprise-customer communication to prevent dissatisfaction.

Consumer dissatisfaction arises from either service quality deterioration or elevated expectations. Thus, fresh produce e-commerce should meet rational needs as baseline requirements while addressing emotional needs through empathetic supplementary services (Liang et al., 2022; Schwering et al., 2022; Lei Zhang et al., 2022). During exceptional circumstances, providing logistics services with “humanized warmth” helps reconcile psychological expectation gaps, enhancing marginal utility of corporate investments and retaining at-risk customers. For instance, ensuring product freshness, timely delivery, and intact packaging fulfills basic service standards. Future consumption trends emphasize hedonism, where customers increasingly seek “unexpected” emotional fulfillment beyond material satisfaction. E-commerce platforms can elevate satisfaction by offering premium packaging, attentive services, or complementary products, thereby demonstrating corporate ethos and cultivating positive brand perceptions.

As corporate social responsibility (CSR) levels increase, market prices decline while preservation efforts, consumer surplus, market demand, and social welfare all rise. Therefore, from the perspectives of stimulating demand, stabilizing prices, and enhancing social welfare, supply chain members should actively undertake social responsibilities. When fresh produce suppliers

assume CSR, their profits decrease while e-commerce platform profits increase (Nan, 2022; VILLENA, WILHELM, & XIAO, 2021; Yao, Yan, & Liu, 2021). However, platforms should avoid "free-riding" behavior—by appropriately sharing CSR burdens, they can not only boost their own profits but also improve supplier profitability. Under joint CSR adoption with revenue-sharing contracts, the supply chain achieves the lowest market prices, highest preservation efforts, maximum consumer surplus and market demand, and can realize Pareto improvements in member profits under certain conditions. Thus, when Pareto improvement conditions are met, supply chain members should jointly undertake CSR with revenue-sharing mechanisms. Notably, if the revenue-sharing parameter is set too low in such arrangements, supplier profits may decline as platform CSR levels increase, suggesting suppliers should avoid blindly pursuing high revenue-sharing ratios.

Enhancing digital brand for fresh agricultural products to optimize customer retention. The repurchase intention of consumers on fresh agricultural e-commerce platforms fundamentally reflects loyalty to a symbolic construct—a digital brand. This brand identity, manifested through visual logos, typographic elements, or textual identifiers, serves as a critical differentiator in competitive markets. China's agricultural sector currently faces systemic challenges (Zhang et al., 2022), including non-standardized production protocols, fragmented production entities, and inconsistent packaging and cold chain logistics standards. While standardization remains an inevitable evolutionary trajectory for agricultural modernization, its gradual implementation necessitates interim solutions. In this context, brand differentiation emerges as a strategic substitute for standardization during transitional phases.

#### 5.2.2.1 Platform Image of Fresh-food E-commerce Platform

Traditional agricultural product purchasing behaviors occur in physical markets or supermarkets, where consumers assess products through sensory interactions (visual inspection, tactile evaluation, olfactory perception, and taste testing) combined with pricing to determine purchase worthiness. However, in fresh produce e-commerce platforms like online mutton sales, the absence of physical interaction compels consumers to rely heavily on post-purchase experiences shared by others, manifested through visual documentation and textual descriptions in online reviews, to formulate purchase decisions akin to traditional evaluations (WANG & XU, 2022). Platform information quality, system reliability, delivery efficiency, and service standards significantly positively influence consumers' willingness to purchase fresh agricultural products online. In the internet era, consumers prioritize service experience and product diversity, meaning that the service quality and product variety offered by e-commerce platforms elevate perceived utility levels (Zhao, 2022). Consequently, factors ranging from service sophistication to packaging

specifications critically shape purchasing decisions.

As intermediaries bridging supply and demand, third-party platforms must implement strategic measures to enhance information transparency and mitigate information asymmetry. Given escalating public demands for agricultural product safety, e-commerce platforms can leverage interactive mechanisms to provide comprehensive quality assurances. To optimize buyer-seller connectivity, platforms should refine online review interfaces for improved readability and informational utility while strengthening vendor management through mechanisms like financial guarantees. Simultaneously, differentiating logistics performance ratings and expanding quality signaling metrics empower consumers to make informed decisions aligned with safety expectations.

Enhancing platform quality requires comprehensive improvements to service, information, and system quality. As the primary channel for product discovery and purchases, the platform experience directly shapes consumer trust and repurchase likelihood, necessitating continuous quality upgrades (Yu et al., 2019). Equally critical is optimizing after-sales service to eliminate post-purchase concerns. Strengthening product quality oversight is essential—since agricultural product quality significantly impacts repurchases, platforms must enforce strict supplier quality standards and curate vendors accordingly to elevate overall product quality. Innovative marketing approaches can foster trust-building consumption scenarios. Platforms should refine trust mechanisms to deliver superior shopping experiences, implementing supportive sales measures that demonstrate genuine commitment to consumer interests. Additionally, establishing demand-response protocols based on urgency hierarchies can simultaneously boost platform competitiveness and consumer perception, further encouraging repurchase behavior. This multi-dimensional approach addresses both functional and psychological drivers of customer retention in fresh produce e-commerce.

The platform's service quality directly determines consumers' willingness to purchase and repurchase online, as well as their overall evaluation of the fresh produce e-commerce service. However, as the e-commerce development of fresh products is still in its exploratory phase with many systems yet to be perfected, the current customer base remains limited, leaving enormous consumption potential untapped (Hao & Xiaohong, 2022). The fresh produce e-commerce industry should establish self-regulatory organizations to further standardize corporate practices. For instance, industry leaders could initiate such organizations, composed of voluntary members from across the sector. Under the framework of national industry regulations, these organizations would set standards for market entry thresholds, exit mechanisms, product qualification criteria, and supervision systems, all aimed at providing consumers with high-quality fresh produce services. Lastly, it is essential to enhance customer-centric and compliance awareness among all participants

in the fresh produce e-commerce supply chain, fostering a culture of strong professional ethics. Industry associations or enterprises could conduct regular or ad hoc assessments of employees' professional competence and ethical standards across supply chain companies, while refining incentive and penalty mechanisms to ensure accountability.

Accelerating the standardization of fresh agricultural products is imperative. A comprehensive and unified standard system can not only enhance the brand image of merchants but also effectively reduce consumers' perceived risks. At the national level, specific laws and regulations should be enacted to fundamentally regulate and constrain fresh produce e-commerce. Relevant authorities must establish authoritative standards to ensure an orderly and compliant fresh produce market. Platforms should strictly control market entry, permitting only products with green or organic certifications to qualify, while granting premium display opportunities to high-quality merchants to ensure consumer confidence in both purchasing and consumption (Wang et al., 2021). Additionally, platforms should formulate corresponding terms based on applicable laws and practical considerations to better safeguard the rights and interests of both merchants and consumers. Finally, merchants must rigorously adhere to self-regulation (Dong, Zhao, & Li, 2022).

Enriching product display information and ensuring its authenticity are essential. Merchants should provide objective and detailed product descriptions, including weight, sweetness, and packaging, along with clear and comprehensive explanations of promised services. Simultaneously, various regulatory bodies must actively fulfill their supervisory roles. Through technological means such as big data and QR codes, consumers can trace the origins of fresh agricultural products. All relevant information from production to presale is recorded in the cloud, enabling consumers to instantly access details such as the product's "production date, storage methods, and inspection status" by scanning the code, thereby maximizing the transparency of production information. Products should be reasonably priced, and orders should be dispatched promptly after purchase. This approach significantly reduces uncertainty during online purchases of fresh agricultural products, consequently lowering perceived risks.

#### 5.2.2.2 Customer Trust of Fresh-food E-commerce Platform

Platform quality, perceived quality, and consumer trust all exert significant positive effects on repurchase behavior in fresh produce e-commerce, with consumer trust serving as a mediating factor between platform quality/perceived quality and repurchase behavior. Consumers' increasingly stringent quality demands mean that higher platform quality directly reinforces repurchase behavior. Perceived quality plays an equally crucial role—as expectations for agricultural product quality and safety rise, meeting these perceived quality standards directly stimulates repurchases. Notably, consumer trust itself drives repurchase behavior (Kooli et al.,

2014). The trust established during the pandemic, for instance, continues to influence post-pandemic repurchase intentions when similar needs arise.

Consumer sentiment is shaped by product attributes and associated services, with emotional intensity determining attitudes toward retailers. China's economic development and consumption evolution reveal two critical trends: First, as income levels rise and basic consumption needs have been largely met, consumers increasingly prioritize quality across both tangible goods and integrated pre-sales, in-sales, and after-sales services. Younger demographics particularly emphasize experiential offerings, where consumption decisions are often driven by pleasure derived from experiential engagement. Simultaneously, heightened awareness of consumer rights has accelerated after-sales service upgrades. Retailers leveraging emerging retail technologies to enhance technology-driven initiatives can effectively bolster consumer trust. Second, widespread productivity improvements and digitalization enable retailers to adopt smart vending machines, self-checkout systems, and intelligent logistics through market platforms, thereby enhancing shopping convenience and expanding customer bases.

Most fresh-food E-commerce platforms are comprehensive with amassed a substantial user base of high loyalty while attracting numerous merchants (eMarketer, 2021). Its competitive advantage lies in providing extensive online retail services characterized by a diverse range of fresh products, establishing it as the predominant channel for consumers purchasing perishables online. However, under this merchant admission model, the platforms' oversight capability remains constrained to initial qualification verification, with limited capacity for end-to-end monitoring of product quality and logistics performance. This operational autonomy inevitably compromises customer experience, particularly critical for fresh food products where consumers maintain stringent expectations for product quality and safety. Suboptimal experiences erode consumer trust and exacerbate dissatisfaction.

Implementing third-party certification mechanisms to safeguard consumer privacy and strengthen trust constitutes an essential developmental strategy. As platforms scale, they must intensify privacy protection measures through multi-dimensional security enhancements, establishing secure transaction systems that responsibly utilize personal data while delivering safer personalized services. Concurrently, clearly displaying third-party certification logos and strengthening supplier partnerships can reduce perceived risks, thereby boosting purchase intention and satisfaction.

#### 5.2.2.3 Supply Chain Management of Fresh-food E-commerce Platform

In the digital economy era, fresh produce e-commerce has faced criticism regarding delivery efficiency, product quality, and safety issues, all of which negatively impact consumer

shopping experiences and demand. If fresh produce e-commerce platforms fail to optimize their supply chains for better product selection, integrate sales channels, and streamline logistics, they risk escalating costs and losing customers. Therefore, enhancing consumer experience and loyalty by offering diversified and convenient options, thereby effectively boosting consumption and value, remains a long-term priority for the industry (Liu, Xi, & Wang, 2023; Nayal et al., 2022). Moreover, against the backdrop of rapid internet development and rising disposable incomes in China, consumer self-awareness has strengthened. The focus of consumption has shifted beyond price to emphasize the overall shopping experience. The advent of the digital economy is set to transform consumption structures and behaviors, driving fresh produce e-commerce platforms to adopt innovative models centered on improving consumer experience. Strategies such as digital livestreaming for customer engagement, building highly interactive digital communities to foster loyalty, and enhancing omnichannel experiences will be key to reshaping consumer value. By leveraging the advantages of both online and offline commercial scenarios, platforms can create a more compelling and seamless service environment for consumers (Peng, 2023; Tiganis et al., 2023).

The supply chain system of fresh food e-commerce enterprises plays a vital role in ensuring product quality and safety. Covering all links from production to sales, including suppliers, warehousing, logistics, and distribution, establishing a sound supply chain system is crucial for the stable development of fresh food e-commerce platforms. Meanwhile, digitalization and intelligentization of the supply chain represent future trends. Driven by digital technologies, this has stimulated cross-border integration and evolution across various segments such as supply, circulation, and retail in the fresh food e-commerce sector, while also posing significant challenges to the cross-border integration of supply chains. Many fresh food e-commerce enterprises have exposed numerous issues, including platform “order surges,” supply “shortages,” logistics “disruptions,” unstable product quality and sourcing, as well as high operational costs. They will continue to face long-term challenges in product supply, cost control, and efficiency improvement. The explosive growth in demand for fresh food e-commerce has compelled enterprises to upgrade their supply chains and operational capabilities (Shekarian, Ijadi, Zare, & Majava, 2022). This requires fresh food e-commerce companies to leverage digital technologies to transform the fresh food industry chain, reduce intermediate links, and address shortcomings in cold chain logistics. Adopting an ecological mindset and establishing more harmonious relationships among supply, production, and sales to enhance operational efficiency are key focuses for reconstructing the value of the fresh food e-commerce industry chain.

The unique characteristics of fresh produce impose heightened demands on logistics

and distribution, while modern information technologies such as the internet provide technical support for establishing efficient and convenient logistics systems. However, the current intelligent logistics infrastructure remains underdeveloped with high technological costs, resulting in low adoption rates that hinder the growth of fresh produce e-commerce under the new retail paradigm (Wijaya, 2023). Solutions should focus on the following aspects: First, deepening the integration of “internet + logistics” to advance intelligent logistics development. Major logistics companies with sufficient capital and R&D capabilities should drive technological innovation according to industry needs, including the development of platform operating systems, quality monitoring systems, and logistics/warehousing hardware and software solutions. Optimizing the product distribution network is critical for improving efficiency. Given the perishable nature of fresh produce, reducing delivery cycles is essential to minimize product damage and maintain freshness. In densely populated areas, community-based logistics systems should be established to provide convenient last-mile delivery services that maximize distribution efficiency.

Strengthening omnichannel supply chain management to enhance product quality is crucial for fresh produce e-commerce platforms, whose operations involve multiple interdependent stakeholders sharing benefits and risks. Integrated supply chain optimization with effective coordination among all parties can establish synergistic mechanisms that simultaneously improve product quality, reduce operational costs, and increase efficiency and market share.

First, establishing a collaborative supply chain mechanism is essential for collective quality improvement. This can be achieved by forming an alliance of supply chain participants, with representatives from each segment negotiating routine matters. The alliance should develop industry-aligned standards, entry thresholds, incentive/disincentive mechanisms, profit-sharing models, and accountability frameworks to ensure consistent product quality. Additionally, engaging professional third-party institutions for supply chain management, overseen by a supervisory board comprising alliance members, ensures both impartiality and operational expertise.

Second, advancing intelligent supply chain applications is imperative. Leveraging big data, IoT, and cloud computing technologies enables transparent data sharing across all supply chain stages. This not only clarifies accountability but also provides consumer market insights, allowing timely operational adjustments to deliver more satisfactory products and services.

Finally, optimizing product structures according to regional preferences enhances service quality. Given significant variations in consumer habits, preferences, and demand patterns across regions, localized supply strategies tailored to demographic consumption levels and preferences are necessary to refine product offerings and elevate service standards.

In the digital economy era, fresh food supermarkets and neighborhood stores that

primarily operate offline are also accelerating their digital transformation (Liu et al., 2023). By leveraging fresh food—a high-frequency consumption category—as an entry point and capitalizing on their first-mover advantage in offline presence, they are actively capturing the new “community-based service” scenario (Liang et al., 2022), thereby compelling fresh food e-commerce enterprises to rethink channel innovation. With the rapid advancement of internet and information technologies, consumer demand for fresh food has evolved to prioritize “safety,” “convenience,” and “community-centric” experiences. Online channels such as mini-programs, e-commerce platforms, and third-party marketplaces enhance shopping convenience, while offline community stores and self-service fresh food equipment cater to the “community-centric” need for accessibility. Whether transitioning from online to offline or vice versa, the integration of online and offline channels will be the direction for reconstructing the channel value of fresh food e-commerce enterprises in the digital economy era. Exploring how to build an omnichannel network for fresh food products—using apps and digital communities as key tools—integrating offline community-based fresh food supermarkets and small stores, and applying technologies like IoT, big data, and cloud computing to innovate traditional business models will provide fresh perspectives for fresh food e-commerce enterprises in redefining their channel strategies.

Establishing an industry big data platform for operational efficiency. Consumer purchase decisions and loyalty in fresh produce e-commerce hinge primarily on price, quality, and safety, with convenience and delivery speed now meeting baseline expectations. Cost reduction can be achieved through bulk procurement and waste minimization on the supply side, coupled with precise demand forecasting across regions and timeframes. Given the perishable nature of fresh goods, minimizing transfers—ideally to a single warehouse near consumers—requires accurate endpoint inventory predictions and optimized routing (Kuwornu et al., 2023; Liu et al., 2023). This necessitates a centralized big data platform, facilitated by a coalition of government bodies, industry associations, and leading enterprises, to consolidate and analyze fragmented supply sources, distribution channels, and retail data. Real-time information exchange between retail endpoints and customers further enhances system responsiveness.

### **5.2.3 Solutions**

#### **5.2.3.1 Improve Platform Image of Fresh-food E-commerce Platform**

Amid intensifying competition and severe product homogenization in the fresh produce e-commerce sector, platforms must adopt differentiated strategies to secure competitive advantages and cultivate customer loyalty. To achieve this, fresh e-commerce enterprises should

concurrently enhance consumer trust and satisfaction while elevating brand reputation. Implementing loyalty point systems and tiered membership programs can foster unique consumption stickiness, establishing habitual purchasing patterns (Wang et al., 2021). Simultaneously, strengthening interactive engagements within virtual brand communities amplifies their social value, informational value, and entertainment value. These strategies collectively nurture members' emotional attachment to the platform and reinforce brand allegiance, ultimately incentivizing sustained purchasing behavior and platform dependency.

Strategic emphasis should be placed on cultivating customer perceived value through dual optimization of utilitarian and hedonic dimensions. The utilitarian dimension manifests in consumers' emphasis on efficient product evaluation and selection processes. Agricultural e-commerce enterprises could implement the following enhancements: firstly, optimizing supply chain optimization, specifically establishing direct partnerships with production origins to streamline distribution channels, reduce intermediary costs, and enhance perceived cost-effectiveness. Secondly, implementing market segmentation. E-commerce enterprises should implement precise consumer targeting strategies to facilitate efficient platform navigation for specific customer cohorts. Thirdly, developing interactive platform development by strengthening website functionality to aid agricultural product assessment. To boost hedonic value, enterprises should innovate marketing models by offering distinctive products, establishing culturally enriched brand identities to foster brand loyalty, and creating differentiated experiences through curiosity-driven activities or novel purchasing interactions to deliver fresh and enjoyable shopping experiences (X.-y. WANG & XU, 2022).

Customer service perception must be prioritized through three initiatives: continuously upgrading transaction, logistics, and payment technologies to safeguard data security; strengthening user experience assessments to evaluate perceptions of service professionalism, reliability, responsiveness, convenience, and safety; and incentivizing value co-creation through coupon distribution, virtual communities, and gamified engagement strategies in customer satisfaction surveys.

From operational perspectives, merchants should prioritize two strategic approaches: Firstly, providing customers with high information literacy levels with enhanced decision-making information concerning pricing strategies and fair-trade practices (Lei Zhang et al., 2022). This necessitates elevating information transparency to eliminate cognitive misunderstandings and biases. Secondly, implementing rational pricing mechanisms and preferential policies to reinforce brand relationships with low-information-literacy customers. Such measures aim to reduce customer attrition, strengthen brand attachment, and effectively mitigate the intensifying effects of

information literacy disparities on the negative impacts of big data-enabled price discrimination—particularly regarding customers’ extra-role behaviors and brand loyalty (Ballerini, Yahiaoui, Giovando, & Ferraris, 2023).

Enhancing the descriptive standards for fresh products. Fresh products differ fundamentally from standardized commodities due to their multi-category nature and heterogeneous quality benchmarks, which directly determine their market value. For instance, in fruit products, pricing varies significantly based on varietal specifications, appearance (e.g., glossiness), morphological characteristics, and size gradations. Current e-commerce platforms exhibit fragmented descriptive standards for fresh products, necessitating the establishment of unified, category-specific guidelines.

Enhancing advertising creativity to elevate E-commerce platform brand image. Given the extensive product variety on e-commerce platforms, creatively designed advertisements can capture greater consumer attention, thereby bolstering shopping confidence. Platform operators should prioritize innovative advertising strategies by incorporating multimedia elements such as animations and videos to deliver diversified product information. This approach enhances product impression retention among consumers, increases purchase likelihood, and ultimately strengthens brand loyalty.

Strengthening technological capabilities is crucial. Given the ever-changing consumer demands, fresh produce e-commerce platforms require superior computational capabilities to match consumption needs across different regions, time periods, and customer segments, while achieving cost-effective end-to-end distribution through logistics network optimization. This necessitates the establishment of advanced technological support platforms to meet enterprise marketing requirements. By fully leveraging modern technologies such as blockchain, the Internet of Things, and cloud computing, digitalized, automated, and intelligent operational systems can be created to achieve seamless online-offline integration, providing customers with timely and efficient fresh produce consumption services.

The development of big data and artificial intelligence technologies is essential for constructing and refining the information-sharing ecosystem within fresh produce e-commerce. This system integrates resources from farmers, platforms, and consumers, enabling the digital networking of agricultural data and platform services. By leveraging big data analytics to examine consumer order frequency, volume, transaction values, and temporal purchasing patterns, the system achieves predictive insights into fresh produce consumption behaviors across cities, regions, and timeframes. Such analytics enable precise demand forecasting, real-time consumer behavior tracking, and end-to-end quality control, ensuring optimal alignment between supply and demand

for diverse products in varied urban contexts. For e-commerce platforms, the system enhances operational efficiency by predicting market prices, regulating procurement volumes, and minimizing storage losses through data-driven inventory management (Hao & Xiaohong, 2022; Schwering et al., 2022). Producers benefit from transparent price signals and demand trends transmitted directly from end-consumers, bypassing traditional intermediaries like wholesalers to achieve supply chain symmetry. Consumers gain access to personalized services by submitting customized product requests through the platform, which are then relayed to producers, eliminating redundant distribution layers and achieving demand-supply optimization. This tripartite integration fosters a responsive, waste-minimized ecosystem where data transparency empowers all stakeholders.

Promoting open collaboration and diversified profit models. The capital-intensive nature, fragmented supply sources, and multi-tiered industrial chain of fresh produce e-commerce preclude monopolistic dominance or comprehensive control by any single entity. Stakeholders—including origin suppliers, logistics firms, e-commerce platforms, and retail outlets—must leverage their respective strengths to achieve mutual benefits. For instance, while platforms excel in process management and service delivery, they lack the capacity to independently operate high-density community stores that cater to consumers preferring in-store pickup or selection (TU et al., 2021). Thus, collaboration with retailers becomes imperative. Similarly, the logistics ecosystem is evolving toward a hybrid model combining self-operated, third-party, and government-supported infrastructure, rendering monopolization unfeasible. Fresh produce e-commerce firms must therefore adopt an open mindset, critically assess their evolving roles and competitive advantages within the ecosystem and develop adaptive business models to navigate industry dynamics.

#### 5.2.3.2 Improve Quality of Fresh-food E-commerce Platform

Efforts should focus on enhancing service quality, where efficiency and transaction fulfillment play pivotal roles. To meet efficiency requirements, agricultural e-commerce platforms must ensure operational simplicity, enabling customers to effortlessly locate desired products or content, thereby increasing retention rates and engagement duration. Clear website architecture with logical information hierarchies enhances usability and encourages continued browsing and purchasing. Platforms should deliver targeted, diverse content tailored to specific customer segments, coupled with timely updates to align with evolving needs (Lei Zhang et al., 2022). As website accessibility initiates the e-commerce journey, these optimized experiences facilitate intuitive and efficient product evaluation and selection. Transaction fulfillment primarily manifests through order delivery and logistics management, necessitating strict adherence to promised delivery terms and accurate product representation that matches visual descriptions. Timely

logistics delivery within reasonable timeframes remains critical, particularly given agricultural products' regional and seasonal characteristics (Liang et al., 2022). While large enterprises often maintain proprietary logistics systems, most agricultural e-commerce operators rely on third-party logistics partnerships. To ensure delivery punctuality, businesses should strategically leverage third-party capabilities under collaborative frameworks to strengthen competitive advantages, while adopting innovative models like crowdfunding or online pre-sales to optimize supply chain efficiency.

While maintaining baseline service quality, heightened emphasis should be placed on optimizing online fresh agricultural product shopping experiences (Ji, 2020; Kuwornu et al., 2023). Accelerating lifestyles and evolving purchasing habits among younger demographics have propelled online fresh produce procurement into a prevailing trend, with product selection diversity, supply chain reliability, shopping convenience, product freshness, and logistics service quality critically shaping customer satisfaction. Leading fresh e-commerce platforms achieve competitive differentiation through 24/7 order placement systems, precision-timed deliveries, and cold-chain integrity preservation, effectively addressing consumers' quality assurance demands. Perceived usability and entertainment value emerge as significant satisfaction determinants, necessitating dual strategic emphases in platform design: Primarily, interface simplification for intuitive navigation; secondarily, the integration of interactive engagement elements. Innovative implementations include QR code-enabled traceability systems revealing production origins and growth cycles, which enhance consumer knowledge and shopping enjoyment. Advanced platforms further elevate experiential value (Song & Xu, 2022) through value-added services such as pre-processed ingredient kits (washed, cut, and recipe-matched), coupled with culinary tutorials that transform routine purchases into participatory gastronomic journeys. These experiential enhancements reconceptualize online fresh grocery shopping from transactional necessity to leisure-oriented activity, thereby fostering emotional resonance and sustained patronage.

Enhancing service quality through customer perception optimization is critical for fresh produce e-commerce platforms. Compared to traditional sales models, the customized, diversified, convenient, and interactive features of fresh produce e-commerce appeal to consumers. Platforms should innovate service models to deliver differentiated experiences by aligning with customer demands. Specifically, as customer perceived value stems from comparisons between expectations and actual functional/emotional value, platforms can adopt novel approaches such as influencer livestreams, digital avatar broadcasts, and VR panoramic streaming (Ahmad et al., 2023; D. Chen, 2023). These methods enable task-oriented or relationship-driven dissemination of product experiences, while real-time interactions via comments and bullet chats foster authentic,

immediate, and engaging shopping experiences. Organizing virtual community activities further satisfies consumers' entertainment, social, and purchasing needs, strengthening emotional bonds and loyalty.

Developing smart after-sales service systems proves vital for loyalty enhancement. Research confirms that new retail technologies facilitate loyalty through improved after-sales mechanisms. Retailers should implement smart product traceability systems with intelligent labeling across supply chains, enabling real-time querying and rapid issue resolution. Smart after-sales consultation systems must address urgent logistics inquiries and product functionality questions promptly to optimize user experience. Furthermore, automated compensation mechanisms should scientifically assess consumer losses, providing timely logistical and psychological remedies to maximize satisfaction. This technological integration transforms after-sales services into strategic loyalty-building tools within new retail ecosystems.

Strengthening quality control across supply chain operations. Quality management constitutes a critical determinant in perishable goods industries, exerting substantial influence on merchant reputation. Platform-registered vendors must transcend reliance on platform credibility and implement rigorous quality control measures throughout procurement, warehousing, and logistics phases (Uzir et al., 2021). Merchants must implement enhanced quality control protocols across three critical operational phases, such as procurement oversight through assignment of specialized quality inspectors to production origins, ensuring rigorous verification of raw material quality, improving warehousing optimization via selection of industrial-grade storage facilities featuring segregated zones and tri-modal temperature regulation systems (ambient, refrigerated, frozen) compliant with food safety standards and enhancing logistics collaboration through strategic alliances with accredited third-party providers, accompanied by implementation of blockchain-enabled traceability systems for real-time shipment monitoring.

Optimizing after-sale service management with defined compensation protocols. As biologically active commodities with limited shelf stability, fresh products typically fall outside standard seven-day return policies. The multi-node distribution chain from merchant to consumer complicates liability determination, often resulting in merchant accountability evasion and partial consumer compensation. Platform operators should implement mandatory arbitration mechanisms for dispute resolution, insurance-backed compensation systems guaranteeing full refunds for quality-compromised products.

Personalized services and exclusive benefits critically shape loyalty (El-Adly, 2019; Naini et al., 2022). Implementing one-to-one customized services and personalized advertising represents a foundational strategy. Leveraging customer databases for granular operations enables

precise identification of consumer needs, facilitating tailored service and product offerings. Membership systems should be prioritized, providing tiered benefits beyond basic services. Effective customer segmentation, emphasizing exclusive member privileges, can be optimized through the RFM (Recency, Frequency, Monetary) model from customer relationship management. By systematically analyzing customers' recent purchase behaviors, transaction frequency, and expenditure levels, enterprises can establish individualized databases to deliver targeted high-value services, thereby accentuating membership exclusivity.

Improving product quality to strengthen customer loyalty. Superior product quality serves as a critical determinant in earning customer acclaim. High-quality offerings not only enhance market competitiveness but also help enterprises cultivate latent customer bases. E-commerce platforms must intensify innovation efforts to optimize product quality and functionality, thereby addressing evolving consumer demands (Keshavarz & Jamshidi, 2018; Kuwornu et al., 2023). By prioritizing quality enhancements, platforms can attract broader consumer engagement and foster sustained customer loyalty. Optimizing after-sales services to boost shopping confidence. Customer trust in e-commerce platforms diminishes when post-purchase inquiries or dissatisfaction arise, directly undermining loyalty. To mitigate this, platforms must refine after-sales service protocols, ensuring prompt resolution of user concerns. Proactive service improvements elevate customer satisfaction levels, which in turn reinforce long-term loyalty and platform commitment.

#### 5.2.3.3 Improve Customer Trust of Fresh-food E-commerce Platform

As competition in the fresh produce e-commerce sector intensifies and product homogeneity becomes more pronounced, companies must differentiate themselves to enhance competitiveness and foster customer loyalty (Yu et al., 2019). Beyond improving consumer trust and satisfaction with the platform, building brand reputation is equally critical. Strategies such as implementing loyalty programs, membership systems, and other exclusive incentives can create unique consumer stickiness. Additionally, fostering interaction within virtual brand communities can elevate their social, informational, and entertainment value. This approach strengthens members' emotional attachment to the platform and reinforces brand loyalty, encouraging continued patronage of the fresh produce e-commerce website.

Effective governance across the entire supply chain from production to consumption is imperative to ensure service quality assurance and enhance consumer trust in fresh e-commerce platforms. Platform trustworthiness constitutes a critical determinant for consumers' continued patronage of online fresh produce purchases, particularly given the unique characteristics of agricultural products. China's fragmented agricultural production systems and inherent

standardization deficits render quality control and quantity consistency during production stages exceptionally challenging (Zhang et al., 2022). This necessitates fresh e-commerce enterprises to implement comprehensive supply chain control through vertical integration spanning production, processing, and distribution phases. The perishable nature of fresh agricultural products complicates logistics operations, making quality-assured delivery particularly challenging. While numerous third-party logistics (3PL) providers specialize in cold-chain distribution within China (Xu, 2022), regulatory oversight limitations persist. Fresh e-commerce operators must therefore adopt dual strategies: strategically leveraging 3PL partners' operational capacities while cultivating distinctive competitive advantages. Innovative supply chain optimization models—including community-based delivery networks, crowdfunding initiatives, and online pre-sales mechanisms—can further enhance system resilience and service reliability.

Fresh agricultural product providers must focus on enhancing delivery service trustworthiness and reducing perceived logistics risks to foster repeat purchase intentions (LAI, ZHOU, CHEN, & HU, 2023; Liu et al., 2023). Rural e-commerce platforms can implement post-purchase service quality rating features, allowing consumers to evaluate their experiences, thereby accumulating service credibility. Positive trust-related reviews and experience-based evaluations displayed on platforms incentivize subsequent purchases by demonstrating reliability. Furthermore, transparently showcasing detailed and secure logistics processes—such as real-time tracking, temperature-controlled transportation, and handling protocols—within platform interfaces helps mitigate perceived delivery risks. This visibility into operational safeguards aligns consumer expectations with service realities, effectively boosting purchase intent and reinforcing platform loyalty through demonstrated accountability.

#### 5.2.3.4 Improve Supply Chain Management of Fresh-food E-commerce Platform

Building an integrated industrial chain is essential for fresh produce e-commerce platforms, whose value stems from two main aspects: compressing intermediate distribution links and providing convenient consumption channels for consumers (Jiawei & Yubing, 2022; Liu, Liu, & Gao, 2022; Song et al., 2022). To achieve long-term development, these platforms must implement integrated management across the industrial chain, streamline each stage of fresh agricultural product circulation, reduce operational costs by optimizing commercial distribution processes, and ultimately realize profitability. On one hand, it is necessary to establish direct connections between producers and consumers, continuously reducing intermediate distribution links; on the other hand, the logistics network system must be constantly optimized. One approach involves achieving mutual benefits through collaboration with third-party logistics providers, while another entails establishing a self-built logistics system to complete the industrial chain framework

and form a closed-loop circulation.

To elevate service quality, comprehensive supply chain optimization is essential, including diversified sourcing, intelligent and green logistics infrastructure, product traceability systems, and standardized pricing and quality controls to ensure food safety. Platform development requires strategic long-term planning, operational model optimization, and the integration of AI-driven customer service technologies to enhance professional competencies

Improving platform infrastructure and commercial innovation capabilities remains essential (Wang et al., 2021). Previous research identifies four core competitiveness factors: supporting facilities, operational management, profitability, and supply chain capabilities. Platforms should prioritize infrastructure upgrades, including optimized cold chain logistics, hygienic offline store designs, and user-friendly amenities to enhance shopping environments. Strengthening supply chain coordination, drone logistics partnerships, and staff training improves operational efficiency. Additionally, adopting innovative models like front warehouses, community stores, and group purchasing ensures diversified growth. Integrating Retail AI Network (RAIN) technologies enables digital transformation of traditional markets, while advancing smart supply chains, logistics, and marketing systems fosters sustained commercial innovation.

Fresh-food e-commerce platforms must ensure stable supply and freshness of agricultural products while prioritizing packaging design tailored to product characteristics (Jiawei & Yubing, 2022; Liu et al., 2022). For instance, fresh aquatic products should be packaged with cooling materials such as ice packs and insulated containers to maintain optimal temperatures. Stale inventory must be systematically excluded to uphold consumer trust and purchase intentions. Optimizing the last-mile delivery phase for fresh agricultural products requires consumer-centric approaches, including the implementation of user-friendly feedback mechanisms to address the time-sensitive nature of perishable goods, ensuring prompt resolution of returns and exchanges. Fresh-food e-commerce platforms must guarantee geographically rational delivery distances by integrating customizable scheduling and location selection features into platform/app designs, enabling flexible consumer choices. Concurrently, platforms should establish well-integrated communication channels that provide immediate responses to user feedback or, when delays occur, clearly communicate expected resolution timelines to maintain transactional transparency and trust.

Optimizing strategic positioning through refined market segmentation and deepening niche market penetration remain critical for fresh produce e-commerce development. Despite diversified downstream supply chain models—including regional vertical integration, front warehouses, “online-offline” retail hybrids, and community group-buying systems—the industry

lacks a stabilized competitive landscape. Platforms must promptly recalibrate strategic directions and business models upon identifying misalignments, while continuously enhancing supply chain modularization. For instance, Pinduoduo's fresh produce group-buying strategy strategically diverts from Tier 1-3 city markets dominated by Tmall Fresh and JD Fresh, targeting instead consumers in Tier 4-5 cities and rural markets. This tactical repositioning has driven significant revenue growth in fresh agricultural sales, demonstrating the efficacy of adaptive market segmentation in unlocking underserved demand.

Establishing an intelligent end-to-end monitoring system is crucial for enhancing cold chain logistics management through advanced temperature control technologies (Kuwornu et al., 2023; Peng, 2023; Song et al., 2022). This system implements comprehensive supervision across the entire fresh agricultural product supply chain - from production, packaging, and loading to transportation, warehousing, distribution, and retail - ensuring quality safety while minimizing spoilage rates. By integrating artificial intelligence with precision temperature-control technologies, the system achieves seamless cold chain management throughout all operational phases including sorting, handling, and storage. This enables scientific categorization and management of various fresh products (vegetables, fruits, meat, poultry, eggs, aquatic products, etc.), ensuring optimal temperature maintenance at every stage to dramatically reduce product loss.

Developing direct sourcing models from production origins under long-term contractual relationships represents another critical advancement, extending supply chain optimization to the production end. Leveraging economies of scale in procurement, fresh produce e-commerce platforms can establish stable cooperative agreements with production bases. Through big data analytics, these platforms accurately predict market demand and price trends, transmitting this intelligence directly to producers. In turn, contracted production bases supply high-quality, safe agricultural products consistently. This direct-sourcing model eliminates multiple intermediary layers, reducing both transportation time and costs while guaranteeing product quality and safety (Tiganis et al., 2023). Furthermore, it enables risk-sharing across the supply chain, lowers overall operational costs, increases collective revenue, and creates win-win outcomes for all participants in the value chain. The combined implementation of intelligent monitoring and direct sourcing models establishes a robust, efficient, and sustainable ecosystem for fresh produce e-commerce.

The perishable nature of fresh agricultural products complicates logistics operations and makes quality assurance in delivery challenging. China has numerous third-party logistics providers specializing in distribution, yet effective oversight remains difficult (H.-t. Xu, 2022). Therefore, fresh produce e-commerce companies must strategically leverage the capabilities of third-party logistics while simultaneously strengthening their own competitive advantages.

Alternative models such as community-based delivery, crowdfunding, and online pre-sales can also be employed to optimize supply chain efficiency.

Enhancing the quality of cold chain logistics is essential for ensuring the foundation of the fresh produce e-commerce industry. Continuous improvements must be made to the logistics system for fresh agricultural products, with refrigeration technology at its core (LAI et al., 2023; J. Liu et al., 2023). First, infrastructure should be continuously upgraded, and the road network expanded. This includes appropriately widening rural production roads, deepening the construction of grassroots road networks, developing high-quality agricultural parks, and increasing investment in cold chain logistics equipment. Second, the standardization of cold chain logistics must be strengthened to enhance its scientific rigor, improve coordination among various logistics nodes, and boost overall efficiency. Additionally, efforts should be made to advance the internationalization of cold chain logistics by integrating global standards, thereby improving its international competitiveness.

#### 5.2.4 Limitations and Suggestions for Future Studies

For the limitations, several aspects should be mentioned. Firstly, the target respondents are those who have experience of buying fresh food from any of the online platforms. According to two reports by Ariadne and Econet Qianfan, fresh food e-commerce users are mainly young people with a high level of education. Therefore, the main respondents of this study were university students and working people. They are characterized by a high level of personal innovation and a positive and optimistic attitude towards new information technologies. Using the platform allows them to buy their favorite fresh food and enjoy the convenience of service without having to leave home. However, those common people with lower education levels who also consumed on the platforms should also be investigated and studied their opinions.

Secondly, some aspects should be further investigated and studied such as the influence of trust on the customers loyalty. Customer trust significantly enhances customer loyalty, serving as a mediating mechanism between service rituals and sustained brand allegiance. When retail enterprises effectively implement service rituals to secure customer trust, customers voluntarily maintain close relationships with the business, even overcoming purchasing obstacles to acquire products from trusted retailers (Joo & Han, 2021; Unidha & Sentani, 2017). This mutual commitment facilitates deeper enterprise-customer bonds, incentivizing retailers to deliver personalized products and services that further reinforce loyalty. In the future, further studies can dig out the more details relating to the trust of customers.

## REFERENCES

- Aghekyan-Simonian, M., Forsythe, S., Kwon, W. S., & Chattaraman, V. (2012). The role of product brand image and online store image on perceived risks and online purchase intentions for apparel. *Journal of Retailing and Consumer Services*, 19(3), 325–331. doi:<https://doi.org/10.1016/j.jretconser.2012.03.006>
- Agus, A. A., Yudoko, G., Mulyono, N., & Imaniya, T. (2021). E-commerce performance, digital marketing capability and supply chain capability within e-commerce platform: Longitudinal study before and after COVID-19. *International Journal of Technology*, 12(2), 360–370.
- Ahmad, A. H., Muregesu, Y., Masri, R., Shamsudin, M. F., & Yazid, M. F. M. (2023). Does Customer Perceived Value Sway Customer Satisfaction and Post Purchase Intentions? Evidence from Online Shopping in Malaysia. *International Journal of Economics, Business and Innovation Research*, 2(01), 1–16. doi:<https://doi.org/10.3390/su15087022>
- Aimin, D., Bao, T., & Yingying, M. (2014). Empirical Study of Influential Elements of E-loyalty. *Chinese Journal of Management Science*, 22(6), 94–102.
- Aksoy, L. (2013). How do you measure what you can't define? The current state of loyalty measurement and management. *Journal of Service Management*, 24(4), 356–381. doi:<https://doi.org/10.1108/JOSM-01-2013-0018>
- Ali, R., Leifu, G., YasirRafiq, M., & Hassan, M. (2015). Role of perceived value, customer expectation, corporate image and perceived service quality on the customer satisfaction. *Journal of Applied Business Research (JABR)*, 31(4), 1425–1436. doi:<https://doi.org/10.19030/jabr.v31i4.9328>
- Anderson, E. W., & Fornell, C. (2000). Foundation of American customer satisfaction index. *Journal of Total Quality Management*, 11(7), 869–882.
- Anderson, R. E., & Srinivasan, S. S. (2003). E-satisfaction and e-loyalty: A contingency framework. *Psychology & marketing*, 20(2), 123–138. doi:<https://doi.org/10.1002/mar.10063>

- Andreassen, T. W., & Lindestad, B. (1997). Customer loyalty and complex services, the impact of corporate image on quality, customer satisfaction and loyalty for customers with varying degrees of service expertise. *International Journal of Service Industry Management*, 4, 1–33.
- Andreassen, T. W., & Lindestad, B. (1998). Customer loyalty and complex services: The impact of corporate image on quality, customer satisfaction and loyalty for customers with varying degrees of service expertise. *International Journal of service Industry management*, 9(1), 7–23. doi:<https://doi.org/10.1108/09564239810199923>
- Andreassen, T. W., & Lindestad, B. (1998). The effects of corporate image in the formation of customer loyalty. *Journal of Service Research*, 1(1), 82–92.
- Asai, A., Nakayama, T., & Naito, M. (2003). Ethics in questionnaire-based research. *Eubios Journal of Asian and International Bioethics*, 13(4), 147–151.
- Asha, A. A., Dulal, M., & Habib, A. (2023). The influence of sustainable supply chain management, technology orientation, and organizational culture on the delivery product quality-customer satisfaction nexus. *Cleaner Logistics and Supply Chain*, 7, 100107.
- Ashfaq, M., Yun, J., Waheed, A., Khan, M. S., & Farrukh, M. (2019). Customers' expectation, satisfaction, and repurchase intention of used products online: Empirical evidence from China. *Sage Open*, 9(2), 2158244019846212. doi:<https://doi.org/10.1177/2158244019846212>
- Askariadz, M. H., & Babakhani, N. (2015). An application of European Customer Satisfaction Index (ECSI) in business to business (B2B) context. *Journal of Business & Industrial Marketing*, 30(1), 17–31. doi:<http://dx.doi.org/10.1108/JBIM-07-2011-0093>
- Aydin, S., & Özer, G. (2005). National customer satisfaction indices: an implementation in the Turkish mobile telephone market. *Marketing Intelligence & Planning*, 23(5), 486–504.
- Bai, Q., Nikilaidis, Y., Mingyuan, C., & Xu, J. (2021). Improving sustainability and social responsibility of a two-tier supply chain investing in emission reduction technology. *Applied mathematical modelling*, 95(7), 688–714.
- Ball, D., Coelho, P. S., & Macha's, A. (2003). The role of communication and trust in explaining customer loyalty, an extension to the ECSI model. *European Journal of Marketing*, 38(9), 1272–1293.
- Ballerini, J., Yahiaoui, D., Giovando, G., & Ferraris, A. (2023). E-commerce channel management on the manufacturers' side: ongoing debates and future research pathways. *Review of Managerial Science*.

- Bayol, M.-P., de la Foye, A., Tenenhaus, M., & Tellier, C. (2000). Use of PLS path modelling to estimate the European Consumer Satisfaction Index (ECSI) model. *Statistica Applicata-Italian Journal of Applied Statistics*, 12(3), 361–375.
- Bayol, M. P., Foye, A., Tellier, C., & Tenenhaus, M. (2000). Use of PLS path modelling to estimate the european consumer satisfaction index (ECSI) model. *Statistica Applicata*, 12(3), 361–375.
- Biswas, K. M., Nusari, M., & Ghosh, A. (2019). The influence of website service quality on customer satisfaction towards online shopping: The mediating role of confirmation of expectation. *International Journal of Management Science and Business Administration*, 5(6), 7–14. doi:10.18775/ijmsba.1849-5664-5419.2014.56.1001
- Boksberger, P. E., & Melsen, L. (2011). Perceived value: a critical examination of definitions, concepts and measures for the service industry. *Journal of services marketing*, 25(3), 229–240. doi:<https://doi.org/10.1108/08876041111129209>
- Bonfanti, A., Rossato, C., Vigolo, V., & Vargas-Sánchez, A. (2023). Improving online food ordering and delivery service quality by managing customer expectations: evidence from Italy. *British Food Journal*, 125(13), 164–182. doi:<https://doi.org/10.1108/BFJ-08-2022-0694>
- Bowen, H. R. (1953). *Social responsibilities of the businessman*. New York: Harper & Row.
- Bresciani, S., Ferraris, A., Santoro, G., & Kotabe, M. (2022). Opening up the black box on digitalization and agility: key drivers and main outcomes. *Technol Forecast Soc Change*, 178, 121567.
- Bubicz, M., Barbosa-Povoa, A. P., & Carvalho, A. (2021). Social sustainability management in the apparel supply chains. *Journal of cleaner production*, 280(2), 124214.
- Cardozo, R. N. (1965). An Experimental Study of Customer Effort, Expectation and Satisfaction. *Journal of Marketing Research*, 1, 244–249.
- Carvalho, S., Muralidharan, E., & Bapuji, H. (2015). Corporate social ‘irresponsibility’: are consumers’ biases in attribution of blame helping companies in product – harm crises involving hybrid products? *Journal of Business Ethics*, 130(3), 651 - 663.
- Center, E. E.-c. R. (2023). China Fresh Food E-Commerce Market Data Report 2023. Retrieved from <http://www.100ec.cn/zt/2023Ssxscbg/>
- Chang, H. H., Wang, Y.-H., & Yang, W.-Y. (2009). The impact of e-service quality, customer satisfaction and loyalty on e-marketing: Moderating effect of perceived value. *Total quality management*, 20(4), 423–443. doi:<https://doi.org/10.1080/14783360902781923>

- Chanthasaksathian, S., & Nuangjamnong, C. (2021). Factors influencing repurchase intention on e-Commerce platforms: a case of GET application. *International Research E-Journal on Business and Economics*, 6(1), 28–45.
- Chavez, R., Yu, W., Feng, M., & Wiengarten, F. (2016). The effect of customer-centric green supply chain management on operational performance and customer satisfaction. *Business Strategy and the Environment*, 25(3), 205–220.
- Chen, D. (2023). How Visitors Perceive Heritage Value—A Quantitative Study on Visitors' Perceived Value and Satisfaction of Architectural Heritage through SEM. *Sustainability*, 15(11), 9002. doi:<https://doi.org/10.3390/su15119002>
- Chen, M.-Y., & Teng, C.-I. (2013). A comprehensive model of the effects of online store image on purchase intention in an e-commerce environment. *Electronic Commerce Research*, 13, 1–23. doi:<https://doi.org/10.1007/s10660-013-9104-5>
- Chen, X. (2014). Research on relationship between corporate social responsibility and customer loyalty —An empirical analysis based on some of the dairy consumer awareness. *Science Research Management*, 35(1), 98–106.
- CHEN, Z., & ZHANG, X. (2021). Analysis of the Research Status on the Supply Chain of Fresh Agricultural Products Based on Citespace. *Tianjin Agricultural Sciences*, 27(10), 17–21+25.
- Chikazhe, L., Makanyeza, C., & Chigunhah, B. (2021). Understanding mediators and moderators of the effect of customer satisfaction on loyalty. *Cogent Business & Management*, 8(1), 1–19.
- Chinomona, R., Masinge, G., & Sandada, M. (2014). The influence of e-service quality on customer perceived value, customer satisfaction and loyalty in South Africa. *Mediterranean Journal of Social Sciences*, 5(9), 331. doi:10.5901/mjss.2014.v5n9p331
- Chumpitaz, R., & Paparoidamis, N. G. (2004). Service quality and marketing performance in business-to-business markets: exploring the mediating role of client satisfaction. *The Journal of Managing Service Quality*, 14(2/3), 235–248.
- CNNIC. (2020). The 45th statistical report on internet development in China. Retrieved from <http://www.cnnic.net.cn/hlwfzyj/hlwxzbg/hlwtjbg/202004/P020200428596599037028.pdf>
- f.
- Commerce, I. C. o. (2007). *ICC guidance on supply chain responsibility*.

- Compact, U. N. G. (2010). Supply Chain Sustainability. A Practical Guide for Continuous Improvement. Retrieved from <http://globalcompact.oit.duke.edu/globalcompact/sites/default/files/BSR%20supply%20chain%20sustainability>
- Coppola, D. (2021). Amazon: annual revenue 2020. Retrieved from <https://www.statista.com/statistics/266282/annual-net-revenue-of-amazoncom/>
- Cui, C., Li, M., & Wang, X. (2019). Empirical Research on Customer Satisfaction Model of Online Shopping Based on Taobao. *Mathematics in Practice and Theory*, 49(6), 87–99.
- Cunningham, N., & De Meyer-Heydenrych, C. (2021). Premium versus affordable clothing retailers: what are customer expectations for satisfaction and repurchase intentions? *International Journal of Retail & Distribution Management*, 49(6), 752–771. doi: <https://doi.org/10.1108/IJRDM-07-2020-0265>
- Dai, Y.-q., & OuYang, X.-x. (2016). On Game Study of Behavioral Decision-making Implementation of Social Responsibility of Agriculture Products Supply Chain. *JOURNAL OF HUNAN UNIVERSITY OF COMMERCE*, 23(2), 26–29.
- Dean, A. M. (2004). Rethinking customer expectations of service quality: are call centers different? *Journal of services marketing*, 18(1), 60–78. doi: <https://doi.org/10.1108/08876040410520717>
- DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Inf. Syst. Res*, 3, 60–95.
- Deng, X.-m., Zhang, T., Xu, Y., & Long, X.-y. (2016). A Study of the Influence of the CSR on Consumers' Purchase Intention. *Chinese Journal of Management*, 13(7), 1019–1027.
- Devi, A. A. D. T., & Yasa, N. N. K. (2021). The role of customer satisfaction in mediating the influence of service quality and perceived value on brand loyalty. *International Research Journal of Management, IT and Social Sciences*, 8(3), 315–328. doi:10.21744/irjmis.v8n3.1786
- Dingyu, W. (2013). Research on corporate social responsibility management of supply chain. *China Soft Science Magazine*, 2, 55–63.
- Doney, P. M., & Cannon, J. P. (1997). An examination of the nature of trust in buyer-seller relationships. *Journal of Marketing*, 61(2), 35–51.
- Dong, X., Zhao, H., & Li, T. (2022). The Role of Live-Streaming E-Commerce on Consumers' Purchasing Intention regarding Green Agricultural Products. *Sustainability*, 14(4374), 1–13.

- Edward, M., George, B. P., & Sarkar, S. K. (2010). The impact of switching costs upon the service quality–perceived value–customer satisfaction–service loyalty chain: a study in the context of cellular services in India. *Services Marketing Quarterly*, 31(2), 151–173. doi:<https://doi.org/10.1080/15332961003604329>
- Edward, M., & Sahadev, S. (2011). Role of switching costs in the service quality, perceived value, customer satisfaction and customer retention linkage. *Asia pacific journal of marketing and logistics*, 23(3), 327–345. doi:<https://doi.org/10.1108/13555851111143240>
- El-Adly, M. I. (2019). Modelling the relationship between hotel perceived value, customer satisfaction, and customer loyalty. *Journal of Retailing and Consumer Services*, 50, 322–332. doi:<https://doi.org/10.1016/j.jretconser.2018.07.007>
- eMarketer. (2021). Worldwide ecommerce will approach \$5 trillion this year. Retrieved from <https://www.emarketer.com/content/worldwide-ecommercewill-approach-5-trillion-this-year>
- Evans, M., Robling, M., Rapport, F. M., Houston, H., Kinnersley, P., & Wilkinson, C. (2002). It doesn't cost anything just to ask, does it? The ethics of questionnaire-based research. *Journal of Medical Ethics*, 28(1), 41–44.
- Fan, C., Zhang, Q. S., & Chen, Y. M. (2022). Pricing and coordination strategy of fresh food supply chain under the integration of new retail channels. *Chinese Journal of Management Science*, 30(2), 118–126.
- Fan, D., Xiao, C., Zhang, X., & Guo, Y. (2021). Gaining customer satisfaction through sustainable supplier development: The role of firm reputation and marketing communication. *Transportation Research Part E: Logistics and Transportation Review*, 154, 102453.
- Fan, J. C., Ni, D. B., & Tang, X. W. (2019). Product liability, corporate social responsibility preference and the quality quantity coordination in supply chains. *Chinese Journal of Management*, 27(1), 85–98.
- Feng, Y.-f. (2021). Requirements and Ways about Upgrading of Supply Chain of Fresh Agricultural Products under the Environment of "Internet plus". (5), 140–143.
- Feng, Y. (2021). Requirements and Ways about Upgrading of Supply Chain of Fresh Agricultural Products under the Environment of "Internet plus". *Price: Theory & Practice*, 5, 140–143.
- Feng, Y., Yu, Y. L., & Zhang, Y. Z. (2015). Coordination in a three-echelon supply chain of fresh agri-products with TPLSP's participation in decision-making. *Journal of Industrial Engineering and Engineering Management*, 29(4), 213–221.

- Feng, Y., Zhu, Q. and Lai, K.-H. (2017). Corporate social responsibility for supply chain management: A literature review and bibliometric analysis. *Journal of cleaner production*(158), 296 - 307.
- Fornell, C. (1992). A national customer satisfaction barometer, the Swedish experience. *Journal of Marketing*, 56(1), 6–21.
- Fornell, C. (1992). A national customer satisfaction barometer: The Swedish experience. *Journal of Marketing*, 56(1), 6–21.
- Fornell, C., Johnson, M. D., Anderson, E. W., Cha, J., & Bryant, B. E. (1996). The American customer satisfaction index: nature purpose and findings. *Journal of Marketing*, 60(4), 7.
- Fornell, C., Johnson, M. D., Anderson, E. W., Cha, J., & Bryant, B. E. (1996). The American customer satisfaction index: nature, purpose, and findings. *Journal of marketing*, 60(4), 7–18.
- Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50.
- Frank, B., & Enkawa, T. (2009). Economic influences on perceived value, quality expectations and customer satisfaction. *International Journal of Consumer Studies*, 33(1), 72–82. doi:<https://doi.org/10.1111/j.1470-6431.2008.00731.x>
- Freeman, R. E. (1984). *Strategic Management: A Stakeholder Approach*. Englewood Cliffs, NJ: Prentice Hall.
- Fu, X., Liu, S., Fang, B., Luo, X. R., & Cai, S. (2020). How do expectations shape consumer satisfaction? An empirical study on knowledge products. *Journal of Electronic Commerce Research*, 21(1), 1–20.
- Gabriella, D., Teresa, L., Renato, M., Nicola, M., & Carlo, M. (2017). A reliable decision support system for fresh food supply chain management. *International Journal of Production Research*, 56(4), 1458–1485
- Ganesan, S. (1994). Determinants of long-term orientation in buyer-seller relationships. *Journal of Marketing*, 58(2), 1.
- Gao, X., & Jia, L. (2019). An Empirical Study of Consumer Satisfaction in Cross-border E-commerce Based on ECSI. *Shandong Social Sciences*, 5, 149–154. doi:<https://doi.org/10.14112/j.cnki.37-1053/c.2019.05.026>
- Ge, J.-h. (2018). Analysis on Fresh Food E-commerce Development Model and Applicable Conditions in China. *Guizhou Social Sciences*, 337(1), 133–138.

- Gee, R., Coates, G., & Nicholson, M. (2008). Understanding and profitably managing customer loyalty. *Marketing Intelligence & Planning*, 26(4), 359–374. doi:<https://doi.org/10.1108/02634500810879278>
- Ghorbani, A., Mousazadeh, H., Akbarzadeh Almani, F., Lajevardi, M., Hamidizadeh, M. R., Orouei, M., . . . Dávid, L. D. (2023). Reconceptualizing customer perceived value in hotel management in turbulent times: A case study of Isfahan metropolis five-star hotels during the COVID-19 Pandemic. *Sustainability*, 15(8), 7022. doi:<https://doi.org/10.3390/su15087022>
- Gounaris, S., Dimitriadis, S., & Stathakopoulos, V. (2005). Antecedents of perceived quality in the context of Internet retail stores. *Journal of Marketing Management*, 21(7-8), 669–700. doi:<http://dx.doi.org/10.1362/026725705774538390>
- Gružauskas, V., & Burinskienė, A. (2022). Managing supply chain complexity and sustainability: the case of the food Industry. *Processes*, 10(852), 1–21.
- Gures, N., Arslan, S., & Tun, S. Y. (2014). Customer expectation, satisfaction and loyalty relationship in Turkish airline industry. *International journal of marketing studies*, 6(1), 66.
- Gvrlek, M. E., Dvzgvn , S, & Meydan, U. (2017). How does corporate social responsibility create customer loyalty? The role of corporate image. *Social Responsibility Journal*, 13(3), 409–427.
- Habel, J., Alavi, S., Schmitz, C., Schneider, J.-V., & Wieseke, J. (2016). When do customers get what they expect? Understanding the ambivalent effects of customers' service expectations on satisfaction. *Journal of Service Research*, 19(4), 361–379. doi:<https://doi.org/10.1177/1094670516662350>
- Hair, J., Black, W., Babin, B., & Anderson, R. (2017). *Multivariate Data Analysis*: Pearson.
- Hair, J., Hult, G., Ringle, C., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*: SAGE Publications.
- Hajli, N., Sims, J., Zadeh, A. H., & Richard, M. O. (2017). A social commerce investigation of the role of trust in a social networking site on purchase intentions. *J. Bus. Res*, 71, 133–141.
- Han, H.-l., Zou, T.-q., & Zhuang, F.-p. (2017). Research on Function Paths of Corporate Brand Image on Purchase Intention: Based on China's Multi-national Enterprises. *Journal of Central University of Finance & Economics*, 8, 91–99.
- Hao, S., & Xiaohong, D. (2022). From E-Commerce to Metaverse Commerce: The Leap Path of High Level Development of China's E-Commerce. *REGIONAL ECONOMIC REVIEW*, 6, 38–48.

- Harris, L. C., & Goode, M. M. (2004). The four levels of loyalty and the pivotal role of trust: a study of online service dynamics. *Journal of retailing*, 80(2), 139–158. doi:<https://doi.org/10.1016/j.jretai.2004.04.002>
- HE, Y., LI, J., CAI, M., & ZHANG, X. (2020). Corporate social responsibility and enterprise value : The mechanism of marketing competitiveness and customer awareness. *Journal of Industrial Engineering/Engineering Management*, 34(2), 84–94.
- Herlinae, M. G. (2019). E-Service Quality and Corporate Image on Customer Perception. *International Journal of Innovation, Creativity and Change*, 10(8), 284–294.
- Hou, Y. (2005). *Service quality of online apparel retailers and its impact on customer satisfaction, customer trust and customer loyalty*. (Doctor of Philosophy). The University of North Carolina at Greensboro, Greensboro.
- Hsu, S.-H. (2008). Developing an index for online customer satisfaction: Adaptation of American Customer Satisfaction Index. *Expert systems with Applications*, 34(4), 3033–3042.
- HSUEH, C. F. (2014). Improving corporate social responsibility in a supply chain through a new revenue sharing contract. *International journal of production economics*, 151, 214–222.
- Hu, H.-H., Kandampully, J., & Juwaheer, T. D. (2009). Relationships and impacts of service quality, perceived value, customer satisfaction, and image: an empirical study. *The service industries journal*, 29(2), 111–125. doi:<https://doi.org/10.1080/02642060802292932>
- HU, H.-q., WANG, L., & CHEN, L.-h. (2021). The Current Situation and Prospects of Fresh Agricultural Products Supply Chain from Service Perspective. *Supply Chain Management*, 2(7), 62–73.
- Hu, J. S., Ji, Y. J., & Ma, D. Q. (2020). Research on quality and service strategy of ECSC enterprises based on consumer utility. *System Engineering-Theory & Practice*, 40(10), 2602–2616.
- Huang, C.-q., Zhang, J.-q., & Xing, N. (2020). Research on Strategies of Fresh Food Products Logistic and Supply Chain Development. *China Storage & Transport*, 8(122-123).
- Huang, G., Tong, Y., Ye, F., & Li, J. (2020). Extending social responsibility to small and medium-sized suppliers in supply chains: A fuzzy-set qualitative comparative analysis. *Applied Soft Computing*, 88, 105899.
- Huang, H. (2021). *Perceived Platform CSR and Customer Loyalty: Empirical study on the mediating effects of consumer engagement and moderating effects of CSR attributions*. (Ph.D). Zhejiang Gongshang University, Hangzhou, P.R.China.

- HUANG, M., LV, Q.-h., & LIN, B.-k. (2021). The influencing factors of the consumer satisfaction of B2C fresh food e-commerce. *Journal of Fujian Agriculture and Forestry University (Philosophy and Social Sciences)*, 24(1), 32–40.
- HUANG, T.-j., LI, M., YANG, X.-r., LIU, Y.-f., WANG, Z.-y., ZHU, Y., & LIU, X. (2022). Research on the Standardization Development of Fresh Product E-commerce Supply Chain in China and Tactics. *China Standardization*, 1, 170–175.
- Hult, G. T. M., Ketchen, D. J., Griffith, D. A., Finnegan, C. A., Gonzalez-Padron, T., Harmancioglu, N., . . . Cavusgil, S. T. (2008). Data equivalence in cross-cultural international business research: Assessment and guidelines. *Journal of International Business Studies*, 39, 1027–1044.
- Hult, G. T. M., Sharma, P. N., Morgeson, F.V., & Zhang, Y. (2019). Antecedents and consequences of customer satisfaction: do they differ across online and offline purchases? *Journal of Retailing*, 95, 10–23.
- Hume, M., & Sullivan Mort, G. (2010). The consequence of appraisal emotion, service quality, perceived value and customer satisfaction on repurchase intent in the performing arts. *Journal of services marketing*, 24(2), 170–182. doi:<https://doi.org/10.1108/08876041011031136>
- Hur, W. M., Kim, Y., & Park, K. (2013). Assessing the effects of perceived value and satisfaction on customer loyalty: a ‘green’ perspective. *Corporate social responsibility and environmental management*, 20(3), 146–156. doi:<https://doi.org/10.1002/csr.1280>
- Indarto, E. W., Suroso, I., Sudaryanto, S., & Qomariah, N. (2022). The effect of brand image and product attributes on customer satisfaction and customer loyalty. *Jurnal Aplikasi Manajemen*, 16(3), 457–466. doi: <http://dx.doi.org/10.21776/ub.jam.2018.016.03.10>
- Ismail, A., Abdullah, M. M. B., & Francis, S. K. (2009). Exploring the relationships among service quality features, perceived value and customer satisfaction. *Journal of Industrial Engineering and Management (JIEM)*, 2(1), 230–250. doi:10.3926/jiem.2009.v2n1.p230-250
- Jajja, M. S. S., Asif, M., Montabon, F., & Chatha, K. A. (2020). The indirect effect of social responsibility standards on organizational performance in apparel supply chains: A developing country perspective. *Logistics and Transportation Review*, 139, 101968.
- Jayawardhena, C. (2010). The impact of service encounter quality in service evaluation: evidence from a business-to-business context *Journal of Business & Industrial Marketing*, 25(5), 338–348.

- Jayawardhena, C., Souchon, A. L., Farrell, A. M., & Glanville, K. (2007). Outcomes of service encounter quality in a business-to-business context. *Industrial Marketing Management*, 36(5), 575–588.
- Ji, Y.-n. (2020). Research on Reciprocal Behavior of Fresh Agricultural Products E-commerce Supply Chain Based on Quality Commitment. *Supply Chain Management*, 12, 24–31.
- Ji, Y.-n. (2021). Research on Social Responsibility of Fresh Agricultural Products E-commerce Supply Chain under Public Health Emergencies—While analyzing the role of supply and price stabilization in COVID-19. *Price:Theory & Practice*, 2, 71–74+94.
- Jiang, Y., Lai, P., Chang, C.-H., Yuen, K. F., Li, S., & Wang, X. (2021). Sustainable management for fresh food e-commerce logistics services. *Sustainability*, 13(6), 3456.
- Jiawei, X., & Yubing, Y. (2022). Literature Review and Future Prospect of Supply Chain Social Responsibility. *Journal of Zhejiang Wanli University*, 35(5), 1–10.
- Jie-yu, W., Meng-ying, Q., & Wei, S. (2020). Research on the Non-linear Relationship between CSR and Customer Loyalty. *Journal of Shandong Technology and Business University*, 34(4), 74–83.
- Jiong, M., Xu, L., Huang, Q., & Li, C. (2013). Research on the e-commerce of agricultural products in Sichuan Province. *Journal of Digital Information Management*, 11, 97–101.
- Johnson, D., Gustafsson, A., Andreassen, T. W., Lervik, L., & Cha, J. (2001). The evolution and future of national customer satisfaction index models. *Journal of Economic Psychology*, 22, 217–245.
- Johnson, M. D., & Fornell, C. (1991). framework for comparing customer satisfaction across individuals and product categories. *Journal of Economic Psychology*, 12(2), 267–286.
- Johnson, M. D., Gustafsson, A., Andreassen, T. W., Lervik, L., & Cha, J. (2001). The evolution and future of national customer satisfaction index models. *Journal of economic Psychology*, 22(2), 217–245. doi:[https://doi.org/10.1016/S0167-4870\(01\)00030-7](https://doi.org/10.1016/S0167-4870(01)00030-7)
- Joo, J., & Han, Y. (2021). An evidence of distributed trust in blockchain-based sustainable food supply chain. *Sustainability*, 13(19), 10980.
- Joshi, Y., & Rahman, Z. (2015). Factors affecting green purchase behaviour and future research directions. *International Strategy Management Review*, 3, 128–143.
- Kandampully, J., & Suhartanto, D. (2003). The role of customer satisfaction and image in gaining customer loyalty in the hotel industry. *Journal of Hospitality & Leisure Marketing*, 10(1-2), 3–25. doi:[https://doi.org/10.1300/J150v10n01\\_02](https://doi.org/10.1300/J150v10n01_02)

- Kataria, S., & Saini, V. (2020). The mediating impact of customer satisfaction in relation of brand equity and brand loyalty: An empirical synthesis and re-examination. *South Asian Journal of Business Studies*, 9(1), 62–87.
- Keshavarz, Y., & Jamshidi, D. (2018). Service quality evaluation and the mediating role of perceived value and customer satisfaction in customer loyalty. *International Journal of tourism cities*, 4(2), 220–244. doi:<https://doi.org/10.1108/IJTC-09-2017-0044>
- Khoo, K. L. (2020). A study of service quality, corporate image, customer satisfaction, revisit intention and word-of-mouth: evidence from the KTV industry. *PSU Research Review*, 6(2), 105–119. doi:<https://doi.org/10.1108/PRR-08-2019-0029>
- Khosroshahi, H., Rasti-Barzoki, M., & Hejazi, S. R. (2019). A game theoretic approach for pricing decisions considering CSR and a new consumer satisfaction index using transparency-dependent demand in sustainable supply chains. *Journal of cleaner production*, 208, 1065–1080.
- Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision support systems*, 44(2), 544–564.
- Kim, H., & Lee, C. W. (2018). The effects of customer perception and participation in sustainable supply chain management: A smartphone industry study. *Sustainability*, 10(7), 2271.
- Kim, P. E., & Joon, K. (2019). What drives “customer loyalty”? The role of corporate social responsibility. *Sustainable Development Chichester*, 27(3), 304–311.
- Klopotan, I., Buntak, K., & Drozdjek, I. (2014). IMPACT OF EDUCATION, GENDER AND AGE ON CONSUMER LOYALTY. *International Journal for Quality Research*, 8(4), 481–494.
- Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration*, 11(4), 1–10.
- Kooli, K., Ben Mansour, K., & Utama, R. (2014). Determinants of online trust and their impact on online purchase intention. *Int. J. Technol. Mark*, 9, 305–319.
- Kraft, T., Valdes, L., & Zheng, Y. (2018). Supply chain visibility and social responsibility: Investigating consumers' behaviors and motives. *Manufacturing & Service Operations Management*, 20(4), 617–636.
- Kraus, S., Palmer, C., Kailer, N., Kallinger, F., & Spitzer, J. (2018). Digital entrepreneurship: a research agenda Int J Entrep Behav Reson new business models for the twenty-first century. *Int J Entrep Behav Res*, 25, 353–375.
- Kristensen, K., Martensen, A., & Gronholdt, L. (1999). Measuring the impact of buying behavior on customer satisfaction. *Total Quality Management*, 10(4), S602–S614.

- Kuo, C. W., & Tang, M. L. (2013). Relationships among service quality, corporate image, customer satisfaction, and behavioral intention for the elderly in high speed rail services. *Journal of Advanced Transportation*, 47(5), 512–525. doi: <https://doi.org/10.1002/atr.179>
- Kuo, Y.-F., Wu, C.-M., & Deng, W.-J. (2009). The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services. *Computers in human behavior*, 25(4), 887–896. doi:<https://doi.org/10.1016/j.chb.2009.03.003>
- Kusumawati, A., & Rahayu, K. S. (2020). The effect of experience quality on customer perceived value and customer satisfaction and its impact on customer loyalty. *The TQM Journal*, 32(6), 1525–1540. doi:<https://doi.org/10.1108/TQM-05-2019-0150>
- Kuwarnu, J. K., Khaipetch, J., Gunawan, E., Bannor, R. K., & Ho, T. D. (2023). The adoption of sustainable supply chain management practices on performance and quality assurance of food companies. *Sustainable Futures*, 5, 100103.
- LAI, H., ZHOU, Y., CHEN, X., & HU, C. (2023). Research on supply chain coordination mechanism considering the social responsibility practices of the upstream supply chain. *Systems Engineering-Theory & Practice*. doi:<https://kns.cnki.net/kcms2/detail/11.2267.N.20230607.1558.002.html>
- Lam, S. Y., Shankar, V., Erramilli, K. M., & Murthy, B. (2004). Customer value, satisfaction, loyalty and switching costs: an illustration from a business-to-business service context. *The Journal of Academy of Marketing Science*, 32(3), 293–311.
- LAN, J.-y., SHI, Q.-c., FENG, Z.-w., & HE, M.-m. (2022). Research on Corporate Social Responsibility Sharing Strategy Selection in Fresh E-commerce Supply Chain. *Chinese Journal of Management Science*. doi:10.16381/j.cnki.issn1003-207x.2021.1781
- Lee, C., Chang, W., & Lee, H. (2017). An investigation of the effects of corporate social responsibility on corporate reputation and customer loyalty-evidence from the Taiwan non-life insurance industry. *Social Responsibility Journal*, 13(2), 355–369.
- Lee, S., & Heo, C. Y. (2009). Corporate social responsibility and customer satisfaction among US publicly traded hotels and restaurants. *International journal of hospitality management*, 28(4), 635–637.
- Li, M.-L. (2011). *Impact of marketing strategy, customer perceived value, customer satisfaction, trust, and commitment on customer loyalty*: Lynn University.
- Li, M., Zhu, Y., & Wang, C. (2021). Innovation in Fresh Produce Supply Chain in the Context of New Retail. *Journal of Hebei Normal University for Nationalities*, 41(4), 104–110.

- Li, Y. (2020a). Research on supply chain CSR management based on differential game. *Journal of cleaner production*, 268(8), 3–7.
- Li, Y. (2020b). Research on supply chain CSR management based on differential game. *Journal of Cleaner Production*, 122171.
- Liang, W., Wang, Q., & Zhao, L.-j. (2022). Modeling and Simulation Analysis of Quality Control in Fresh E-commerce Supply Chain. *LOGISTICS ENGINEERING AND MANAGEMENT*, 44(9), 49–64.
- Lindgreen, A., & Swaen, V. (2009). Corporate social responsibility. *International Journal of Management Reviews*, 12(1), 1–7.
- Liu, J.-x., Wang, K.-s., & Zhang, C.-l. (2016). Problems with Fresh Agricultural Products E-commerce and the Countermeasures. *China Business And Market*, 30(12), 57–64.
- Liu, J., Xi, Y., & Wang, J. (2023). Resilience strategies for sustainable supply chains under budget constraints in the post COVID-19 era. *Frontiers of Engineering Management*, 10(1), 143–157.
- Liu, M., Dan, B., & Ma, S.-x. (2020). Optimal strategies and coordination of fresh e-commerce supply chain considering freshness-keeping effort and value-added service. *Chinese Journal of Management Science*, 28(8), 76–88.
- Liu, X.-b., Liu, Q.-f., & Gao, F.-x. (2022). Exploring where China's fresh food cold chain logistics is heading in the post-epidemic period. *China Storage & Transport*, 8, 82–83.
- Liu, Z.-Y., & Guo, P.-T. (2021). Supply chain decision model based on blockchain: a case study of fresh food E-commerce supply chain performance improvement. *Discrete Dynamics in Nature and Society*, 1–14.
- Lu, B., Fan, W., & Zhou, M. (2016). Social presence, trust, and social commerce purchase intention: An empirical research. *Comput. Hum. Behav*, 56, 225–237.
- Luarn, P., & Lin, H.-H. (2003). A customer loyalty model for e-service context. *Journal of Electronic Commerce Research*, 4(4), 156–167.
- Luo, Y. (2023). Research on the Development Strategy of Fresh Produce Supply Chain in China. *Logistics Engineering and Management*, 45(4), 76–78.
- M, TAJBAKSH, N. (2020). A . Past , present , and prospective themes of sustainable agricultural supply chains: a content analysis. *Journal of cleaner production*, 271(10), 122201.

- Ma, K. X., Mather, D. W., Ott, D. L., Fang, E., Bremer, P., & Miroso, M. (2022). Fresh food online shopping repurchase intention: the role of post-purchase customer experience and corporate image. *International Journal of Retail & Distribution Management*, 50(2), 206–228. doi:<https://doi.org/10.1108/IJRDM-04-2021-0184>
- Makanyeza, C., Macheyo, R., & du Toit, F. (2016). Perceived product necessity, perceived value, customer satisfaction and affective attitude: an integrative model. *Journal of African Business*, 17(1), 69–86. doi:<https://doi.org/10.1080/15228916.2016.1112709>
- Mani, V., Jabbour, C. J. C., & Mani, K. T. (2020). Supply chain social sustainability in small and medium manufacturing enterprises and firms' performance: empirical evidence from an emerging Asian economy. *International journal of production economics*, 227, 1–7.
- Manyanga, W., Makanyeza, C., & Muranda, Z. (2022). The effect of customer experience, customer satisfaction and word of mouth intention on customer loyalty: The moderating role of consumer demographics. *Cogent Business & Management*, 9(1), 2082015.
- Martensen, A., Gronholdt, L., & Kristensen, K. (2000). The drivers of customer satisfaction and loyalty: cross-industry findings from Denmark. *Total Quality Management*, 11(4/5/6), S544–S553.
- McDougall, G. H., & Levesque, T. (2000). Customer satisfaction with services: putting perceived value into the equation. *Journal of services marketing*, 14(5), 392–410. doi:<https://doi.org/10.1108/08876040010340937>
- McKinney, V., Yoon, K., & Zahedi, F. M. (2002). The measurement of web-customer satisfaction: An expectation and disconfirmation approach. *Information systems research*, 13(3), 296–315. doi:<http://dx.doi.org/10.1287/isre.13.3.296.76>
- McMullan, R., & Gilmore, A. (2003). The conceptual development of customer loyalty measurement: A proposed scale. *Journal of Targeting, Measurement and Analysis for Marketing*, 11(3), 230–243.
- McMullan, R., & Gilmore, A. (2008). Customer loyalty: an empirical study. *European journal of marketing*, 42(9/10), 1084–1094.
- Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D., & Zacharia, Z. G. (2001). Defining supply chain management. *JOURNAL OF BUSINESS LOGISTICS*, 22(2), 1–25.
- Mintzberg, H. (1983). The case for corporate social responsibility. *Journal of Business Strategy*, 4(2), 3–15.

- Miranda-Ackerman, M.A., Azzaro-Pantel, C. & Aguilar-Lasserre, A.A. (2017). A green supply chain network design framework for the processed food industry: application to the orange juice agrofood cluster. *Computers & industrial engineering*, 109(6), 369–389.
- Mitchev, T., & Nuangjamnong, C. (2021). The impact of E-commerce on customer satisfaction and customer loyalty during the COVID-19 pandemic: a quantitative analysis in Thailand. *AU-GSB e-JOURNAL*, 14(2), 59–70. doi:<https://doi.org/10.14456/auugsbejr.2021.15>
- Modak, N. M., Sinha, S., Raj, A., Panda, S., Merigó, J. M., de Sousa Jabbour, & Lopes, A. B. (2020). Corporate social responsibility and supply chain management: framing and pushing forward the debate. *Journal of cleaner production*, 273, 122981.
- Modica, P. D., Altinay, L., Farmaki, A., Gursoy, D., & Zenga, M. (2020). Consumer perceptions towards sustainable supply chain practices in the hospitality industry. *Current Issues in Tourism*, 23(3), 358–375.
- Molinari, L. K., Abratt, R., & Dion, P. (2008). Satisfaction, quality and value and effects on repurchase and positive word-of-mouth behavioral intentions in a B2B services context. *Journal of Services Marketing*, 22(5), 363–373.
- Moorman, C., Deshpandé, R., & Zaltman, G. (1993). Factors affecting trust in market research relationships. *Journal of Marketing*, 57(1), 81–101.
- Naini, N. F., Santoso, S., Andriani, T. S., & Claudia, U. G. (2022). The effect of product quality, service quality, customer satisfaction on customer loyalty. *Journal of consumer sciences*, 7(1), 34–50. doi:<https://doi.org/10.29244/jcs.7.1.34-50>
- Nan, M. (2022). An Empirical Study on the Relationship between Corporate Social Responsibility and Financial Performance. *Special Zone Economy*, 405(10), 122–128.
- Nayal, K., Raut, R. D., Yadav, V. S., Priyadarshinee, P., & Narkhede, B. E. (2022). The impact of sustainable development strategy on sustainable supply chain firm performance in the digital transformation era. *Business Strategy and the Environment*, 31(3), 845–859.
- Nobar, H. B. K., & Rostamzadeh, R. (2018). The impact of customer satisfaction, customer experience and customer loyalty on brand power: empirical evidence from hotel industry. *Journal of business economics and management*, 19(2), 417–430. doi:<https://doi.org/10.3846/jbem.2018.5678>
- O’Loughlin, C., & Coenders, G. (2002). *Application of the European customer satisfaction index to postal services. Structural equation models versus partial least squares*. University of Girona.

- Oliver, R. L. (1980). A Cognitive Model of Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, 17(4), 460–469.
- Oliver, R. L. (1999). Whence consumer loyalty? *Journal of marketing*, 63(4\_suppl1), 33–44. doi:<https://doi.org/10.1177/00222429990634s105>
- Oliver, R. L., & Swan, J. E. (1989). Consumer perceptions of interpersonal equity and satisfaction in transactions: a field survey approach. *Journal of marketing*, 53(2), 21–35. doi:<https://doi.org/10.1177/002224298905300>
- Opijnen, M. v., & Oldenziel, J. (Eds.). (2011). *Responsible supply chain management: Potential success factors challenges for addressing prevailing human rights other CSR issues in supply chains of EU-based companies*.
- Özkan, P., Süer, S., Keser, İ. K., & Kocakoç, İ. D. (2020). The effect of service quality and customer satisfaction on customer loyalty: The mediation of perceived value of services, corporate image, and corporate reputation. *International journal of bank marketing*, 38(2), 384–405. doi:<https://doi.org/10.1108/IJBM-03-2019-0096>
- Park, E., Kim, K. J., & Kwon, S. J. (2017). Corporate social responsibility as a determinant of consumer loyalty: An examination of ethical standard, satisfaction, and trust. *Journal of Business Research*, 76, 8–13.
- Patterson, P. G. (2007). Demographic correlates of loyalty in a service context. *Journal of Services Marketing*, 21(2), 112–121.
- Patterson, P. G., Johnson, L. W., & Spreng, R. A. (1997). Modeling the determinants of customer satisfaction for business-to-business professional services. *Journal of the Academy of Marketing Science*, 25(1), 4–17.
- Patterson, P. G., & Spreng, R. A. (1997). Modeling the relationship between perceived value, satisfaction and repurchase intentions in a business-to-business, services context: an empirical examination. *International Journal of Service Industry Management*, 8(5), 414–434.
- Peng, S. (2023). Sharing economy and sustainable supply chain perspective the role of environmental, economic and social pillar of supply chain in customer intention and sustainable development. *Journal of Innovation & Knowledge*, 8(1), 100316.
- Pérez, A., & Bosque, I. R. D. (2015). Corporate Social Responsibility and Customer Loyalty: Exploring the Role of Identification , Satisfaction and Type of Company. *Journal of Services Marketing*, 29(1), 15–25.

- Pitt, L. F., & Jeantrout, B. (1994). Management of customer expectations in service firms: a study and a checklist. *Service Industries Journal*, 14(2), 170–189. doi:<https://doi.org/10.1080/02642069400000021>
- Prajapati, D., Zhou, F., Dwivedi, A., Singh, T., Lakshay, L., & Pratap, S. (2022). Sustainable agro-food supply chain in e-commerce: Towards the circular economy. *Sustainability*, 14(14), 8698.
- Pratap, S., Jauhar, S. K., Daultani, Y., & Paul, S. K. (2023). Benchmarking sustainable E-commerce enterprises based on evolving customer expectations amidst COVID-19 pandemic. *Business Strategy and the Environment*, 32(1), 736–752. doi:<https://doi.org/10.1002/bse.3172>
- Qi, Y., & Zhao, M. (2023). Research on the Path of Supply Chain of Fresh Agricultural Products Empowered by Digital Technology. *Agricultural Economy*, 7, 129–130.
- QIU, L., LI, C., & ZHANG, S. (2021). Research on the Development of China's Fresh Food ECommerce Industry in the Post-Epidemic Era. *SCIENCE AND TECHNOLOGY FOR DEVELOPMENT*, 17(6), 1108–1115.
- Qiu, L. Y., Li, C., & Zhang, S. T. (2021). Research on the Development of China's Fresh Food ECommerce Industry in the Post-Epidemic Era. *SCIENCE AND TECHNOLOGY FOR DEVELOPMENT*, 17(6), 1108–1115.
- Rane, N. L., Achari, A., & Choudhary, S. P. (2023). Enhancing customer loyalty through quality of service: Effective strategies to improve customer satisfaction, experience, relationship, and engagement. *International Research Journal of Modernization in Engineering Technology and Science*, 5(5), 427–452.
- Ratnasari, I., Siregar, S., & Maulana, A. (2021). How to build consumer trust towards E-satisfaction in e-commerce sites in the covid-19 pandemic time? *International Journal of Data and Network Science*, 5(2), 127–134.
- Rauyruen, P., & Miller, K. E. (2007). Relationship quality as a predictor of B2B customer loyalty. *Journal of Business Research*, 60(1), 21–31.
- Razak, A. (2018). ROLE OF DEMOGRAPHY AS MODERATING EFFECTS OF SATISFACTION, TRUST AND COMMITMENT ON BANK CUSTOMER LOYALTY. *International Journal of Scientific & Engineering Research*, 9(7), 210–217.
- Ren, Y.-q., & Le, J.-h. (2018). Influencing factors of consumers' online shopping willingness for fresh agricultural products. *Acta Agriculturae Shanghai*, 34(2), 138–144.
- Roger, G., & Vasconcelos, L. (2014). Platform Pricing Structure and Moral Hazard. *Journal of Economics & Management Strategy*, 23(3), 527–547.

- Ryu, K., Han, H., & Kim, T.-H. (2008). The relationships among overall quick-casual restaurant image, perceived value, customer satisfaction, and behavioral intentions. *International journal of hospitality management*, 27(3), 459–469. doi:<https://doi.org/10.1016/j.ijhm.2007.11.001>
- Ryu, K., Lee, H. R., & Kim, W. G. (2012). The influence of the quality of the physical environment, food, and service on restaurant image, customer perceived value, customer satisfaction, and behavioral intentions. *International journal of contemporary hospitality management*, 24(2), 200–223. doi: <https://doi.org/10.1108/09596111211206141>
- Sachdev, S. B., & Verma, H. V. (2002). Customer expectations and service quality dimensions consistency. *Journal of Management Research*, 2(1), 43–52.
- Samudro, A., Sumarwan, U., Simanjuntak, M., & Yusuf, E. (2020). Assessing the effects of perceived quality and perceived value on customer satisfaction. *Management Science Letters*, 10(5), 1077–1084. doi:<https://doi.org/10.5267/j.msl.2019.11.001>
- Sánchez-Rebull, M.-V., Rudchenko, V., & Martín, J.-C. (2018). The antecedents and consequences of customer satisfaction in tourism: a systematic literature review. *Tourism and hospitality management*, 24(1), 151–183.
- Schwering, D. S., Sonntag, W. I., & Kühn, S. (2022). Agricultural E-commerce: Attitude segmentation of farmers. *Computers and Electronics in Agriculture*, 197, 106942.
- Sen, Z. (2021). The Impact of Corporate Social Responsibility on Consumer Loyalty. *Journal of Henan University (Social Sciences)*, 61(6), 24–32.
- Service, T. C. T. C. (2018). *An Introduction to e-commerce in China*. Retrieved from <http://www.thegrinlabs.com/wp-content/uploads/2017/05/China-eCommerce-Guide2016.pdf>.
- Sharaf, M. A., & Isa, F. M. (2017). Factors influencing students' intention to purchase green products: A case study in Universiti Utara Malaysia. *Pertanika Journal of Social and Scientific Humanity*, 25, 240–245.
- Shekarian, E., Ijadi, B., Zare, A., & Majava, J. (2022). Sustainable supply chain management: a comprehensive systematic review of industrial practices. *Sustainability*, 14(13), 7892.
- SHEN, P., & WAN, D. (2019). Can Online Retail Corporate Social Responsibility Promote Online Customer Loyalty A Moderated-Mediation model *Journal of Harbin University of Commerce*, 5(168), 89–100.
- Sheth, J. N., & Mittal, B. (1996). A framework for managing customer expectations. *Journal of Market-Focused Management*, 1, 137–158. doi:<https://doi.org/10.1007/BF00128687>

- Singh, A. S., & Masuku, M. B. (2014). Sampling techniques & determination of sample size in applied statistics research: An overview. *International Journal of Economics, Commerce and Management*, 2(11), 1–22.
- Sitthipon, T., Limna, P., Jaipong, P., Siripipattanakul, S., & Auttawechasakoon, P. (2022). Gamification predicting customers' repurchase intention via e-commerce platforms through mediating effect of customer satisfaction in Thailand. *Review of Advanced Multidisciplinary Sciences, Engineering & Innovation*, 1(1), 1–14.
- Skačkusienė, I., Vilkaitė-Vaitonė, N., & Vojtovic, S. (2015). Model for measuring customer loyalty towards a service provider. *Journal of business economics and management*, 16(6), 1185–1200.
- Song, Y., Escobar, O., Arzubiaga, U., & Massis, A. D. (2022). The digital transformation of a traditional market into an entrepreneurial ecosystem. *Rev Manag Sci*, 16, 65–88.
- Song, Y., & Xu, Y. (2022). On the Relationship Between the Social Responsibility, Media Attention and Enterprise Value of Platform Enterprises. *Journal of Yantai University (Philosophy and Social Science Edition)*, 35(3), 109–124.
- Song, Z., He, S., & Xu, G. (2018). Decision and coordination of fresh produce three-layer E-commerce supply chain: a new framework. *IEEE Access*, 7, 30465–30486.
- Spreng, R. A., Shi, L. H., & Page, T. J. (2009). Service quality and satisfaction in business-to-business services. *Journal of Business & Industrial Marketing*, 24(8), 537–548.
- Srivastava, M. (2015). Influencers of customer satisfaction-customer loyalty relationship: a conceptual research model. *Journal of Faculty of Management Studies, Banaras Hindu University*, 7(1), 54–65.
- Sun, C.-q. (2021). A study of corporate social responsibility from a consumer perspective. *Oriental Enterprise Culture*, S2, 17–18.
- Surjaatmadja, S., & Saputra, J. (2020). The structural relationship of service quality, corporate image and technology usage on the customer value perception in banking institutions, Indonesia. *Talent Development & Excellence*, 12(1), 1056–1069. Retrieved from <http://www.iratde.com/index.php/jtde>
- Tam, J. L. (2004). Customer satisfaction, service quality and perceived value: an integrative model. *Journal of Marketing Management*, 20(7-8), 897–917. doi:<https://doi.org/10.1362/0267257041838719>

- Tarn, J. L. (1999). The effects of service quality, perceived value and customer satisfaction on behavioral intentions. *Journal of Hospitality & Leisure Marketing*, 6(4), 31–43. doi:[https://doi.org/10.1300/J150v06n04\\_04](https://doi.org/10.1300/J150v06n04_04)
- Taylor, C. (1995). The case for customer satisfaction. *Managing Service Quality: An International Journal*, 5(1), 11–14. doi:<https://doi.org/10.1108/09604529510081767>
- Thomas, S. (2013). Linking customer loyalty to customer satisfaction and store image: a structural model for retail stores. *Decision*, 40(1), 15–25. doi:<https://doi.org/10.1007/s40622-013-0007-z>
- Tiganis, A., Grigoroudis, E., & Chrysochou, P. (2023). Customer satisfaction in short food supply chains: A multiple criteria decision analysis approach. *Food Quality and Preference*, 104, 104750.
- Toufaily, E., Ricard, L., & Perrien, J. (2013). Customer loyalty to a commercial website: Descriptive meta-analysis of the empirical literature and proposal of an integrative model. *Journal of business research*, 66(9), 1436–1447. doi:<https://doi.org/10.1016/j.jbusres.2012.05.011>
- TU, H.-b., Xu, C.-s., & ZHAO, X.-f. (2021). Research on the Influence Mechanism of Consumers' Repeated Purchase Intention on O2O Fresh E-commerce Platform. *China Business And Market*, 35(4), 38–47.
- Tukiran, M., Tan, P., & Sunaryo, W. (2021). Obtaining customer satisfaction by managing customer expectation, customer perceived quality and perceived value. *Uncertain Supply Chain Management*, 9(2), 481–488. doi: <https://doi.org/10.5267/j.uscm.2021.1.003>
- Tuncer, I., Unusan, C., & Cobanoglu, C. (2021). Service quality, perceived value and customer satisfaction on behavioral intention in restaurants: An integrated structural model. *Journal of quality assurance in hospitality & tourism*, 22(4), 447–475. doi:<https://doi.org/10.1080/1528008X.2020.1802390>
- Turkyilmaz, A., Oztekin, A., Zaim, S., & Fahrettin Demirel, O. (2013). Universal structure modeling approach to customer satisfaction index. *Industrial Management & Data Systems*, 113(7), 932–949.
- Unidha, M., & Sentani, D. (2017). The effect of service quality on trust and loyalty for giant customers in Malang City. *Arab Journal of Business Management Review*, 7, 1–5.

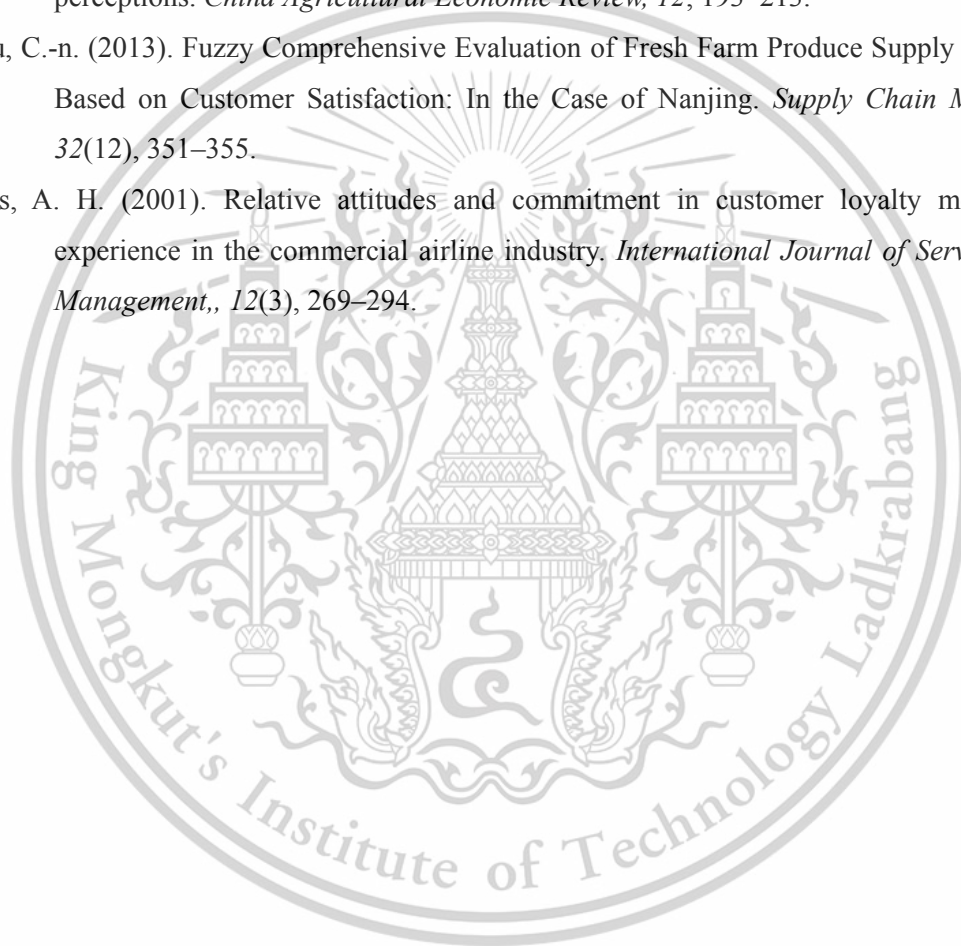
- Uzir, M. U. H., Al Halbusi, H., Thurasamy, R., Hock, R. L. T., Aljaberi, M. A., Hasan, N., & Hamid, M. (2021). The effects of service quality, perceived value and trust in home delivery service personnel on customer satisfaction: Evidence from a developing country. *Journal of Retailing and Consumer Services*, 63, 102721. doi:<https://doi.org/10.1016/j.jretconser.2021.102721>
- Vaaland, T. I., Heide, M., & Grønhaug, K. (2008). Corporate social responsibility: investigating theory and research in the marketing context. *European Journal of Marketing*, 42(9/10), 927–953.
- Van Weele, & J., A. (2010). *Purchasing and Supply Chain Management. Analysis, Strategy, Planning and Practice*.
- Vázquez-Martínez, U., Morales-Mediano, J., & Leal-Rodríguez, A. (2021). The impact of the COVID-19 crisis on consumer purchasing motivation and behavior. *Europ Res Manag Bus Econ*, 27, 100166.
- Vierdwiyani, D., & Syafarudin, A. (2020). Analysis Of Service Quality And Brand Image On Customer Satisfaction Through Purchase Decisions As Intervening Variable (Case Study E-Commerce Shopee At Villa Galaxy Housing Rt 002). *Dinasti International Journal of Management Science*, 1(6), 802–815. doi:<https://doi.org/10.31933/dijms.v1i6.390>
- VILLENA, V., WILHELM, M., & XIAO, C. (2021). Untangling Drivers for Supplier Environmental and Social Responsibility : An Investigation in Philips Lighting's Chinese Supply Chain. *Journal of Operations Management*, 67(4), 476–510.
- Wang, C.-Y., & Wu, L.-W. (2012). Customer loyalty and the role of relationship length. *Managing Service Quality*, 22(1), 58–74. doi:<https://doi.org/10.1108/09604521211198119>
- Wang, C. Y., Chen, H. M., & Yang, Y. P. (2021). The monopoly and supervision suggestions of platform economy in the era of digital economy. *E-government*, 5, 2–11.
- WANG, J.-y., QIAO, M.-y., & SUN, W. (2020). Research on the Non-linear R elationship between CSR and Customer Loyalty. *Journal of Shandong Technology and Business University*, 34(4), 74–83.
- WANG, X.-y., & XU, X.-y. (2022). Research on the Development Status and Future Trend of Fresh E-commerce. *Logistics Sci-Tech*, 5, 81–83.
- Wangwacharakul, P., Márquez Medina, S., & Poksinska, B. B. (2021). Cross-cultural comparability of customer satisfaction measurement – the case of mobile phone service providers. *International Journal of Quality and Service Sciences*, 13(2), 236–252. doi:10.1108/IJQSS-01-2020-0011

- Watanabe, E. A. d. M., Torres, C. V., & Alfinito, S. (2019). The impact of culture, evaluation of store image and satisfaction on purchase intention at supermarkets. *Revista de Gestão*, 26(3), 256–273. doi: <https://doi.org/10.1108/REG-12-2017-0009>
- Wei, G.-x., & Li, Y. (2022). Sustainability of Agricultural Supply Chain Incorporating Corporate Social Responsibility. *JOURNAL OF CHONGQING JIAOTONG UNIVERSITY (Social Sciences Edition)*, 22(4), 44–56.
- Weyer, J., Tiberius, V., Bican, P., & Kraus, S. (2020). Digitizing grocery retailing: the role of emerging technologies in the value chain. *Int J Innov Technol Manag*, 17, 2050058.
- Whetten, D. A., Rands, G., & Godfrey, P. (2002). What are the responsibilities of business to society? In A. Pettigrew, H. Thomas, & R. Whittington (Eds.), *Handbook of Strategy and Management* (pp. 373–408). London: Sage.
- Wijaya, O. (2023). The role of strategic entrepreneurship and social capital on sustainable supply chain management and organizational performance. *Uncertain Supply Chain Management*, 11(1), 53–60.
- Windsor, D. (2001). The future of corporate social responsibility. *The International Journal of Organizational Analysis*, 9(3), 225 – 256.
- Wu, C.-s. (2015). Research on Fresh Food E-commerce Development Model Abroad. *World Agriculture*, 5, 136–138.
- WU, D.-y., & XIN, Y.-j. (2018). Study on the Influence of CSR on Consumers' Purchasing Intention —from the Perspective of Rational Behavior Theory. *CONSUMER ECONOMICS*, 34(3), 54–61.
- Wu, K.-W. (2006). *Service quality, customer satisfaction, and customer loyalty in consumer electronics e-tailers: A structural equation modeling approach*. (Doctor of Philosophy). Lynn university, Ann Arbor, MI.
- Xie, P.-h., & Zhou, Z.-c. (2009). Empirical study on the Relationship between Corporate Social Responsibility and Consumer Purchase Intention in China. *Nankai Business Review*, 12(1), 71–83.
- Xie, Y., Peng, L.-l., & Peng, S.-q. (2013). The Effecting Mechanism of Corporate Social Responsibility on Customer Loyalty. *East China Economic Management*, 27(2), 85–91.
- Xin, M. (2023). Research on Supply Chain Innovation of Fresh Agricultural Products *Co-Operative Economy & Science*, 11, 81–83.
- Xu, H.-t. (2022). Decision of TPL-led Fresh Produce Three-layer E-commerce Supply Chain. *Industrial Engineering Journal*, 25(1), 75–82.

- Xu, X., & Gursoy, D. (2015). Influence of sustainable hospitality supply chain management on customers' attitudes and behaviors. *International journal of hospitality management*, 49, 105–116.
- Yang, Y., Yang, L., Chen, H., & Yang, J. (2020). Risk factors of consumer switching behaviour for cross-border e-commerce mobile platform. *Internatioanl Journal of Mobile Communications*, 18(6), 641–664.
- Yao, F., Yan, Y., & Liu, s. (2021). Recycling and pricing decisions for closed-loop supply chain considering corporate social responsibility investment under government's subsidy. *Operations Research and Management Science*, 30(6), 69–76.
- Yi, X., Lu-luo, P., & Si-qing, P. (2013). The Effecting Mechanism of Corporate Social Responsibility on Customer Loyalty. *East China Economic Management*, 27(2), 85–91.
- Yin, W., & Lertbuasin, S. (2022). Perceived Value Effect of Customer Satisfaction and Behavioral Intentions the Case Study of China's Cross-Border E-Commerce Platforms in Thailand. *Journal of Roi Kaensarn Academi*, 7(1), 304–320.
- Yu, B.-q., Li, S.-d., & Cui, L.-l. (2019). A Study of the Influence Factors of Consumer Trust under the Cross-Platform Multiple Synergies. *Journal of Northeast Normal University (Philosophy and Social Sciences)*, 299(3), 184–193.
- Yu, H. S., Zhang, J. J., Kim, D. H., Chen, K. K., Henderson, C., Min, S. D., & Huang, H. (2014). Service quality, perceived value, customer satisfaction, and behavioral intention among fitness center members aged 60 years and over. *Social Behavior and Personality: an international journal*, 42(5), 757–767. doi:<https://doi.org/10.2224/sbp.2014.42.5.757>
- Yu, P., & Zhao, D. (2013, 18–20 September). *Effect of website quality factors on the success of agricultural products B2C e-commerce*. Paper presented at the International Conference on Computer and Computing Technologies in Agriculture, Beijing, China.
- Zameer, H., Tara, A., Kausar, U., & Mohsin, A. (2015). Impact of service quality, corporate image and customer satisfaction towards customers' perceived value in the banking sector in Pakistan. *International journal of bank marketing*, 33(4), 442–456. doi:<https://doi.org/10.1108/IJBM-01-2014-0015>
- ZAN, M.-y., CHEN, G., & WANG, Z.-b. (2020). Development of E-commerce of Fresh Agricultural Products in China: Progress, Difficulties and Strategies. *On Economic Problems*, 12, 68–74.
- Zarrin, S. (2022). *Maturity Model for Customer-Centric Approach in Enterprise: The Case of E-commerce and Online Retail Industry*. Portland State University,

- Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1993). The nature and determinants of customer expectations of service. *Journal of the academy of marketing science*, 21, 1–12. doi:<https://doi.org/10.1177/0092070393211001>
- Zeng, Y.-w., Wan, L., & Guo, H.-d. (2016). Agricultural E-commerce Research: A Review of the Current Status and Prospect. *China Rural Survey*, 3, 82–93+97.
- Zennaro, I., Finco, S., Calzavara, M., & Persona, A. (2022). Implementing E-commerce from logistic perspective: Literature review and methodological framework. *Sustainability*, 14(2), 911–947.
- Zerbini, C., Bijmolt, T. H. A., Maestripietri, S., & Luceri, B. (2022). Drivers of consumer adoption of e-Commerce: A meta-analysis. *International Journal of Research in Marketing*, 39(4), 1186–1208.
- ZHANG, B., & PAN, S.-t. (2018). Corporate Social Responsibility of the Fresh Food E-commerce and Consumers' Trust Repair Willingness. *Journal of South China Agricultural University(Social Science Edition)*, 17(6), 77–91.
- Zhang, B., & Pan, S. (2018). Corporate social responsibility of the fresh food e-commerce and consumers' trust repair willingness. *Journal of South China Agricultural University: Social Science Edition*, 17(6), 77–91.
- Zhang, B., & Xu, C.-z. (2018). Experience reference of social multi-component governance of product quality and safety risk of foreign fresh e-commerce platform. *World Agriculture*, 10, 4–9+266.
- Zhang, L. (2022). Reconstructing Fresh Agricultural Supply Chain Based on "Internet+". *Modern Food*, 28(18), 86–88.
- Zhang, L., Xiang, N., & Chen, H.-h. (2022). Research on the necessity, mechanism and effect evaluation of agricultural product e-commerce quality and safety control. *Journal of Food Safety and Quality*, 13(1), 262–269.
- Zhang, S. (2021). The Impact of Corporate Social Responsibility on Consumer Loyalty. *Journal of Henan University (Social Sciences)*, 61(6), 24–32.
- Zhang, Y. M. (2020). *The Comparisons on Supply Chain Mode of Fresh E-commerce Supermarkets Between China and Abroad* (Master of International Business). Jilin University, Jilin, China.
- Zhang, Z., Wang, X., & Wu, X. (2021). Innovation of Fresh Agricultural Products Supply Chain Mode in E-commerce Environment. *Logistics Technology*, 40(10), 84–88.
- Zhao, L. (2023). Analysis of fresh agricultural products supply chain development difficulties and countermeasures. *Marketing Circles*, 9, 104–106.

- Zhao, Z.-h. (2022). Problems with Fresh Agricultural Products E-commerce and the Countermeasures. *Heilongjiang Grain*, 9, 102–104.
- Zhaoquan, J., & Yun, K. (2017). The Impacts of Service Failure , Service Recovery on Customer Satisfaction and Loyalty in the Context of Online Shopping. *Management Review*, 29(1), 175–186.
- Zheng, Q. J., Chen, J. H., Zhang, R., & Wang, H. H. (2020). What factors affect Chinese consumers' online grocery shopping? Product attributes, e-vendor characteristics and consumer perceptions. *China Agricultural Economic Review*, 12, 193–213.
- Zhu, C.-n. (2013). Fuzzy Comprehensive Evaluation of Fresh Farm Produce Supply Chain Mode Based on Customer Satisfaction: In the Case of Nanjing. *Supply Chain Management*, 32(12), 351–355.
- Zins, A. H. (2001). Relative attitudes and commitment in customer loyalty models: some experience in the commercial airline industry. *International Journal of Service Industry Management*, 12(3), 269–294.





This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.



This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

## APPENDIX A

### QUESTIONNAIRE

This questionnaire is a part of the research of the Doctor of Philosophy Program in Industrial Business Administration (International Program), Faculty of KMITL Business School, at KMITL University. The data collected from this questionnaire will be treated with the utmost confidentiality. Kindly answer to the best of your knowledge. Thank you for your co-operation and your time. We wish you good health and a happy life!

#### Part I

##### 1. Age

- 18-30 years old
- 31-40 years old
- 41-50 years old
- 51 years old and above

##### 2. Sex: Male Female

##### 3. Occupation

- Teacher
- Student
- Enterprise and public institution personnel
- Government civil servant
- Private enterprise owner
- Others

##### 4. Education

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

- High school or lower
- Vocational/Diploma Holder
- Bachelor
- Master
- Doctorate or Higher

**5. Monthly Income (RMB)**

- 0-3000
- 3001-5000
- 5001-8000
- 8001-10000
- More than 10000

**6. The number of times you shopped at the fresh food E-commerce platform/app in the past year**

- 1-5 times
- 6-10 times
- 11-15 times
- More than 20 times

**7. The average amount (RMB) spent per purchase when shopping at this fresh food E-commerce platform/app is**

- 100 yuan and below
- 101-200

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

201-300

301-500

More than 500

## Part II

Please answer each of the following question by  $\surd$  in the blank spaces provided, that match your opinion. The scale is classified into five levels as follows (1=very disagree, 2-disagree, 3=neutral, 4=agree, 5=very agree)

QUESTIONS	Very disagree→Very agree				
	1	2	3	4	5
<b>Customer Loyalty</b>					
1. I will continue using this E-commerce platform to make fresh food purchase in future.					
2.As long as the present service continues, I doubt that I would switch fresh food E-commerce platforms.					
3. I try to use the fresh food E-commerce platform whenever I need to make a purchase.					
4. When I need to make a purchase, this fresh food E-commerce platform is my first choice.					
5.To me this fresh food E-commerce platform is the best retail Fresh food E-commerce platform to do business with.					
6.I believe that this is my favorite fresh food E-commerce platform.					
<b>Customer Satisfaction</b>					
1. I am satisfied with my decision to purchase from this fresh food E-commerce platform.					
2.If I had to purchase again, I would feel differently about buying from this fresh food E-commerce platform.					
3. My choice to purchase from this fresh food E-					

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

commerce platform was a wise one.					
4. I feel badly regarding my decision to buy from this fresh food E-commerce platform.					
5. I think I am doing the right thing by buying from this fresh food E-commerce platform.					
6. I am unhappy that I purchased from this fresh food E-commerce platform.					
<b>Perceived Value</b>					
1. Products purchased at this Fresh food E-commerce platform have value for money.					
2. Products purchased at this Fresh food E-commerce platform are considered as a good buy.					
3. You get what you pay for at this Fresh food E-commerce platform.					
4. Products purchased at this Fresh food E-commerce platform are worth the money paid.					
<b>Customer Expectation of Responsible Supply Chain Management</b>					
1. This fresh food E-commerce platform should be used easily and quickly.					
2. This fresh food E-commerce platform should fulfill its promises about order delivery and item availability.					
3. This fresh food E-commerce platform should function properly.					
4. This fresh food E-commerce platform should be safe and protect customer information.					
5. The overall expectation of service quality to the fresh food E-commerce platform is very high.					
<b>Trust</b>					
1. This fresh food E-commerce platform is trustworthy.					
2. I can trust the performance of this fresh food E-commerce platform to be good.					

3. I am prepared to give private information to this fresh food E-commerce platform.					
4. I am willing to give my credit card information to this fresh food E-commerce platform.					
5. I feel that this fresh food E-commerce platform would provide me with good service.					
6. I believe in the information that this fresh food E-commerce platform provides me.					
7. This fresh food E-commerce platform is genuinely committed to my satisfaction.					
<b>Perceived Quality of Responsible Supply Chain Management</b>					
1. This Fresh food E-commerce platform provides correct information about the item that I want to purchase.					
2. Overall, I think this Fresh food E-commerce platform provides useful information.					
3. This Fresh food E-commerce platform provides timely information on the item.					
4. This Fresh food E-commerce platform provides reliable information.					
5. This Fresh food E-commerce platform provides sufficient information when I try to make a transaction.					
<b>Platform Image of Responsible Supply Chain Management</b>					
1. The fresh food E-commerce platform is innovative and pioneering.					
2. The fresh food E-commerce platform is successful.					
3. The fresh food E-commerce platform is persuasive and shrewd.					
4. The fresh food E-commerce platform does business in an ethical way.					
5. The fresh food E-commerce platform is open and					

responsive to consumers.					
--------------------------	--	--	--	--	--



This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

## 调查问卷

本问卷是KMITL商学院工商管理哲学博士项目（国际项目）研究的一部分。从本问卷中收集的数据将被严格保密。请尽您所能回答问题。

第一部分：

### 1、年龄

18岁以下

18--25岁

26-30岁

31-35岁

36-40岁

41-45岁

50岁以上

### 2、性别

男

女

### 3、职业

学生

教师

企事业单位人员

公务员

私有企业主

其他

### 4、教育程度

本科

硕士

博士

### 5、税前月收入

3000元以下

3001-5000元

5001-8000元

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

8001-10000 元

10000 以上

6、一年中在生鲜电商频台购物频率

1-5 次

6-10 次

11-15 次

16-20 次

20 次以上

7、在生鲜电商平台购物平均消费金额

100 元或以下

101-200 元

201-300 元

301-500 元

500 元以上

8、最近一年内常用的生鲜电商平台

京东到家

叮咚买菜

朴朴

永辉生活

美团优选

盒马

其他

第二部分

请勾选√以下问项。

问项	非常不同意→非常同意				
	1	2	3	4	5
<b>顾客忠诚度</b>					
1. 我几乎不会考虑转向到其他生鲜电商平台。					
2. 只要现有服务保持不变，我几乎不会转到其他生鲜电商平台。					
3. 在需要购买时，我会优先选择该生鲜电商平台。					
4. 该生鲜电商平台是我购物时的首选。					
5. 我喜欢在该生鲜电商平台购物。					
6. 我认为该生鲜电商平台是购物的最佳选择。					
<b>顾客满意度</b>					
1. 我对在该生鲜电商平台购物感到满意。					
2. 如果让我再次选择，我对这个生鲜电商平台有不同的看法。					
3. 我选择在该生鲜电商平台购物是一个明智的决定。					
4. 我对在该平台上的购买决定感到后悔。					
5. 我认为在该生鲜电商平台购物是正确的选择。					
6. 我对在该生鲜电商平台购物感到不满意。					
<b>感知价值</b>					
1. 从该生鲜电商平台购买的商品物有所值。					
2. 从该生鲜电商平台购买的商品被认为是一次不错的选择。					
3. 在该平台购物，价格和价值相符。					
4. 从该平台购买的商品值得所支付的费用。					
<b>对负责任供应链管理的顾客期望</b>					
1. 该生鲜电商平台应使用便捷，快速响应。					

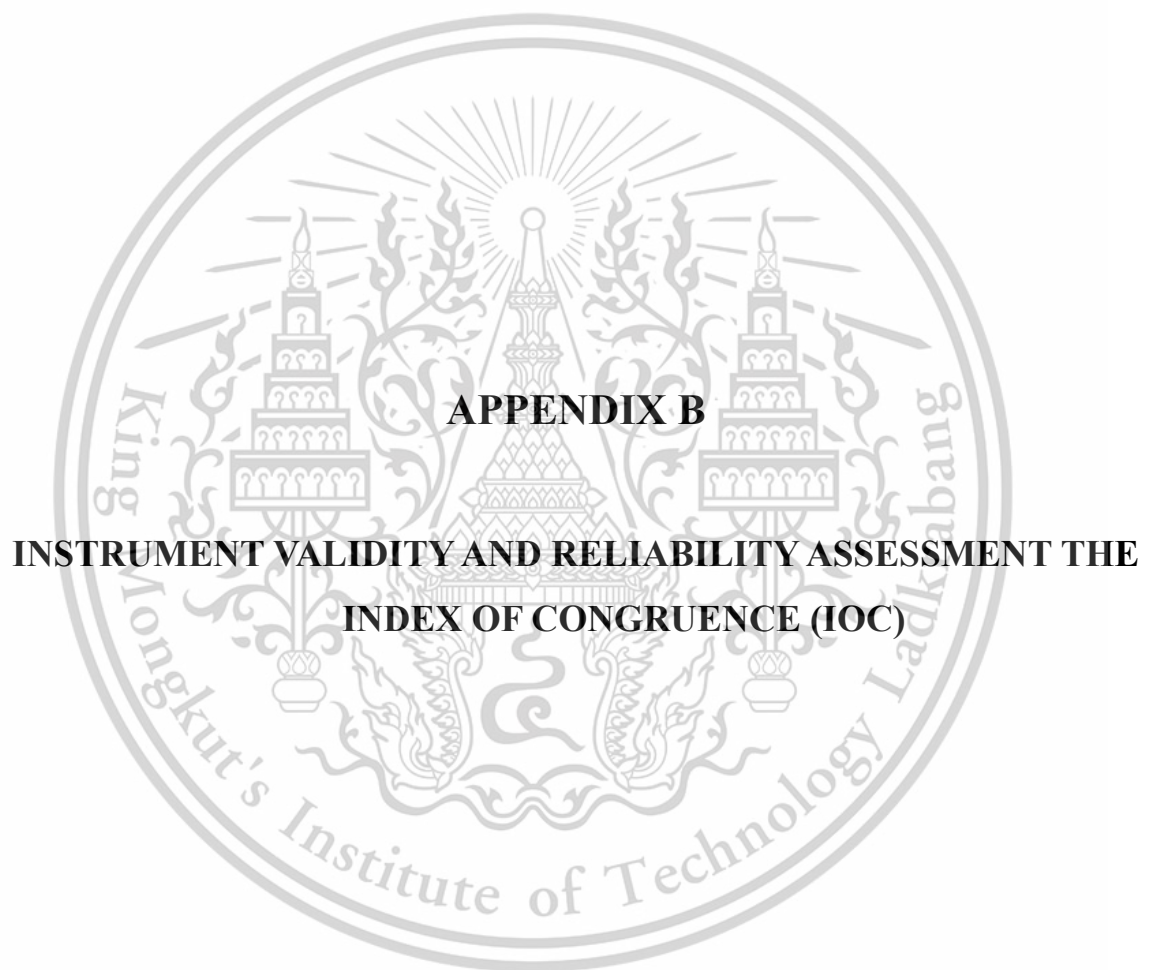
2. 该平台应兑现关于订单交付和商品供应的承诺。					
3. 该平台应正常运作，不出现故障。					
4. 该平台应保障用户的个人信息安全。					
5. 我对该生鲜电商平台服务质量的整体期望值很高。					
<b>信任</b>					
1. 我信任该生鲜食品电商。					
2. 我相信该平台的服务会很好。					
3. 我愿意向该生鲜电商平台提供个人隐私信息。					
4. 我愿意向该生鲜电商平台提供信用卡信息。					
5. 我觉得该平台会为我提供优质服务。					
6. 我相信该平台提供的信息是真实可靠的。					
7. 该生鲜电商平台真正致力于满足我的需求。					
<b>对负责任供应链管理的感知质量</b>					
1. 该平台提供的商品信息是准确无误的。					
2. 总的来说，我认为该平台提供了有用的信息。					
3. 该平台及时提供商品信息。					
4. 该平台提供的商品信息可靠。					
5. 该生鲜电商平台在我进行交易时提供了足够的商品信息。					
<b>负责任供应链管理平台形象</b>					
1. 该平台具有创新性和开拓性。					
2. 该平台运营成功。					
3. 该平台既能打动人心，又具备敏锐的商业洞察力。					
4. 该平台开展业务符合道德规范。					

5. 该平台对消费者保持开放且快速响应。					
----------------------	--	--	--	--	--



This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.



This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

**APPENDIX B**  
**INSTRUMENT VALIDITY AND RELIABILITY**  
**ASSESSMENT**  
**THE INDEX OF CONGRUENCE (IOC)**

The Item of Congruence (IOC) was used to assess the instruments' validity. Three experts—academicians and executives—who have utilized digital education platforms were asked to assess the questions' appropriateness and the significance of any changes. The instrument calculation for the IOC between each question and variable was also included in this assessment. The questions were deemed suitable if their IOC was higher than 0.05. The following will be the criteria.

1=Congruent

0=Uncertainty

-1 =Incongruent

The IOC ranges from -1 to +1. Hence, a question was considered good the closer it is to +1. The questions having an IOC, which is less than 0.6, were revised. Those with IOC less than 0.5 were excluded from the questionnaire (Turner & and Carlson, 2003). The range of IOC included:

+1 = the questions were found to be congruent with the content

0= the questions are uncertain if the questions would be congruent with the content-1=

the questions are found to be incongruent with the content

QUESTIONS	Item Objective Congruence			Results	
	Expert1	Expert 2	Expert3	Total	IOC Index
<b>Customer Loyalty</b>					
1. I will continue using this E-commerce platform to make fresh food purchase in future.	1	1	1	3	1
2.As long as the present service continues, I doubt that I would switch fresh food E-commerce platforms.	1	1	1	3	1
3. I try to use the fresh food E-commerce platform whenever I need to make a	1	1	1	3	1

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

purchase.					
4. When I need to make a purchase, this fresh food E-commerce platform is my first choice.	1	1	1	3	1
5.To me this fresh food E-commerce platform is the best retail Fresh food E-commerce platform to do business with.	1	1	1	3	1
6.I believe that this is my favorite fresh food E-commerce platform.	1	1	1	3	1
<b>Customer Satisfaction</b>					
1. I am satisfied with my decision to purchase from this fresh food E-commerce platform.	1	1	1	3	1
2.If I had to purchase again, I would feel differently about buying from this fresh food E-commerce platform.	1	1	1	3	1
3. My choice to purchase from this fresh food E-commerce platform was a wise one.	1	1	1	3	1
4. I feel badly regarding my decision to buy from this fresh food E-commerce platform.	1	1	1	3	1
5. I think I am doing the right thing by buying from this fresh food E-commerce platform.	1	1	1	3	1
6. I am unhappy that I purchased from this fresh food E-commerce platform.	1	1	1	3	1
<b>Perceived Value</b>					
1. Products purchased at this Fresh food E-commerce platform have value for money.	1	1	1	3	1
2. Products purchased at this Fresh food E-commerce platform are considered as a	1	1	1	3	1

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

good buy.					
3. You get what you pay for at this Fresh food E-commerce platform.	1	1	1	3	1
4. Products purchased at this Fresh food E-commerce platform are worth the money paid.	1	1	1	3	1
<b>Customer Expectation of Responsible Supply Chain Management</b>					
1. This fresh food E-commerce platform should be used easily and quickly.	1	1	1	3	1
2. This fresh food E-commerce platform should fulfill its promises about order delivery and item availability.	1	1	1	3	1
3. This fresh food E-commerce platform should function properly.	1	1	1	3	1
4. This fresh food E-commerce platform should be safe and protect customer information.	1	1	1	3	1
5. The overall expectation of service quality to the fresh food E-commerce platform is very high.	1	1	1	3	1
<b>Trust</b>					
1. This fresh food E-commerce platform is trustworthy.	1	1	1	3	1
2. I can trust the performance of this fresh food E-commerce platform to be good.	1	1	1	3	1
3. I am prepared to give private information to this fresh food E-commerce platform.	1	1	1	3	1
4. I am willing to give my credit card information to this fresh food E-commerce platform.	1	1	1	3	1
5. I feel that this fresh food E-commerce platform would provide me with good	1	1	1	3	1

service.					
6. I believe in the information that this fresh food E-commerce platform provides me.	1	1	1	3	1
7.This fresh food E-commerce platform is genuinely committed to my satisfaction.	1	1	1	3	1
<b>Perceived Quality of Responsible Supply Chain Management</b>					
1. This Fresh food E-commerce platform provides correct information about the item that I want to purchase.	1	1	1	3	1
2. Overall, I think this Fresh food E-commerce platform provides useful information.	1	1	1	3	1
3. This Fresh food E-commerce platform provides timely information on the item.	1	1	1	3	1
4. This Fresh food E-commerce platform provides reliable information.	1	1	1	3	1
5. This Fresh food E-commerce platform provides sufficient information when I try to make a transaction.	1	1	1	3	1
<b>Platform Image of Responsible Supply Chain Management</b>					
1. The fresh food E-commerce platform is innovative and pioneering.	1	1	1	3	1
2. The fresh food E-commerce platform is successful.	1	1	1	3	1
3. The fresh food E-commerce platform is persuasive and shrewd.	1	1	1	3	1
4. The fresh food E-commerce platform does business in an ethical way.	1	1	1	3	1
5. The fresh food E-commerce platform is open and responsive to consumers.	1	1	1	3	1



This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

## APPENDIX C

### CFA ANALYSIS RESULTLS

#### Harman's Single-Factor Test

Eigenvalues (Initial)	% of Variance (Initial)	% of Cum. Variance (Initial)
12.119	31.08%	31.08%
3.497	8.97%	40.04%
3.299	8.46%	48.50%
2.977	7.63%	56.13%
2.634	6.75%	62.89%
2.41	6.18%	69.07%
1.452	3.72%	72.79%
KMO	0.933	
Bartlett's Test of Sphericity (Chi-Square)	12327.874	
df	741	
p	0	

#### Descriptive Statistics of Variables and Normality Test

Structures	Mean	Std. Deviation	Kurtosis	Skewness
CL	3.465	0.849	-0.268	-0.499
CS	3.546	0.906	-0.444	-0.368
PV	3.61	0.926	-0.966	-0.223
CE	3.774	0.893	-0.807	-0.44
TR	3.516	0.874	-0.123	-0.433
PQ	3.51	0.908	-0.483	-0.324
PI	3.5	0.828	-0.405	-0.525

Note:CL(Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)

#### Reliability and Convergent Validity of Constructs

Structures	Item	Loading	CA	CR	AVE
	CE1	0.899			
	CE2	0.894			
CE	CE3	0.888	0.932	0.949	0.787
	CE4	0.878			
	CE5	0.876			
	CL1	0.821			
	CL2	0.833			
CL	CL3	0.828			
	CL4	0.844	0.926	0.94	0.692
	CL5	0.821			
	CL6	0.824			
	CL7	0.852			
	CS1	0.883			
	CS2	0.863			
CS	CS3	0.879			
	CS4	0.831	0.928	0.943	0.735
	CS5	0.855			
	CS6	0.832			
	PI1	0.84			
	PI2	0.833			
PI	PI3	0.821	0.888	0.917	0.69
	PI4	0.834			
	PI5	0.825			
	PQ1	0.852			
PQ	PQ2	0.884	0.925	0.943	0.769
	PQ3	0.884			

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

	PQ4	0.87			
	PQ5	0.893			
	PV1	0.839			
PV	PV2	0.837	0.85	0.899	0.689
	PV3	0.837			
	PV4	0.807			
	TR1	0.869			
	TR2	0.866			
	TR3	0.837			
TR	TR4	0.842	0.932	0.945	0.712
	TR5	0.855			
	TR6	0.837			
	TR7	0.798			

**Note:** CL (Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)

#### HTMT Criterion of Constructs

	CE	CL	CS	PI	PQ	PV	TR
CE							
CL	0.341						
CS	0.352	0.341					
PI	0.342	0.327	0.251				
PQ	0.327	0.359	0.382	0.279			
PV	0.458	0.553	0.401	0.447	0.42		
TR	0.381	0.346	0.301	0.244	0.357	0.477	

**Note:** CL (Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain

Management)

### Discriminant Validity of Constructs

	CE	CL	CS	PI	PQ	PV	TR
CE	<b>0.887</b>						
CL	0.319	<b>0.832</b>					
CS	0.329	0.318	<b>0.857</b>				
PI	0.312	0.297	0.229	<b>0.831</b>			
PQ	0.306	0.332	0.355	0.254	<b>0.877</b>		
PV	0.409	0.491	0.359	0.388	0.376	<b>0.83</b>	
TR	0.356	0.327	0.284	0.222	0.331	0.425	<b>0.844</b>

**Note:** CL (Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)



This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

## APPENDIX D

### SEM ANALYSIS RESULTS

#### Effect Size of Exogenous Latent Constructs

Relationships	f-square	Outcome
CE -> CS	0.029	Middle
CE -> PQ	0.103	Middle
CE -> PV	0.125	Middle
CS -> CL	0.044	Middle
CS -> TR	0.064	Middle
PI -> CE	0.109	Middle
PI -> CL	0.05	Middle
PI -> CS	0.002	Small
PI -> TR	0.029	Middle
PQ -> CS	0.051	Middle
PQ -> PV	0.091	Middle
PV -> CS	0.032	Middle
TR -> CL	0.046	Middle
Age -> CL	0.001	Small
Education level -> CL	0.029	Middle
Frequency of purchasing -> CL	0.002	Small
Gender -> CL	0.005	Small
Income -> CL	0.016	Small

**Note:** CL (Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)

#### R<sup>2</sup> and Q<sup>2</sup> Value of Endogenous Latent Constructs

Construct	R-square	R-squared adjusted	Q <sup>2</sup> predict
-----------	----------	--------------------	------------------------

This material is reserved for educational use only, not allowed for commercial use.

Forbidden to modify the content, and cite the document when use.

CE	0.098	0.096	0.093
CL	0.238	0.224	0.112
CS	0.213	0.205	0.041
PQ	0.093	0.091	0.039
PV	0.236	0.233	0.082
TR	0.107	0.103	0.043

**Note:** CL (Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)

#### Direct Path Hypothesis Testing

H	Direct Path	$\beta$	Standard Error (SE)	P	Decision
H1a	CS—CL	0.195	0.045	0	Supported
H1b	TR—CL	0.199	0.045	0	Supported
H1c	PI—CL	0.203	0.045	0	Supported
H2a	CS—TR	0.247	0.045	0	Supported
H2b	PI—TR	0.165	0.05	0.001	Supported
H3a	PV—CS	0.188	0.05	0	Supported
H3b	CE—CS	0.17	0.051	0.001	Supported
H3c	PQ—CS	0.221	0.047	0	Supported
H3d	PI—CS	0.046	0.044	0.296	Not Supported
H4a	CE—PV	0.324	0.043	0	Supported
H4b	PQ—PV	0.276	0.045	0	Supported
H5	CE—PQ	0.306	0.045	0	Supported
H6	PI—CE	0.313	0.045	0	Supported
-	Age—CL	0.026	0.044	0.554	Not Supported
-	Education level—CL	0.15	0.041	0	Supported
-	Buying Frequency—CL	0.035	0.044	0.428	Not Supported
-	Gender—CL	0.124	0.092	0.179	Not Supported

-	Income—CL	0.115	0.044	0.008	Supported
---	-----------	-------	-------	-------	-----------

**Note:** CL (Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)

#### Mediation Path Hypothesis Testing

H	Direct Path	$\beta$	Standard Error (SE)	P	Decision
H7	CE -> CS -> CL	0.033	0.013	0.008	Supported
H8	PI -> CS -> CL	0.009	0.009	0.308	Not Supported
H9	PI -> TR -> CL	0.034	0.013	0.012	Supported
H10	PQ -> CS -> CL	0.043	0.014	0.002	Supported
H11	PV -> CS -> CL	0.037	0.015	0.013	Supported
H12	CS -> TR -> CL	0.05	0.015	0.001	Supported

**Note:** CL (Customer Loyalty); CS(Customers Satisfaction); PV(Perceived Value); CE(Customer Expectation of Responsible Supply Chain Management); TR(Trust); PQ(Perceived Quality of Responsible Supply Chain Management); PI(Platform Image of Responsible Supply Chain Management)

## AUTHOR BIOGRAPHY

<b>Name</b>	Mrs. XiaoHua Ke
<b>Date of Birth</b>	14 April 1975
<b>Address</b>	NanNing, Guangxi, the People's Republic of China
<b>Education</b>	Master of Business Administration of Guangxi University, China, 2010-2012
<b>Work Experience</b>	NanNing University, China

