เรียนรู้เพื่อรับใช้สังคม

A STUDY ON SATISFACTION FACTORS OF CUSTOMERS OF VEGETABLE RETAIL PLATFORMS

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A Study on Satisfaction Factors of Customers of Vegetable Retail Platforms

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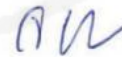
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Abstract

Providing customers with a satisfactory consumer experience is an important task for vegetable platforms. To expand market share and gain a competitive advantage over competitors, which is closely related to the survival and development of the company, vegetable retail platforms must consider customer satisfaction and satisfy them with innovative solutions. The platform has a good policy environment in the past development, but still faces bottlenecks in the development process, such as the logistics layout of the platform and unreasonable platform design. For the vegetable retailing platform, how to improve customer satisfaction so that the platform can provide better service and quality for customers becomes the development goal of the vegetable retailing platform.

The environmental factors of vegetable retailing platforms explored include scale, price, cross-regional, platform design, security, and logistics. This study uses a survey method for quantitative research. Multiple regression analysis was used to study customer satisfaction. The data was studied using a set of collected questionnaires and measured using a five-point Likert scale. Finally, the data collection for this study was designed as a questionnaire for 400 customer satisfaction surveys.

The final result from the data collected using SPSS is that the factors of platform service and platform quality play a positive influence on vegetable retail

platforms. Relying on this result, it can help vegetable retailing platforms can achieve better revenue in the future.

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WENG YUMEI

Table of Contents

Table of Contents (Continued)

Table of Contents (Continued)

Table of Tables

Table of Tables (Continued)

Table of Figures

Chapter 1

Introduction

1.1 Introduction

In 1995, the comprehensive spot network of Zhengzhou Commodity Exchange (later renamed "China Grain Network") opened online grain trading. Then, after more than 20 years of development, agricultural products have become the fourth major e-commerce boom, following the three major e-commerce booms of clothing and commodities. In the first stage of a startup, e-commerce was concerned with trading through the Internet. The second phase was the growth phase, where companies began to integrate their core business processes and build relationships among employees, suppliers, and partners. The third phase was the stabilization phase, where e-businesses managed themselves through technologies, such as connecting, adapting, integrating, and repairing their IT systems. They focused on their core business development. Meanwhile, the fourth stage is the mature stage, where e-commerce is free from the traditional sales model and communicates with users at a deeper level from multiple perspectives, such as active, interactive, and user care. Several outstanding enterprises have emerged, such as Shanghai Grain Butler, COFCO I Buy, Shun Feng Express, Daily Orchard, etc. In 2014, the online retail sales of agricultural products were valued at about 100 billion yuan (Liu, 2014). The rapid development of agricultural products e-commerce has greatly influenced people's living habits and changed the way consumers obtain vegetables daily, from physical store purchases to online orders and offline delivery. It has realized the consumers' desire to enjoy food from all over the world without leaving home. This saves time and increases the variety of choices and greatly improves convenience. In the past, vegetable trading is mainly based on traditional physical operations. With the development of information technology and the widespread of network facilities, especially the promotion of mobile terminals, consumers can now purchase vegetables through an online retailing

platform. In this case, e-commerce enterprises and traditional enterprises have been involved in the huge vegetable market, making the competition very fierce. Because of this, improving customer satisfaction is detrimental for e-commerce enterprises to gain a competitive edge above others.

After vegetables are traded online, the big data platform can capture effective information and analyze consumers' preferences, thus helping operators to adjust the price and other factors of the vegetable retail platform to prompt consumers to buy. The construction of a vegetable retail platform can promote the development of an agricultural products e-commerce platform, prompting the transformation of traditional agriculture to the Internet, making it more informative, standardized, and branded, thus further promoting the development of the social economy. According to 2020 data from HEMA, for example, the flow of the HEMA APP continues to grow, online orders increased by 290% compared to the same period last year; the professional vegetable retail platform has become the fashion, and some traditional supermarkets also use online shopping platform, vegetable retail platform third party platform to expand the online retail of vegetables as well as agricultural products, to achieve offline customer diversion to online, the number of clicks and orders also achieved a doubling. As an effective marketing method, the Internet has greatly facilitated the development of vegetable retail platforms. Hema is a vegetable retail platform under Alibaba. The platform differentiates itself through the adoption of big data, mobile internet, automation, as well as other technologies. Moreover, the company's advance equipment allows for the best matching of people, goods, and places. Hema also has its own complete logistics system, from supply chain and warehousing to distribution. Apart from the platform, the company sales channels also include its supermarket chain in China, where more products are available to users. Strategically, broadening its trading channels, eliminate information symmetry, narrow distance between companies and customers, reduce transaction costs, as well as bring forth quality products. (The Supermarket Hema, 2018). However even with

high integration of technology, the vegetable retail platform still faces many challenges, including: 1) As a platform service, products are difficult to standardize with high storage costs. Transportation with in as well as cross-regional services are also inconvenient. 2) In terms of platform quality, the platform suffers from its small-scale operations. Platform design and operations are proved to be cumbersome with low level of security (Wang, Zhuang, and Wu, 2018). In addition, customers' awareness of the market has not been widely spread. Business services within the industry also require improvements, leading to hindered e-commerce operations.

Customer satisfaction is the most effective means of creating value and revenue for e-commerce companies. It is the cornerstone of an e-commerce company's success in a highly competitive marketplace. Therefore, if vegetable retail platforms want to maintain a competitive advantage in the market, they must understand the needs of their customers and create a consumer experience that satisfies them.

This study examines the factors that influence customer satisfaction with the products and services offered in vegetable retail platforms to improve customer satisfaction.

1.2 Problem statement

1) Current online vegetable retail platform services could not meet the satisfaction of customers.

2) Current online vegetable retail platforms have good quality to quality of their customers.

1.3 Objectives

1) To determine the impact of online vegetable retail platform services on the satisfaction of customers.

2) To determine the impact of online vegetable retail platform quality on the

satisfaction of customers.

1.4 Hypothesis

H1: Vegetable retail platform services have a positive effect on customer satisfaction.

H1a: The product quality of vegetable retail platforms has a positive impact on customer satisfaction.

H1b: Logistics of the vegetable retailing platform have a positive impact on customer satisfaction.

H1c: The cross-regional service of the vegetable retailing platform has a positive impact on customer satisfaction.

H1d: The service price of the vegetable retailing platform has a positive effect on customer satisfaction.

H2: Vegetable retail platform quality has a positive impact on customer satisfaction.

H2a: The scale of the vegetable retail platform has a positive impact on customer satisfaction.

H2b: The design of the vegetable retail platform has a positive effect on customer satisfaction.

H2c: Security of vegetable retail platform has a positive effect on customer satisfaction.

1.5 Limitation and delimitation

There were limitations in the selection of the sample. Since the researcher is abroad, the sample selection for this study was limited to questionnaires on the Internet. Therefore, this may result in the inability to achieve breadth in sample selection. However, the study creates delimitations by obtaining samples through multiple channels and distributing questionnaires through social media.

1.6 Expected output

      1.6.1 Online vegetable retail platforms would know that any platform services could affect the satisfaction of customers.

      1.6.2 Vegetable retail platforms would know what factors influence customer satisfaction.

      1.6.3 This study can provide a research reference for future research on customer satisfaction in vegetable retailing platforms.

1.7 Definition of terms

Retail platform	The platform for selling products on the Internet. Do not limit the number of products sold.
Customer satisfaction	After comparing the perceived result of a product with the expected value, a state of satisfaction or dissatisfaction is formed by the customer.
Retail market	The retail market is a trading activity in which individuals or businesses sell goods directly to the final consumer.

Chapter 2

Literature review

The literature review of this paper consists of five parts: vegetable market industry, online vegetable industry, factors affecting customer satisfaction with vegetables, theoretical framework, and hypotheses. These five parts provide a better reference at the end of the literature.

2.1 Vegetable market industry

This topic is divided into five parts. The first part will focus on the vegetable market's background, the second part focuses on the types of the vegetable market, the third part focuses on the wholesale market, the fourth part focuses on the retail market, and the fifth part focuses on the online vegetable market.

2.1.1 Background of the vegetable market industry

China is the world's top vegetable producer as well as its consumer. With multitude of events shaping the industry, including: The reform of the vegetable production and marketing system in the mid-1980s, the structural adjustment of the planting industry, which has resulted in rapid development of nationwide vegetable production, namely throughout the advantageous industrial areas. Furthermore, because of the climatic characteristics and resource advantages of different ecological regions, each region has its own set of beneficial varieties and alternate listing slots, resulting in a balanced and complementary regional development pattern. The value of China's vegetable industry in 2016 was 72.248 billion RMB. Also, people's dietary structures are becoming more rationalized as their living consumption levels improve, and demand for vegetable agricultural goods expands (Li and Liu, 2002). Wu (2017)pointed out that it adheres to market orientation and vigorously promotes advanced technologies in facilitating the industry upgrade. The vegetable supply chain is a network chain, which mainly consists of vegetable growers, intermediate

processors，wholesalers, retailers, and consumers at the end of the supply chain. Shi (2011) pointed out that the main component of a successful vegetable supply chain should include flexibility of production, the e of scale, sustainability of supply, and strategic alliance of the subjects in the supply chain. Wang (2011) argued that vegetable growers, intermediaries, and end consumers are important components of the whole supply chain. This is because the construction and normal operation of the supply chain cannot be achieved without the cooperation of enterprises in the supply chain nodes.

First, the gardener provides a continuous supply of vegetables, requiring his full participation at the front end of the supply chain. Second, the intermediary acts as an economic organization or individual who "specializes in mediating the exchange of goods" between manufacturers and consumers. Intermediaries can be classified according to different criteria and depending on whether they own the goods, they can be classified as either distributors or agents. Third, wholesalers are businesses that buy products from manufacturers and resell them to retailers, industrial users, or various non-profit organizations that do not directly serve consumers and are in the center of the flow of goods. Wholesalers are relative to retailers. Retailers possess a small number of products, while wholesalers must store many products. Wholesalers possess many products, generally varying from two pieces to tens of thousands of pieces (Lu, Zhou, Lv, Chao, and Zhou, 2010). Fourth, retailers are intermediaries who sell goods directly to the final consumer. Compared with producers and wholesalers, they are in the final stage of commodity circulation. The task of the retailer is to directly serve the final consumer and facilitate the consumer's purchase. They play an important role in the distribution channel and act as a bridge between producers, wholesalers, and consumers. Fifth, consumers are individuals or individual users of final products who purchase various products and services for personal consumption through retailers. Sixth, final consumers are individuals who purchase goods or services for themselves or family members (Li and Liu, 2002). It is often said in the

field of direct marketing that an end consumer is a person who buys a product for the demand of the product, with the ultimate purpose of consumption. In consumption, the purpose of making money is not distribution. With the analysis, it is clear to conclude that the traditional vegetable supply chain focuses on the structure of the environment of vegetable sellers.

2.1.2   Types of vegetable markets

There are three channels in the vegetable market: wholesale, retail, and online (Shi, 2011). The wholesale channel is where buyers and sellers meet. It is a trading platform where vegetables can be sold in bulk. Therefore, the vegetable base becomes one of the main selling channels. The retail channel is a channel consisting of retailers that sell goods and services to the final consumers. It is the final link of distribution. The retail channel is the final link in the flow of goods from the producer, wholesaler, or agent to the consumer. Once the goods are sold to the consumer, they are out of circulation. Its main service target is the end consumer. A vegetable retail platform refers to the use of an Internet platform to sell vegetables, which can be an online supermarket, website, or application. It is an important component of the overall online marketing system (Ta, 2018) as it helps reduces business costs and improve business competitiveness.

Online platforms are based on websites and are used to promote and sell products or services. The transactions on the website are made by customers who find the products they need on the platform, in which the platform must also offer a diverse range of products (Song, 2019).

In this study, a vegetable retailing platform was created online. A retail platform is a commercial activity that sells goods or services directly to consumers or final consumers. The platform is also the final link in the flow of goods and services into the consumer domain. Through the platform, buyers can browse and query information, purchase vegetables, post vegetable information, and handle orders and after-sales issues. The operation is also overseen by a system administrator who

manages the system and users so that transactions can be conducted in a timely and efficient manner.

2.1.3   Wholesale market

The wholesale vegetable market is an intermediate link connecting the upstream and downstream of the supply chain (Dai, 2016).

Vegetable from wholesaling mainly refers to the wholesale of vegetable market traders to facilitate the circulation of agricultural products.

2.1.4   Retail market

The retail vegetable market is an important part of vegetable marketing (Wang, 2016). This is because the commodity creates a transaction that sells the product directly to the final consumer. Therefore, the retail market is an important part of product sales.

2.1.5   Online vegetable market

The Internet has opened vegetable markets (Li, 2017). Online vegetable markets are emerging e-commerce-type platforms that provide online vegetable buying and home delivery services, and vegetable buying networks are arising in major cities across the country as well as many going extinct due to poor operations. Most of the online market can provide all the vegetables and meat products in the traditional market. In vegetable markets, there are too many vegetable options and sales links. Therefore, online retail platforms are proposed (Feng, 2014) because selling vegetables online can shorten the vegetable supply chain. Therefore, it can be concluded that an online retail platform can reduce the production and distribution chain and reduce costs.

During the outbreak, most consumers turned to e-commerce platforms to make purchases due to safety concerns. The activities of online users are rapidly increasing and closer to the needs of consumers (Liu, 2020). Vegetable retail platforms are becoming increasingly popular. Researchers must use advanced information technology to facilitate the development of vegetable retailing platforms. Through the

historical literature, we can find that online vegetable platforms are more suitable for the current context, especially in the context of the current popularity of Internet shopping.

Currently, it can be observed that more people are interested in online vegetable platforms. The demand has also increased significantly. In this context, the online vegetable market is also showing very good signs of development and is moving in the right direction.

2.2 Online vegetable platform

The Online Vegetable Platform topic can be segmented into three parts: definition and characteristics of the platform, components of the platform, and functions of the online market platform.

2.2.1 Definition and characteristics of the online vegetable platform

The growth of Internet give way to the food market, and with it, the demand for convenience has increased alongside the number of online shoppers.

The online operations website goes as follows: Navigating the website upon entering, vegetable selection, payment, and lastly, followed by a timely delivery. As an emerging purchasing method, network vegetable distribution centers are beginning to proliferate in major cities such as Beijing, Shanghai, and Shenzhen. Currently, vegetables have become a necessary ingredient in the diet of the public, especially for women who pursue the concept of healthy living, where they consume vegetables as their three main meals. However, there is a struggle in vegetable traducement which makes the diet unsustainable. So, because of the growing e-commerce market, a space for vegetable procurement platform is created to provide conveniency to the process.

The procurement platform will provide users with advantages due to its characteristics, namely:

1) One-stop shopping: Vegetable procurement platform offers a variety of vegetable selections, including different categories, such as leafy vegetables, roots and

tubers, sprouts, cauliflowers, fruits, mushrooms. From these categories, multiple selections of vegetables are also offered. With the provided services, customers are ensured conveniency and accessibility to quality products.

2) Price Optimization: The current price of vegetables on the platform is still very affordable with quality taken into consideration. This is achieved by removing middleman from the supply chain. Furthermore, gradual intensification of competition of these online platforms, leading to discounts promotions also affect the price of products available. Affordability is key in this sector and customers are more likely to be attracted provided the discounts and promotions available. Online vegetable retail companies are included in the Internet's industries (Du, 2015). The industry includes companies that provide door-to-door services to customers who book or places orders in the operating area. Vegetable platforms mainly supply fresh vegetables. Singh, Patil, and Meena (2021) noted that the rapid growth of the Internet has led e-commerce giants to enter the vast platform of rural e-commerce, which has greatly facilitated online sales of agricultural products and accelerated the development of online agriculture. According to a report by the Chinese government, online retail sales in rural China have grown 8.4 times from RMB 180 billion in 2014 to RMB 1.7 trillion in 2019 and more than RMB 1.8 trillion in 2020, a 27% year-on-year increase. In addition, more than 3 million poor rural residents have increased their income through e-commerce following the introduction of preferential policies.

The scale of rural Internet users is expanding, and so are the financing rounds for these projects. Overall, China's rural e-commerce industry is in a favorable environment for developing. According to Ito (2018), the online vegetable industry has a broad scope for its development. In contrast to the online industry, the traditional vegetable industry's supporting facilities were lacking and noncompliant.

Firstly, the industry scale is irrelevant to the market and was not able to fulfill its demand. The connotation of industrial development is lacking as well as interests in the field's development. Moreover, the cost of vegetable production is on the rise,

which labor costs and land costs have increased significantly. At the same time, production efficiency fluctuates and is on a downward trend. Second, the development of related supporting industries lags, forming a bottleneck that restricts the development of the vegetable industry. In addition, the implementation of a green channel policy in some areas is undone, hindering the rapid circulation of vegetables across the region. Finally, the traditional means of logistics are not developed. Modern logistics and cold chain logistics have not yet been established, resulting in high logistics costs for the overall operation.

Fortunately, the emergence of the Internet has accelerated the construction of vegetable retail platforms. There are huge opportunities for storage, logistics, and information service platforms. Wan and Yu (2020) suggested that the continuous improvement of e-commerce-related laws has made virtual transactions of agricultural products more regulated. It creates a safer e-commerce environment. Nevase and Rasal (2016) divided the online vegetable industry into four segments: online vegetable production, online vegetable management, online vegetable operation, and online vegetable service. However, most domestic scholars also study online vegetable platforms in terms of production, operation, management, and service in addition to the segments. Therefore, the development of a vegetable platform requires time and is driven by the progress of technology and other supplementary developments. To continue this exploration, we set up a sales website and continue to explore more possibilities of online sales.

2.2.2   Components of the vegetable retail platform

The main components of the platform are trading functions, product information, product advertising, online services, payments, and logistics and delivery services for buyers and sellers. Product information refers to some information about vegetables (origin, name, shelf life, price, etc.) published by merchants on the vegetable retail platform. Product advertising refers to the production of some advertisements containing vegetable products to attract more customers. Vegetable

retailing platforms as well as vegetable retailing platform merchants will use social media (Weibo, WeChat, etc.) to advertise their products and place advertisements on numerous social media to attract potential consumers (Wang, 2020). In addition, vegetable retailing platforms and merchants of ingestible retailing platforms have produced video clips of vegetable growing processes and farm environments to showcase the quality of their production and products. These video clips are mainly posted on video-based social media (TikTok, kuaishou, etc.). As a result, consumers can observe the growing environment of agricultural products (Song, 2015). Therefore, this is related to customer communication and education, which will encourage customers to perceive the quality of the products and their intention to purchase vegetables through the platform.

Online service refers to online after-sales service, which also includes customer contact and communication.

Payment refers to third-party payment platforms and other paid software. In China, general online merchants and vegetable retail platforms generally accept bank card transfers and third-party payment platform transfers (Cha and Wang, 2006). Alipay and WeChat payment are the two most popular payment methods, with Alibaba's various online shopping platforms supporting Alipay as the main checkout method and Tencent's online shopping platforms supporting WeChat payment as the main checkout method. The main reason for the popularity of these two third-party payment methods is that Alibaba and Tencent are large and strong companies with high credit specifications, and more people use the products and platforms derived from these two companies in China (Zhang, 2019). As a result, customers are more comfortable with these two checkout methods.

Logistics delivery refers to the logistics service provided by the logistics company chosen by the merchant after the merchant has purchased on the platform. For customers who urgently need vegetables, merchants will choose Shun Feng express delivery to customers for delivery. The reason why they choose Shun Feng

express is that Shun Feng express can be the fastest and ensure that the product will not be damaged to reach the customer (Duan, 2012). However, if the customer does not have special requirements, the business generally defaults to customers using ZHONG TONG express, YUAN TONG express, etc. for delivery. Because ZHONG TONG express and YUAN TONG express postage prices are relatively moderate, and its company has cooperation with the larger volume of shipments of e-commerce, can reduce the postage concessions, therefore, much e-commerce will default to choosing these two companies for cooperative delivery, but the quality cannot be compared with Shun Feng express. These factors are consistent with the composition of vegetable retail platforms and therefore apply to this study.

Regarding the main service components of the platform, it is arguable that trading functions, product information, product advertising, online services, payments, and logistical delivery services for buyers and sellers. would affect the satisfaction of platform customers.

Song (2015) argues that the agricultural production objects include many individuals and groups. According to the various elements and indicator systems preset by the Internet of Things, sensing terminals connected to the Internet generate a large amount of data, in which the process of centralizing this data has significant value. Taweesuk and Khanchanapong (2018) argue that organic vegetable companies in the context of the Internet are not simply adding new technologies to the Internet, nor are they traditional and old-fashioned vegetable farming operations. Instead, they use ICT and Internet platforms to allow the Internet to interact with vegetable farming, the deep integration of technology into a traditional industry. As can be seen, network vegetables are a deep integration of the Internet (establishing sales websites) and vegetables (products), aiming to achieve intelligent production, e-commerce management, efficient operation, and service convenience. It also promotes the combination of the Internet with production, operation, management, and service. However, some problems regarding the development of a vegetable retail platform

such as the integration use of computer technology, network and communication, and Internet of Things, etc., must be addressed before building an online platform.

2.2.3   Types of retail platforms

In other words, B2C is "business-to-customer", which is commonly referred to as commercial retailing, selling products and services directly to consumers. For example, the Hema Fresh platform is a B2C business model, where Hema as a merchant does online transactions directly with customers. C2C, on the other hand, is "customer-to-customer", or e-commerce between individuals. Taobao is a typical C2C platform where everyone can go to open a store, and everyone can go to buy something (Yang and Gao, 2013). O2O, or Online to Offline/Offline to Online, is a simple way to connect online and offline, converting online traffic into offline consumption, converting offline consumers' traffic into offline consumption, or flipping offline consumers' traffic to online. For the Internet industry, it is more about the former, i.e., combining offline business opportunities with the Internet (Zhang, 2018). Some Chinese takeaway software and fresh food platforms prefer to use the o2o model. For example, Mei Tuan and Eleme for Food among take-out platforms and Daily Fresh and Flash Shopping among fresh food platforms have adopted the o2o model. They convert business opportunities such as offline product orders into online and convert offline orders into online orders, which are eventually available for customers to choose and complete before being delivered to customers offline.

Chinese vegetable retailing platforms can be affiliated with a shopping site or platform. Most shopping platforms in China have a vegetable specialty section for vegetable retailing (Liu, 2017).

2.2.4   China vegetable retail platform

In 2005, fresh produce began to be traded online. As produce was initially sold on online platforms, most online shopping platform companies did not have sufficient experience in running websites. As a result, most vegetable retail platforms, including Alibaba, Taobao, and JD, went out of business in 2012. Since then, more specialized

vegetable retail services or platforms have started to operate. Platforms like China's HEMA fresh vegetable retail platform specializes in selling only fresh products. Vegetable retail platforms are vegetable retail platforms that provide inter internet dependencies to customers and enable them to buy the fresh products they want. In the process, a few companies associated with B2C, C2C, O2O, and other agricultural e-commerce models have also launched vegetable retail services or platforms, and online shopping platforms like Taobao and Pinduoduo have successively launched fresh products on their platforms.

Thus, vegetable retail platforms in China are not only standalone vegetable retail platforms but can also be affiliated service platforms with specialized shopping websites. The main vegetable retail platforms in China exist on the following major shopping websites.

Table 2. 1 The comparison of typical internet e-commerce companies in china

(huang, 2018）about taobao, pinduoduo, hema

Comparison table of typical Chinese Internet e-commerce companies	Logisstic	Cross-region services	Platform scale	Platform design	Platform security
Taobao	Taobao does not have its own logistics, so merchants need to find external physical companies to cooperate on their own.	Taobao sellers with offline warehouses or physical stores will provide buyers with the appropriate regional retail services to deliver goods to buyers within the promised arrival time.	Taobao user is approximately 800 million, with a whopping 711 million active annual consumers.	Taobao platform has designed in orange tones, with a clear board design, high recognition and easy to use for customers. However, the vegetable retail area is not conspicuous and is relatively back in the order of the board.	Taobao platform supports users to bind their cell phones and use cell phone dynamic passphrase. Users need to verify the cell phone dynamic password when they set the single payment amount or the accumulated daily payment amount exceeds a certain amount, thus enhancing the security of funds.

Table 2.1 (Continued)

Comparison table of typical Chinese Internet e-commerce companies	Logisstic	Cross-region services	Platform scale	Platform design	Platform security
Pinduoduo	Pinduoduo does not have its own logistics, and needs merchants to cooperate with other logistics companies for drop-off delivery.	Pinduoduo will provide buyers with appropriate regional retail services that will be delivered to buyers within the promised arrival time. This is because sellers have offline warehouses or brick-and-mortar stores.	By the end of 2020, the number of active buyers in Poundland reached 788.4 million.	Pinduoduo platform has designed in red, and vegetable retail section is rich content and high recognition.	Pinduoduo platform relies on a large customer base, and the payment for the Pinduoduo is WeChat Pay. WeChat Pay will be the first to pay out after verifying that it is WeChat Pay's responsibility. In addition if it is caused by other reasons, WeChat Pay will also cooperate with the police.

Table 2.1 (Continued)

Comparison table of typical Chinese Internet e-commerce companies	Logisstic	Cross-region services	Platform scale	Platform design	Platform security
Hema	Delivery is carried out in-house by Boxcar, with guaranteed delivery to your home within 30 minutes.	Sales and delivery are limited to the offline range within 3 km as defined by the platform.	As of July 31, 2018, Hema has 64 stores covering 14 cities and serving over 10 million consumers in total.	The Hema platform is dominated by blue color, with a clear division between the fresh area section and the vegetable section, making it easy for customers to make their selection.	The hema platform payment method relies on Alipay which has a 24-hour customer service service to assist customers conveniently. Plus Alipay Pay has a complete set of security protection system and emergency freezing means for transactions. This set of mechanisms will protect the safety of customers.

2.3 Customer satisfaction in theory

2.3.1 Definition of customer satisfaction

Customer satisfaction is referred to as the customer satisfaction index. It is an abbreviation for the customer satisfaction survey system in the service industry and is a relative concept that matches customer expectations with customer experience. In other words, it is the index derived from the customer's perceived effect of a product compared with his or her expectations.

Customer satisfaction is a measure of the degree of customer satisfaction. A sample is often obtained through a random survey, and the corresponding results are obtained by applying a weighted average method based on the data of customers' scores on specific satisfaction indicators. Customer satisfaction management is a marketing management strategy that requires understanding not only the satisfaction of external customers, but also the satisfaction status of internal customers, i.e., employees, to reveal the problems in customer value creation and delivery, and to explore, analyze and solve these problems to achieve total customer satisfaction (Cha and Wang, 2006).

2.3.2 Factors of customer satisfaction

The factors that affect customer satisfaction are multifaceted and involve various factors such as products, marketing, communication between the service system platform and customers, customer care, and customer expectations. Any one of these aspects can create more value for customers. If the quality of the product is in excellent condition, then it is more likely to be favored by customers as well as leading to repurchase. Buying home appliances on the JD platform is the most assured platform for Chinese people to buy large home appliances online retail platform because the home appliances on the JD platform are quality assured. In terms of marketing, the platform does a good job of advertising, inviting current high-traffic stars to endorse, similarly to the Shopee Thailand website where the platform invites Thailand's popular stars for endorsement. Finally, in terms of service, the platform

must provide customers a smooth experience in browsing, security regarding the platform must also present, including security of personal information, and problems regarding customer support are handled promptly (Ali, 2016). The aforementioned aspects play an important role in improving customer satisfaction. Conversely, a decrease or lack of customer value in any of these aspects will decrease customer satisfaction. The maximum customer satisfaction that a platform can achieve is determined by the least efficient part or department of its work and service. In other words, for a platform to achieve a high level of customer satisfaction, all parts and departments must be able to create value for customers beyond their expectations. Platforms are providers of products and services, and customers' perceptions of platforms and their products must be prioritized, including internal and external factors, such as the platform's public image, size, efficiency, and public opinion.

Upon making a purchase decision, customers become unconsciously concerned about the product, as to its type and differences between each selections offered. Companies capture this opportunity and promote its image to better persuade customers to choose their products. It is difficult for the public to understand and evaluate a company, given that a company provide customers with a vague image of what they represent. On the other hand, a clear and concise image can give customers a sense of recognition and enhance the company's competitive advantage. A poor company image can result in a missed purchase opportunity from the customers. (He, Liu, Yu, and Fan, 2014). Factors affecting customer satisfaction can be summarized as follows：

First, the platform service factors include product quality, logistics, cross-regional, and price. The focus of business competition has shifted to service. Whether the marketing service system is effective and simple, whether it can bring convenience to customers, the length of after-sales service, the attitude of service personnel, response time, the convenience of complaints and consultation, the service environment, order, efficiency, facilities, service process, etc. are all directly related to

customer satisfaction. Meanwhile, dealers, as intermediate customers, have their special interests and situations. Enterprises win the trust of dealers and improve their satisfaction through distribution policies, as well as good services, which can make dealers take the initiative to recommend products to consumers and solve their general problems. Therefore, the platform service factor will directly affect customer satisfaction.

Secondly, the platform quality includes scale, design, security, etc. The larger the scale, the more selective the customers are and the more their needs can be met. The simpler the design, the easier it is for customers to get the service and make them more satisfied. The higher the security of the platform, the higher the trust of customers in the platform, and the corresponding increase in customer satisfaction. (Rosenbaum and Ramirez, 2021). Therefore, the factor of platform quality also directly affects customer satisfaction.

2.4 Customer satisfaction of retail vegetable platforms

The development of contemporary society has accelerated the pace of people's lives, which in turn, contributed to the development of online shopping. In recent years, merchants have extended their business scope to the vegetable industry. However, as online vegetable shopping is still in the development stage, most vegetable retail platforms are not very effective in its operation. In online vegetable shopping, consumers' perceptions of critical factors such as vegetable quality and platform services have a greater impact on satisfaction. Consumers' satisfaction evaluation of online vegetable shopping has also impacted the online consumption of vegetables, which in turn affects the development of vegetable e-commerce as well as the impact of customer satisfaction with vegetable retail platforms. Therefore, Zhou (2014) proposed that the satisfaction factors of vegetable retailing platforms derived from two platform's aspects: services and platform quality. Platform service, comprised of product quality, logistics service, cross-regional service, and service

price. While the quality of platform is related to platform design and its security.

As an important channel for relaying of fresh agricultural products, a fresh e-commerce platform plays an important role in meeting consumer demand. The fresh e-commerce platform is a platform for trading fresh agricultural products such as fruits and vegetables, aquatic products, as well as livestock and meats in a virtual space relying on the Internet. As the level of development of fresh produce e-commerce continues to improve, fresh produce e-commerce operation mode continues to innovate, with current platform mainly focuses on expanding its working scale, but incoherently, ignoring customer satisfaction of quality and service. However, factors contributing to such event were also investigated, findings are as follows: (1) There are too many vegetable retail platforms, with each providing different scales; (2) customers experience unsafe platform link attacks upon using the platform; (3) the platform page design is too complicated for customers to quickly find their preferred choices. Alongside the findings, the platform service aspects that affect customer satisfaction include: (1) Tricking customers with low prices while creating expectation of high-quality products; (2) because vegetables are perishable products, logistics offered by the platform were not able to guarantee its freshness and time of delivery. The aforementioned key points will directly affect the customer's satisfaction with the platform (Ali, 2016).

2.4.1   Platform services

This section discusses the service aspect of the vegetable retail platform. Four components are included. Platform quality products, platform logistics, cross-regional services, and pricing services.

1)   High-quality products

As production levels continue to improve, consumers are not satisfied with the variety of vegetables and are demanding higher quality standards for vegetables. High-quality vegetable products refer to the freshness of the vegetables when received by customers, the accuracy of the products and the quality of the vegetables should be

guaranteed by the suppliers chosen by the vegetable retail platform before the vegetables are put on the shelves. Whether the vegetables are fresh when they are received, suggests that effective preservation techniques are needed to ensure food safety in vegetables, fruits, and frozen meat products. However, vegetable retail platforms have hindered the development of cold chain logistics by focusing too much on the efficiency of logistics and transportation and neglecting the amount of product quality. Considering the above factors, we should actively study the technology to improve the quality of vegetable products in logistics transportation, do a good job of food preservation testing, and adjust the environment of cold chain transportation through the timely acquisition of food preservation, which can better maintain the freshness of food and thus improve the quality of logistics transportation. Regarding the correctness of the products, (Wang, 2016) suggests that the platform uses advanced sorting systems and performs strict spot checks to ensure the correctness of the vegetable products when they reach the customers during the vegetable product sorting process after receiving orders from customers. The good condition of the vegetable products when the parcel reaches the customer, (Wang and Yang, 2020) suggests that the platform should not ignore the freshness issue to reduce the cost, and the platform should place modern refrigeration, wrapping, and other freshness technologies in the packaging of vegetable products, which were created for better achieving the above effect. In the application of these preservation technologies, the choice of efficient, safe, and environmentally friendly agents and the establishment of convenient and concise techniques and methods of use are the first important aspects of the successful preservation of agricultural products. This is to improve the good condition of vegetables when customers receive their packages. Therefore, active research and production of high-quality vegetables is a major test for current vegetable retail platforms (Chan, Liu, and Zhang, 2018).

2) The logistics services

Logistics service quality is a special kind of service quality and its impact on

satisfaction is an area of interest for scholars. Collier and Bienstock (2015) verified in their respective logistics service quality models that logistics service quality has a positive impact on customer satisfaction. It has been noted that logistics service quality can create logistics value and thus contribute to customer satisfaction through logistics services. Fuentes-Blasco, Moliner-Velázquez, and Gil-Saura (2014) using the airline industry as a study pointed out that airline logistics can increase delivery value, knowledge innovation value, and the value of value-added services, information value, performance satisfaction value, increasing overall customer satisfaction.

Shi, Waseem, and Shahid (2020) using third-party logistics as the subject of their study have pointed out that increasing the speed of information turnover and improving the speed of logistics services can contribute to better customer satisfaction. Majzoub, Davidaviien, and Meidute-Kavaliauskiene's (2020) study show that highly performed logistics services in all aspects (order reception, execution, and problem handling) can help improve customer satisfaction and enhance the competitiveness of the company. In conclusion, the improvement of the quality of logistics services will help to increase customer satisfaction.

Among them, the classification of logistics include:

(1) Supply Logistics: For distribution enterprises, it refers to trading activities, from the buyer's point of view. The logistics that occurs in a transaction behavior.

(2) Sales Logistics: Production enterprises and distribution enterprises sell products or commodities in the logistics process called sales logistics, which refers to the logistics between the producer or holder of the material to the user or consumer.

(3) Production Logistics: From the purchase of raw materials into factory, until the finished product is sent to the factory. This whole process of logistics activities is called production logistics. Production logistics is unique to manufacturing enterprises, and it is synchronized with its respective production processes. Raw materials, semi-finished products, etc., transfer through the process flow at each processing point creating a non-stop movement. This flow formed the production logistics. Production

processes will be stopped if the logistics are interrupted.

Bressolles, Durrieu, and Senecal (2014) verified the impact of online services on online customer satisfaction in terms of three dimensions: perceived ease of use, website aesthetics, and privacy protection. The impact of increasing satisfaction has also been the focus of domestic and international scholars. In the original success model of information systems, Hou (2011) pointed out that user satisfaction could improve individual performance, which in turn could improve organizational performance. In a new model proposed in 2003, individual and organizational performance were combined into net benefits. Subsequently, some scholars divided information satisfaction into information satisfaction, system service quality satisfaction, and satisfaction based on the information system success model and stated that user information satisfaction can contribute to perceived usefulness and system satisfaction can contribute to perceived usefulness (Ayoung, Daeyoung, and Jihwan, 2013). In the B2B model, inter-firm satisfaction can promote trust and information sharing. Many scholars also argue that increased satisfaction can lead to word-of-mouth effects (Kim, Park, and Lee, 2013). Indeche (2017) focused on the impact of online transaction service quality on customer satisfaction and subdivided online transaction quality into four dimensions: effectiveness, performance, system usability, and privacy in the model developed. The factors influencing satisfaction are an important part of consumer behavior research. In reality, understanding the main influencing factors of satisfaction is a prerequisite for e-commerce companies to gain a sustainable competitive advantage over similar industries. Therefore, satisfaction has been the focus of academic research. Many scholars have verified the influencing factors of satisfaction from different perspectives, but the following points still need to be improved in previous studies. First, previous studies on the factors influencing customer satisfaction in e-commerce have focused more on industrial products or services with a high degree of standardization which lacked antecedents to explore the characteristics of customer satisfaction websites, satisfaction, trust, commitment,

positive word-of-mouth, and relationship quality in the context of agricultural e-commerce. Secondly, previous studies only focus on the online environment without combining both online and offline factors, and without further subdivision of online and offline environments in terms of dimensions, which makes it difficult to effectively grasp the key factors influencing customer satisfaction.

1) Cross-region services

Cross-regional means that in the sales process, all kinds of vegetable products can be sold in different areas through the vegetable retail platform, lifting the geographical restrictions, so that consumers in different areas can buy vegetable products from different areas in the vegetable retail platform. So, it is cross-regional. From the customer's point of view, customers can buy more goods and have more choices through this vegetable retailing platform. It brings time convenience to the customers (Feng and Wu 2013). In recent years, with the rapid development of China's fresh produce market, cold chain logistics and distribution have also ushered in new development opportunities. However, due to the late start and slow development of cold chain logistics distribution in China, a system has not yet been formed, which makes it difficult to realize cross-regional and provide vegetable varieties from all regions of China, thus resulting in a situation of high production and low sales, which is one of the important reasons for the high price and poor quality of fresh agricultural products. Considering the above problems, (Sun, Zhang, and Lin, 2017) proposed that, for the special characteristics of cross-regional cold chain logistics distribution of fresh agricultural products, time, temperature, and cargo loss costs in the process of cross-regional cold chain logistics distribution are analyzed and defined, and the total cost minimization model of distribution is established; secondly, the optimal scheme of cold chain logistics distribution path is further explored; finally, the cost-saving method is used to reduce the distribution cost Finally, the dual requirements of the delivery cost and the time to meet the customer's demand. With time, the cross-regional distribution of fresh agricultural products will become an

important direction for the future development of the logistics industry.

2) Prices of services

Online customer satisfaction is influenced by the size, and cost (Li and Hu, 2015). Size refers to the structure, form, or scope of the business. Price/cost refers to the consumer expenditure that buyers need to pay when making a transaction.

The transactional utility theory suggests that customers obtain two different effects simultaneously when purchasing goods, namely the acquisition effect and the transactional effect. Among them, the acquisition effect is the actual use-value that the customer gets from the purchased goods, while the transaction effect is the difference between the price paid by the customer and the reference price. If the price paid is lower than the market reference price, the customer obtains the transaction effect. According to the transaction effect theory, when a customer purchases a good, its price decreases and the customer compares the price they paid with the current price, thus reducing the customer's transaction effect, and leading to a "loss" in the customer's perceived value of the purchased goods. In addition, customer perceived value is an important factor affecting customer satisfaction (Vosooghzadeh, 2020). Therefore, the magnitude of the price reduction affects the loss of perceived value, which in turn affects customer satisfaction. Whether the quality of the food purchased by the customer matches the price is also an important factor that customers pay attention to.

According to Ali (2016), loading speed, navigation performance, content, and interactivity are the factors that should be considered for a high-quality website. It is evident that a high-quality website not only requires the website to provide high-quality content but also approachable to customers. As more concepts are introduced, the key factors to improve the quality of website design are gradually enriched. The information on the website should be clear and concise so that website visitors can understand the information promptly. Design mainly refers to the method of providing easy access to the content of the website. The website design of a virtual store is

equivalent to the display window of a physical store. The interface design of a website affects the customer's perception in terms of ease of use. Some scholars have taken the interaction between companies and customers as a research perspective, arguing that an important goal of websites is to improve interactivity for fuller reaching (Elling, 2017). Manasra, Zaid, Saleem, and Taherqutaishat (2013) demonstrate that website design in terms of usability, information content, and interactivity of websiwebsiteity has a significant impact on customer satisfaction. Synthesizing many scholars' studies on website design quality, this paper argues that website design quality should include three aspects: technology, content, and appearance. Therefore, this paper adopts Al-Qeisi, Dennis, Alamanos, and Jayawardhena's (2014) study to evaluate website design quality in four dimensions technical quality general content quality, specific content quality, and appearance quality. (1) Technical quality. Technical quality mainly refers to the technical features of the website, such as security, navigation performance, search facilities, website usability, effective links, personalization, interactivity, and good connectivity of the traffic network; (2) General content quality. This refers to the general content features of the website, such as the usefulness, completeness, clarity, fluency, conciseness, and accuracy of the content; (3) Specific content quality. This refers to the specific content features of the website, such as contact information, general corporate information, products, service details, consumer policies, customer service, etc.; (4) Appearance quality. refers to the appearance of the website, such as its attractiveness, reasonable structure, use of appropriate fonts, colors, and appropriate use of multimedia.

Based on this information, this study extracts four dimensions of website design quality (technical quality, general content quality, specific content quality, and appearance quality) and four dimensions of logistics service quality (order accessibility, order accuracy, order status, and order timeliness) concerning previous studies. And before taking them as the influencing factors of customer satisfaction in the vegetable retailing platform, this study constructs a customer satisfaction model in

the vegetable retailing platform environment and conducts an empirical analysis to provide theoretical and practical guidance for the vegetable retailing platform industry.

2.4.2   Quality of platform

This section discusses vegetable retail platform quality, including three aspects, platform size, platform design, and platform security.

1)   Platform design

Platform design encompasses the user interface (UI), which is anything that a user might interact with when using a digital product or service. This includes everything from screens and touchscreens, keyboards, sounds, even lights, and user experience (UX), and once there is something that provides the user interaction, their experience, whether positive, negative, or neutral, changes how the user feels about those interactions. Therefore, UI and UX have strong importance for the page design of vegetable retail platforms (Handayani 2020).

Platform design refers to the design as well as the layout of the pages and the layout of the latest vegetable information on the platform. Customers can easily navigate and operate the vegetable retail platform when purchasing. A simple and convenient platform design will motivate consumers to enhance their shopping experience on the vegetable retail platform with a simpler and faster shopping process to facilitate customer operations (Zhang, 2019). As the concept of user experience continues to be reflected in e-commerce websites. Suggested that user experience has become an important criterion to evaluate the success of an e-commerce website. A good user experience can provide convenience and pleasure to users when purchasing, and at the same time increase the revenue of the e-commerce platform. With the continuous improvement of the aesthetic level of the public, the art and aesthetics of website page design are paid attention to by the public. Therefore, to keep consumers fresh on the platform, a clear menu of service functions, and page layout, the platform should update the platform page design regularly or irregularly to meet the psychological needs of consumers.

2) Platform security

Security refers to the security of the platform during the payment process and the security of the user's private information while shopping. A secure shopping platform can attract more consumers, and the platform has no vulnerabilities to protect the privacy, transfer, and account security of customers. This will encourage consumers to make multiple purchases to some extent and increase consumer satisfaction (Liao, 2016). In the environment of rapid technological progress and rapid development of the Internet in modern society, more and more people are using the Internet for shopping and have started to use the more convenient and faster platform payment method. The platform payment method has both the quickness and immediacy of payment and substantially increases the frequency of transactions. Occupies a larger market space in the current payment market." Bound credit card, WeChat payment, and Alipay" are the payment channels that platform payment relies on at present, while the credit card and debit card bound by users in the platform have greatly increased the probability of risk events due to the increase of mobile payment ports. Illegal authorization, theft, password leakage, misuse, and other phenomena have seriously affected the legitimate interests of users.

Therefore, the vegetable retail platform stands in the perspective of security management control of credit card use, through the new payment mode of credit card security management to develop corresponding protection measures, to build a more secure vegetable retail platform for consumers. This will make customers trust and feel safe to spend money on this vegetable retail platform.

3) Platform scale

The current transaction size of Chinese vegetable retail platforms is stated at 518.8 billion RMB. The industry is also growing with a higher growth rate compared to other types of e-commerce platforms, with a year-on-year upward trend. Therefore, platforms with a larger capital scale are more likely to win the trust of consumers (Ai, 2011). For example, Chinese online shopping platforms (JD, Alibaba, etc.), both of

which have a very wide range of services covering every region of China, can enjoy the scale of their services no matter where customers are distributed in China. For example, the JD platform held the 6·18-shopping event, which sets a new record of over 343.8 billion RMB in cumulative consumer orders from 0:00 on June 1 to 24:00 on June 18, 2021, alone (Chinanews.com.cn., 2021). Therefore, the transaction scale of a platform is something that affect customers' trust and satisfaction with the platform. With the development of the Internet, problems regarding dishonesty of online shopping platforms arises. Also, word-of-mouth plays an important role for long-term development of the platform. Its size, as well as reputation will attract customer to them, affecting customer's satisfaction to an extent. In cases of multiple sellers, the platform can offer customers more choices if they were able to enter more sellers. The platform should strengthen the qualification audit of new sellers and screens those who are ready. With the process, sellers must ensure the authenticity of their goods to give customers a better experience. As well as increase customers' trust and reputation in this vegetable retail platform.

2.5 Theoretical framework
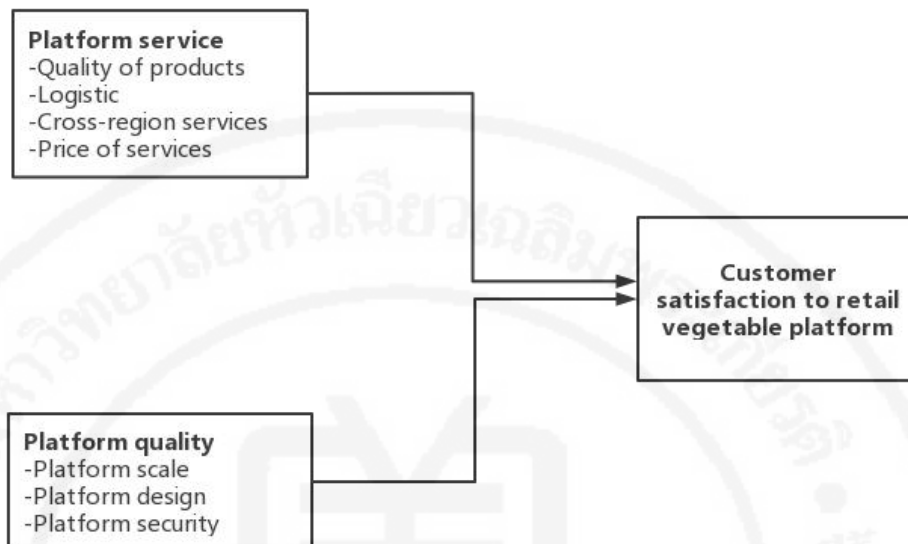
Figure 2. 1 Theoretical framework

2.6 Hypotheses

H1: Vegetable retail platform services have a positive effect on customer satisfaction.

H1a: Better produce quality available at the platform contributes to a positive impact on customer satisfaction.

H1b: Improved logistics services of the platform contributes to a positive impact on customer satisfaction.

H1c: Improved cross-regional service of the vegetable retailing platform contributes to a positive impact on customer satisfaction.

H1d: More affordable and optimal service pricing contributes to a positive impact on customer satisfaction.

H2: Vegetable retail platform quality has a positive impact on customer satisfaction.

H2a: The improved scale of the vegetable retail platform contributes to a

positive impact on customer satisfaction.

H2b: The improved design of the vegetable retail platform contributes to a positive impact on customer satisfaction.

H2c: Improved security of vegetable retail platform has a contributes to a positive impact on customer satisfaction.

Chapter 3

Research methodology

This section describes the methodology used for conducting this study. It is divided into five parts. The first section is on quantitative research methods, the second on population and sample, the third on data gathering methods, the fourth on data analysis, and the fifth on research quality.

3.1 Quantitative research method

This study uses quantitative research by utilizing the survey method, which is generally conducted to obtain statistical results on a particular research subject. In quantitative research, information is represented by numbers. When these numbers are processed and analyzed, it is necessary to first clarify according to what scale this information data is measured and processed. S. S. Stevens classifies scales into four types, namely, nominal, ordinal, interval, and ratio.

The survey method is widely used in the social survey at home and abroad. The survey method refers to the form used for statistics and surveys to express questions in the form of a survey questionnaire. Because of its controlled characteristics, the survey method is used by researchers to measure the problem under study, while at the same time also collecting reliable data. The survey method is distributed mostly by mail, individual distribution, collective distribution, and other multiple other ways. Upon receiving, the surveyors will fill in the answers according to the questions in the form. Compared to other methods such as the interview, the survey method is more detailed and easier to control.

The main advantages of the survey method are its standardization and low cost. For a survey to be a well-designed tool for investigation, its design should be standardized and measurable.

With the aforementioned survey method, I will be utilizing China's

WENJUANXING questionnaire software to create survey questions. Then, set up a collective distribution method using the Internet to distribute the questionnaires to customers in all regions of China, including: the eastern, western, southern, and northern regions of China. The method is done through social media platforms, namely WeChat and Weibo. Moreover, customers who had purchased vegetables through the online platform were invited to complete the questionnaire as well as respond to some questions.

3.2 Population and sample

3.2.1 Population

In this study, Chinese customers who purchase vegetable products on the Chinese Hema vegetable retailing platform will be studied. Based on aggregated online data, the number of users who purchase vegetables on the Chinese Internet vegetable retail platform is estimated at 400 million users (Wei et al, 2020). Moreover, the platform provides coverage of all regions (North, South, East, West). To conduct the survey, I have distributed a total of 400 questionnaires for the survey within these four regions. However, the number of questionnaires distributed varies due to different population sizes in each region (Hong, 2020).

3.2.2 Sample

1) Sampling techniques

To obtain a representative sample of large groups, a self-selected sampling method is used to select the sample. To ensure a representative sample of different regions of China, the sampling technique will divide the population into four clusters, which will be sampled in the eastern, western, southern, and northern parts of China.

2) Sample size

The subject of this study is the Hema vegetable sales platform in China, which has over 10.47 million users. The researcher utilizes Cochran (1977). Cochran (see Figure 3.1) with a 95% confidence level (given a marginal error of 0.05), together

with a sample size of 400 users which were divided into each region, North, South, East, West. Due to the different population sizes in each region, the number of questionnaires allocated varies, with amount as follows: 23, 150, 103, 124, respectively.

$$n = \frac{z^2 pq}{e^2}$$

z²= square of confidence interval in standard error units

p= estimated proportion of success

q= (1-p) or estimated the proportion of failures

e²= square of maximum allowance for error between true proportion

and sample proportion.

Figure 3. 1 Sample size for infinite population

3.3 Data gathering methods

The data throughout this study are collected using a set of questionnaires and measured using a five-point Likert scale. With the results being easy to quantify, the questionnaire method saves time and human resources which allows for better allocation purposes. A questionnaire is a structured survey with a fixed form of expression for the survey questions, the order of the questions, and the manner and method of answering the questions; therefore, there is no subjective bias by any individual, researcher, or investigator throughout the survey research. Moreover, the statistical results of the survey are also generally quantifiable (Watson, 2015).

The questionnaire is composed of three parts. The first part of the questionnaire is the general information of samples to ensure that the samples are qualified. The second part is the samples' satisfaction with the vegetable retail platform service. The third part is the samples' satisfaction with the quality of the

vegetable retail platform. The questionnaires are online developed with the Wenjuanxing website and will promote over popular social media in China, such as QQ, WeChat, and Weibo to get enough samples.

3.4 Data analysis

All the data collected in this study were transferred to the SPSS program for data analyses. With the SPSS files designed based on the questions in the questionnaire, they can be analyzed by the SPSS program, thus by using the SPSS streamlining the process and allow for data analyses.

The multivariate analysis method of regression analysis was used in this study. Regression analysis is performed by analyzing the collected data. Regression analysis is a statistical method of analyzing data to understand whether two or more variables are correlated with each other, the direction and strength of the association, and to develop mathematical models to examine specific variables to predict the variables of interest to the researcher （Feng, 2004）.

In regression analysis, when the causal relationship under study involves only the dependent variable and one independent variable, it is called univariate regression analysis; when the causal relationship under study involves the dependent variable and two or more independent variables, it is called multivariate regression analysis. In addition, regression analysis is further divided into linear and nonlinear regression analysis according to whether the expression of the function describing the causal relationship between the independent and dependent variables is linear or nonlinear. Regression analysis forecasting refers to the use of regression analysis to predict the future values of random variables that are associated with one or a set of independent variables based on their changes. Regression analysis requires the creation of a regression equation that describes the correlation between the variables. Depending on the number of independent variables, it can be a univariate regression or a multiple regression. Depending on the nature of the problem under study, it can be either linear

regression or nonlinear regression. Nonlinear regression equations can generally be treated mathematically as linear regression equations.

The data collected through the questionnaires will be analyzed quantitatively. Multiple regression analysis will be used to test the research hypothesis and further analyze the collected data. Multiple regression analysis refers to a method of statistical analysis in which one variable is considered the dependent variable and one or more other variables are considered independent variables (Montgomery, Peck, and Vining, 2021). Descriptive analyses, such as frequencies and percentages, are used to present quantitative data in tables and graphs. The software was used to code the data and enter them into the computer for analysis.

Depending on the measurement scale used, the statistical data in this study can be classified as definite class data, definite order data, and definite distance data. This is the lowest level of data. It classifies data based on category attributes and the categories are equally juxtaposed with each other. This data does not carry quantitative information and cannot be categorized between categories. For example, male and female in gender. Ordered data. This is the intermediate level of data. Ordered data can not only classify the data into different categories but also compare the advantages and disadvantages between the categories by sorting them. Ranged data are data with the attributes of order and distance, which are formed by the measurement of a fixed distance scale. Ranging is the method of dividing the total into several sequentially arranged parts or groups according to a certain quantity marker and measuring the same number or the same range of quantity of the total units or their marker values.

3.5 Research quality

3.5.1 Reliability

Reliability refers to the degree of consistency of the results obtained when the same object is repeatedly measured by the same method (Liu, Jiang, and Zhang, 2008).

The questionnaire in this study had a scale that measures the internal consistency of the test. To test whether the design of the scale questions is reasonable and to effectively reduce the risk of failure informal surveys, this study will make use of professional data statistical software for data conducting. Lastly, Cronbach's alpha coefficient test will also be used as a reliability test method. In terms of platform service expectation, Cronbach's alpha for product quality is 0.757, Cronbach's alpha for platform logistics is 0.777, Cronbach's alpha for platform cross-region is 0.705, and Cronbach's alpha for platform price service is 0.724. In terms of platform quality expectation in terms of platform quality expectations, Cronbach's alpha for platform size is 0.717, Cronbach's alpha for platform design is 0.716, and Cronbach's alpha for platform security is 0.702. In terms of platform service satisfaction, Cronbach's alpha for product quality is 0.779, and Cronbach's alpha for platform logistics is 0.779. In terms of platform quality satisfaction, the Cronbach's alpha for platform size is 0.739, the Cronbach's alpha for platform design is 0.739, and the Cronbach's alpha for platform security is 0.747. 's alpha is 0.739, and Cronbach's alpha for platform security is 0.726. The reliability coefficients of all the scales are above 0.7, indicating that the selected scales meet the requirements and have good reliability.

3.5.2   Validity

Validity analysis refers to the analysis of the accuracy of the scale expression on the measured indicators (Jiang, Shen, Zhang, Liao, and Xu, 2010). To ensure the validity of the questionnaire, an expert is needed in the final stage to conduct the validity test. As for the reliability and credibility of the expert, this expert has extensive experience in customer satisfaction research. This expert gave professional advice on the design of the questionnaire, and then this study completed the final draft of the questionnaire based on the expert's opinion.

3.5.3   Ethical issues

The   study   was   approved   by   the   Ethics   Committee   of   Huachiew

Chalermprakiet University. The researchers have informed the committee of the purpose of the survey and ensured that their answers were confidential for the duration of the study. Thus, the introduction to the questionnaire would explain the meaning and importance of the study and its confidentiality. Respondents were informed that they could fill in the questionnaire as they wished. This section contains only general information to protect their answers from bias. Respondents' privacy was protected, and their identities were not revealed. Finally, the collected data were given without any tampering.

3.6 Duration of research

The study period is from January 2022 to May 2022.

3.7 Conclusion

A quantitative research method was used in this study. Data were collected through an online questionnaire survey. The questionnaire was distributed with the consent of the respondents to ensure the integrity of the survey and that it was consistent with the analysis. Moreover, the method also helps protect the privacy and ensure confidentiality of the respondents' information.

Chapter 4

Research Results

This chapter presents the results of the study. Three main sections are included: sample data, descriptive data, and analytical data.

4.1 Data of sample

The survey sample was drawn from the customer base of major vegetable retail platforms in China. A total of 431 online questionnaires were collected, of which 400 were from customers who had purchased vegetables from vegetable retailing platforms and 31 were from customers who had not purchased vegetables from vegetable retailing platforms. Therefore, 31 questionnaires were invalid, and 400 were used as the sample size for this study. Based on the sample size of 400 (see Table 4.1 below), The responded questionnaires can be sectioned into four sets, according to the region of each respondent: North, South, East, and West, with each region receiving different numbers of responses, 23 (5.75%), 150 (37.5%), 103 (25.75%), 124 (31%), respectively.

Table 4. 1 Data of sample

Region	Sample size (persons)	Percentage
East China	103	25.75%
West China	124	31%
South China	150	37.50%
North China	23	5.75%
Total	400	100%

4.2 Descriptive data

This section is provided with descriptive data. It is divided into three parts. The first part is customers' expectations of vegetable retail platform services. The second part is the customers' expectation of the quality of the vegetable retailing platform. The third part is the analysis of the factors influencing satisfaction.

4.2.1 Satisfaction

This section summarizes customer satisfaction with vegetable retail platforms in terms of service and quality. In terms of service satisfaction, it includes satisfaction with product quality, logistics, cross-regional services, and price services. In terms of quality, it includes satisfaction together with the scale, design, and security of the platform. The descriptive results are shown in the table below.

Table 4. 2 Summary of quality in terms of platform services and quality (N=400)

Independent variable	Mean	Standard deviation
Quality of the products upon arrival	3.72	1.002
Expected logistics services	3.74	0.917
Expected quality of service across regions	3.61	0.984
Desired service price	3.54	0.963
Influence of platform scale in selection of B2C platform	3.59	0.840
Influence of platform design in selection of B2C platform	3.57	0.881
Influence of platform security in the selection of B2C platform	4.18	0.877

In terms of service quality for vegetable retail platform customers (see Table 4.2), each independent variables were summarized as follows: The mean value of the variable quality of the products upon arrival is 3.72 with a standard deviation of 1.002; the mean value of the variable expected logistics service is 3.74 with a standard deviation of 0.917; the mean value of the variable expected cross-regional service is

3.61 with a standard deviation of 0. 984; the mean value of the variable desired service price is 3.54 with a standard deviation of 0.963; the mean value of the variable influence of platform scale in selection of B2C platform is 3.59 with a standard deviation of 0.840; the mean value of the variable influence of platform design in selection of is 3.57 with a standard deviation of 0.881; the mean value of the variable influence of platform security in the selection of B2C platform is 4.18 with a standard deviation of 0.877. Given the information and data presented above, we can conclude that platform security affects the quality of B2C platform choice the most, followed by expected logistics service, expected quality of products when they arrive, quality of cross-regional service, platform size, platform design, and platform price service.

From the data derived above, mean values in terms of platform service quality are all greater than 3. Generally, a mean value greater than 3 represents high satisfaction. Therefore, customers are satisfied with the service and quality of the vegetable retail platform.

        1)   Platform of Service

Quality of vegetable retail platforms in terms of services comprises of qualities in 4 different terms, including: product quality, logistics services, cross-regional services, and price.

(1) Product quality

This section includes three qualities regarding the quality of products on the vegetable retail platform. The mean and standard deviation of each question is shown below.

Table 4. 3 Descriptive results of product quality (N=400)

Items	Mean	Standard Deviation
The freshness of vegetables upon arrival	3.758	0.993
Correctness of the products received	3.800	1.060
Good package condition upon arrival	3.599	0.983
Overall quality of performance	3.720	1.002

In terms of quality of product quality service on vegetable retail platforms (see Table 4.3), each independent variables were summarized as follows: The mean value of the variable freshness of vegetables on arrival during service was 3.758 with a standard deviation of 0.993; the mean value of the variable correctness of products received was 3.800 with a standard deviation of 1.060; and the mean value of the variable good package condition upon arrival was 3.599 with a standard deviation of 0.983. The highest mean value is concerning the correctness of products received. With this information, A conclusion can be drawn that customer's satisfaction in terms of product quality were most influenced by the accuracy and correctness of product received.

(2) Logistics quality

This section includes three logistic qualities regarding vegetable retail platforms. The mean and standard deviation of each question is shown below.

Table 4. 4 Descriptive results of logistics quality (N=400)

Items	Mean	Standard Deviation
Same day delivery for logistics orders	3.920	0.846
Provide multiple logistics options	3.575	0.976
Timely handling of logistics issues	3.720	0.959
Overall quality of performance	3.740	0.917

In terms of logistics quality of the vegetable retail platform (see Table 4.4), each independent variables were summarized as follows: In service process, the mean value of the variable same-day delivery for logistics orders is 3.920 with a standard deviation of 0.846; the mean value of the variable providing multiple logistics options is 3.575 with a standard deviation of 0.976; and the mean value of the variable Timely handling of logistics problems is 3.720 with a standard deviation of 0.959. Given the data, the highest mean value concerns the component same day delivery of logistics orders. A conclusion can be drawn that customer's satisfaction in terms of logistics qualities is most influenced by same day delivery on shipping and logistics orders.

(3) Cross-regional quality

This section includes three cross-regional quality qualities vegetable retail platforms. The mean and standard deviation of each question is shown below.

Table 4. 5 Descriptive results for cross-regional quality (N=400)

Items	Mean	Standard Deviation
Provision of vegetable varieties from different regions of China	3.502	0.981
Region wide delivery	3.668	1.010
24-hour cross-regional uninterrupted service	3.652	0.991
Overall quality of performance	3.610	0.984

In terms of cross-regional service quality for vegetable retail platforms (see Table 4.5), each independent variables was summarized as follows: The mean value for the variable provision of vegetable varieties from different regions of China during service was 3.502 with a standard deviation of 0.981; the mean value for the variable region wide delivery was 3.668 with a standard deviation of 1.010; and the mean value for the variable 24-hour cross-regional uninterrupted service was 3.652 with a standard deviation of 0.991. With the given data, we were able to identify that provision of 24-hour cross-regional services has the highest mean value. A conclusion can be drawn that customers' satisfaction of cross-regional services are most influenced by 24-hour cross-regional services.

(4) Price service quality

This section includes three price service quality regarding vegetable retail platforms. The mean and standard deviation of each question is shown below.

Table 4. 6 Descriptive results for price service quality (N=400)

Items	Mean	Standard Deviation
Reasonable product price	3.468	0.920
Priced lower than other platforms	3.550	0.938
discount time window of more than two days	3.590	1.061
Overall quality of performance	3.540	0.963

In terms of price service quality for vegetable retail platforms (see Table 4.6), each independent variables were summarized as follows: The mean value of the variable reasonable product prices during service was 3.468 with a standard deviation of 0.920; the mean value of the variable priced lower than other platforms were 3.550 with a standard deviation of 0.938; and the mean value of the variable discount time window of more than two days was 3.590 with a standard deviation of 1.061. With the given data, we were able to identify that provision of discount time services of more than two days has the highest mean value. A conclusion can be drawn that customers' satisfaction in price services is mostly influenced by provision of discount time services of more than two days.

    2) Platform quality

Quality of the vegetable retail platform in terms of quality. It includes quality in terms of platform scale, rm design, and platform security.

(1) Platform scale

This section includes three qualities regarding the scale of the vegetable retail platform. The mean and standard deviation of each question is shown below.

Table 4. 7 Descriptive results for platform scale quality (N=400)

Items	Mean	Standard Deviation
The platform has high capital	3.895	0.819
Multiple sellers available on the platform	3.362	0.910
Good reputation among customers	3.526	0.820
Overall quality of performance	3.590	0.840

In terms of platform scale quality for vegetable retail platforms (see Table 4.7), each independent variables were summarized as follows: The mean value of the variable the platform has high capital was 3.895 with a standard deviation of 0.819; the mean value of the variable multiple sellers available on the platform is 3.362 with a standard deviation of 0.910; and the mean value of the variable good reputation among customers is 3.526 with a standard deviation of 0.820. With the given information we can identify that platform with high capital has the highest mean value. A conclusion can be drawn that customer's satisfaction in platform scale is mostly influenced by the size and capital of the platform.

(2) Platform design

This section includes three qualities regarding the design of the vegetable retail platform. The mean and standard deviation of each problem is shown below.

Table 4. 8 Descriptive results quality from the platform design (N=400)

Items	Mean	Standard Deviation
Clear platform service function menu	3.338	0.960
Freshness portrayed by the platform	3.770	0.845
Platform page layout conforms to user experience	3.612	0.869
Overall quality of performance	3.570	0.881

In terms of the quality of platform design of vegetable retail platforms (see Table 4.8) each independent variables were summarized as follows: The mean value of the variable having a clear platform service function menu when performing services is 3.338 with a standard deviation of 0.960; the mean value of the variable freshness portrayed through platform design is 3.770 with a standard deviation of 0.845; and the mean value of the variable platform page layout that conforms to user experience is 3.612 with a standard deviation of 0.869. With the given information we can identify that a platform with a better design that values freshness has the highest mean value. A conclusion can be made that customers' satisfaction in platform design is mostly influenced by a sense of freshness portrayed through the platform's design.

From the data derived above, mean values in terms of platform service quality are greater than 3. Generally, a mean value greater than 3 represents high satisfaction. Therefore, it can be concluded that customers are satisfied with the service and quality of the vegetable retail platform.

(3) Platform security

This section includes three qualities regarding the design of the vegetable retail platform. The mean and standard deviation of each problem is shown below.

Table 4. 9 Quality descriptive results for platform security (N=400)

Items	Mean	Standard Deviation
Security policy to protect customers' information while performing services	3.978	0.982
Security technology to protect client's account	4.300	0.820
Every feature in the platform works properly	4.247	0.859
Overall quality of performance	4.180	0.877

In terms of platform security quality for vegetable retail platforms (see Table 4.9), each independent variable is summarized as follows: The mean value for the variable platforms having a security policy to protect customer information while performing services was 3.978 with a standard deviation of 0.982; the mean value for the variable security technology to protect customer accounts was 4.300 with a standard deviation of 0.820; and the mean value for the variable each function in the platform functioning properly was 4.247 with a standard deviation of 0.859. With the given information, we can identify that security technology for protecting customers' accounts has the highest mean value. A conclusion can be made that customers' satisfaction of platform security is mostly influenced by security technology for protecting client's accounts.

4.2.2   Customer satisfaction

Customer satisfaction of vegetable retail platforms are categorized into two: service and quality. Satisfaction in terms of service includes satisfaction with product quality, logistics, cross-regional, and price services. In terms of platform quality, it includes satisfaction with platform size, design, and security. Descriptive results are shown in the table below.

Table 4. 10 Summary of satisfaction in terms of service and quality (N=400)

Dependent variable	Mean	Standard Deviation
The quality of platform products	3.79	0.856
Platform logistics	3.86	0.862
Cross-region of the platform	3.78	0.846
The price of the platform	3.83	0.855
Platform scale	3.76	0.846
Platform design	3.81	0.848
Platform security	3.82	0.845

First, in terms of platform services (see Table 4.10), each independent variable is summarized as follows: The mean value of the product quality dimension is 3.79 with a standard deviation of 0.856; the mean value of the logistics dimension is 3.86 with a standard deviation of 0.862; the mean value of the cross-regional dimension is 3.78 with a standard deviation of 0.846, and the mean value of the price dimension is 3.83 with a standard deviation of 0.855. With the given information, we can identify that satisfaction level in terms of logistics was able to gather the highest mean value, followed by price, product quality, and cross-region respectively. Second, in terms of platform design quality each independent variable is summarized as follows: The mean value of customer satisfaction with the quality of the vegetable retail platform is 3.76 with a standard deviation of 0.846; the mean value of platform design is 3.81 with a standard deviation of 0.848; and the mean value of platform security is 3.82 with a standard deviation of 0.845. A mean value greater than 3 means high satisfaction. Therefore, in general, customers are satisfied with the service and quality of the vegetable retail platform.

1) Satisfaction with platform services

Customer satisfaction with the service aspects of the vegetable retail platform

includes satisfaction in terms of product quality, logistics, cross-regional, and price.

(1) Product quality satisfaction

Product quality satisfaction is one of the elements of customers' satisfaction towards platform services. The mean and standard deviation of each question is shown below.

Table 4. 11 Descriptive results of product quality satisfaction (N=400)

Items	Mean	Standard Deviation
Freshness of vegetables upon arrival	3.835	0.848
Correctness of product upon arrival	3.788	0.866
The platform provides multiple logistics companies	3.738	0.883
Overall quality of performance	3.790	0.856

In terms of satisfaction with the quality of the product on the vegetable retail platform (see Table 4.11), each independent variable is summarized as follows: The mean value of the variable freshness of vegetables upon arrival is 3.835 with a standard deviation of 0.848; the mean value of the variable correctness of product upon arrival is 3.788 with a standard deviation of 0.866; the mean value of the variable platform providing multiple logistics companies is 3.738 with a standard deviation of 0.883. With the information given, we can identify that the freshness of vegetables upon arrival has the highest mean value. A conclusion can be made that customers' satisfaction of product quality is mostly influenced by freshness of vegetables upon arrival.

(2) Satisfaction with logistics

Satisfaction with the logistics is one of the elements of customers' satisfaction towards platform services. The mean and standard deviation of each question is

shown below.

Table 4. 12 Descriptive results of logistics satisfaction (N=400)

Items	Mean	Standard Deviation
Delivered within the agreed delivery date	3.877	0.876
Provide multiple logistics options	3.835	0.865
The platform can handle logistics problems promptly	3.858	0.874
Overall quality of performance	3.860	0.862

In terms of satisfaction with the logistics of the vegetable retail platform (see Table 4.12), each independent variable is summarized as follows: The mean value of the variable delivery within the agreed delivery date was 3.877, with a standard deviation of 0.876; the mean value of the variable platform providing multiple logistics options was 3.835, with a standard deviation of 0.865; and the mean value of the variable platform can deal with logistics problems promptly was 3.858, with a standard deviation of 0.874. With the given information, we can identify that delivery within the agreed date has the highest mean value. A conclusion can be made that customers' satisfaction of satisfaction of logistics is mostly influenced by delivery of products within the agreed date.

(3) Cross-regional satisfaction

Cross-regional satisfaction is one of the elements of customers' satisfaction towards platform services. The mean and standard deviation of each question is shown below.

Table 4. 13 Descriptive results of cross-regional satisfaction (N=400)

Items	Mean	Standard Deviation
Provision of vegetable varieties from different regions of China	3.781	0.852
Region wide delivery	3.733	0.866
24-hour cross-regional uninterrupted service	3.825	0.851
Overall quality of performance	3.780	0.846

In terms of satisfaction with vegetable retail platforms across regions (see Table 4.13), each independent variable is summarized as follows: The mean value for the variable provision of vegetable varieties from different regions of China was 3.781 with a standard deviation of 0.852; the mean value for the variable region wide delivery was 3.733 with a standard deviation of 0.866; and the mean value for the variable 24-hour cross-regional uninterrupted service was 3.825 with a standard deviation of 0.851. With the given information, we can identify that provision of region-wide 24-hour uninterrupted service has the highest mean value. A conclusion can be made that customers' satisfaction for cross-regional services is mostly influenced by provision of region-wide 24-hour uninterrupted service.

(4) Price service satisfaction

Price Service Satisfaction is one of the elements of customers' satisfaction towards platform services. The mean and standard deviation of each question is shown below.

Table 4. 14 Descriptive results of price service satisfaction (N=400)

Items	Mean	Standard Deviation
Reasonable product price	3.886	0.881
Priced lower than other platforms	3.759	0.869
discount time window of more than two days	3.856	0.844
Overall quality of performance	3.830	0.855

In terms of satisfaction with the price service of the vegetable retail platform (see Table 4.14), each independent variable is summarized as follows: The mean value of the variable reasonable product price was 3.886 with a standard deviation of 0.881; the mean value of the variable priced lower than other platform was 3.759 with a standard deviation of 0.869; the mean value of the variable discount time window of more than two days was 3.856 with a standard deviation of 0.844. With the given information, we can identify that a reasonable price for quality has the highest mean value. A conclusion can be made that customers' satisfaction of price service satisfaction is mostly influenced by reasonable price for quality of products.

  2) Satisfaction regarding the quality of the platform

Satisfaction regarding the platform's quality comprises of different aspects, including, platform scale satisfaction, platform design satisfaction, and platform security satisfaction. The mean and standard deviation of each aspect is shown below.

(1) Platform scale satisfaction

Platform scale satisfaction is one of the elements of customers' satisfaction towards platform quality. The mean and standard deviation of each question is shown below.

Table 4. 15 Descriptive results of platform scale satisfaction (N=400)

Items	Mean	Standard Deviation
The platform has high capital	3.820	0.861
Multiple sellers on the platform	3.750	0.843
Good reputation among customers	3.712	0.863
Overall quality of performance	3.760	0.846

In terms of satisfaction with the size of the vegetable retailing platform (see Table 4.15), each independent variable is summarized as follows: The mean value of the variable the platform has high capital is 3.820 with a standard deviation of 0.861; the mean value of the variable multiple sellers on the platform is 3.750 with a standard deviation of 0.843; the mean value of the variable good reputation among customers is 3.712 with a standard deviation of 0.863. With the given information, we can identify that having high capital has the highest mean value. A conclusion can be drawn that customers' satisfaction of platform scale is mostly influenced by the capital the platform has.

(2) Platform design satisfaction

Platform design satisfaction is one of the elements of customers' satisfaction towards platform quality. The mean and standard deviation of each question is shown below.

Table 4. 16 Descriptive results of platform design satisfaction (N=400)

Items	Mean	Standard Deviation
Clear platform service function menu	3.777	0.846
Freshness portrayed by the platform	3.871	0.875
Platform page layout conforms to user experience	3.790	0.853
Overall quality of performance	3.810	0.848

In terms of satisfaction with the design of the vegetable retail platform (see Table 4.16), each independent variable is summarized as follows: The mean value of the variable clear design of the platform function menu is 3.777 with a standard deviation of 0.846; the mean value of the variable freshness portrayed by the platform is 3.871 with a standard deviation of 0.875; the mean value of the variable platform page layout conforms to user experience is 3.790 with a standard deviation of 0.853. With the given information, we can identify that freshness portrayed by the platform's page design has the highest mean value. A conclusion can be drawn that customers' satisfaction of platform design is mostly influenced by freshness portrayed by the platform's page design.

(3) Satisfaction with platform security

Platform security satisfaction is one of the elements of customers' satisfaction towards platform quality. The mean and standard deviation of each question are shown in the table below.

Table 4. 17 Descriptive results of platform security satisfaction (N=400)

Items	Mean	Standard Deviation
Security policy to protect customers' information while performing services	3.800	0.856
Security technology to protect client's account	3.833	0.843
Every feature in the platform works properly	3.812	0.867
Overall quality of performance	3.820	0.845

In terms of satisfaction with the safety of the vegetable retail platform (see Table 4.17), each independent variable is summarized as follows: The mean value of the variable security policy to protect customers' information while performing services is 3.800 with a standard deviation of 0.856; the mean value of variable security technology to protect client's account is 3.833 with a standard deviation of 0.843; the mean value of the variable every feature in the platform works properly is 3.812 with a standard deviation of 0.867. With the given information, we can identify that technology provided by the platform for account security has the highest mean value. A conclusion can be drawn that customers' satisfaction of platform security is mostly influenced by technology provided by the platform for account security.

4.3 Analysis of factors affecting satisfaction

This section provides an analysis of factors that influence satisfaction. It is divided into two sections. The first section analyzes the impact of service aspects (product quality, logistics, cross-regional and price) of the vegetable retailing platform on their provided satisfaction. The second section analyzes the impact of quality aspects (platform scale, platform design and platform security) of vegetable retailing platforms on customers satisfaction.

4.3.1 Impact of the vegetable retailing platform on customer satisfaction in terms of services

In this section, regression analysis was conducted using statistical analysis software, with incorporation of data from the service aspects. The analysis introduces the aspects, which includes product quality, logistics, cross-regional services, and price as independent variables. While customers' satisfaction was introduce as the dependent variable.

1) Impact of product quality, logistics, cross-regional services, and price on customer satisfaction

This section analyzes the impact of the vegetable retailing platform on customer satisfaction in terms of service, which includes product quality, logistics, cross-regional and price. The results of the model fit test are shown in the table below.

Table 4.18 Impact of product quality, logistics, cross-regional and price on customer satisfaction

	β	t-value	P-value
Intercept	0.096	0.585	0.559
Product quality	0.198	4.287	0.000
Logistics	0.210	5.007	0.000
Cross-regional service	0.136	3.008	0.000
Price of service	0.228	5.251	0.000

The result of the experiment is shown in Table 4.18. The experiment has showed the result of customers satisfaction in terms of service based on Hema, a fresh vegetable retailing platform. The experiment produces a positive effect on all paired variables: product quality and customers satisfaction, logistics and customers satisfaction, cross-regional services and customers satisfaction, and price of service and customers satisfaction, with values of: ($\beta=0.198$, $p<0.05$), ($\beta=0.210$, $p<0.05$), ($\beta=0.136$, $p<0.05$), and ($\beta=0.228$, $p<0.05$) respectively. Regression analysis was

conducted using the service content of the vegetable retail platform (product quality, logistics, cross-regional and price) as the independent variable and customer satisfaction as the dependent variable. The regression equation used was Y=0.096+0.198*product quality + 0.210*logistics + 0.136*cross-regional + 0.228*price service. Finally, the above data was derived.

2) Summary the results on proposed hypothesis (Platform service)

In this section, the proposed hypotheses of vegetable retailing platforms in terms of product quality, logistics, cross-regional services, and service price are presented. The results of the proposed hypotheses are then summarized.

(1) Hypothesis 1

The quality of the vegetable retail platform in terms of product quality, logistics, cross-regional services and service price will contribute to a positive impact on customer satisfaction of the platform.

More specifically:

H1a: Product quality of vegetable retail platforms has a positive impact on customer satisfaction.

H1b: Logistics of vegetable retailing platform has a positive impact on customer satisfaction.

H1c: The cross-regional service of vegetable retailing platform has a positive impact on customer satisfaction.

H1d: The service price of vegetable retailing platform has a positive effect on customer satisfaction.

(2) Summarization of the results on proposed hypothesis (platform of services)

Table 4. 19 Summarization of the results on proposed hypothesis (Platform of services)

	H1a. Product quality	H1b. Logistics	H1c. Cross-regional	H1d. Price
Customer satisfaction	S	S	S	S

(Note S: Supported; NS: Not supported)

According to Table 4.18 and Table 4.19, (1) a positive relation is shown between product quality (β =0. 198, p<0.05) and customer satisfaction in vegetable retailing platforms. Therefore, hypothesis H1a is supported. (2) A positive relation is shown between logistics (β =0.210, p<0.05) and customer satisfaction with regards to the platform. Therefore, hypothesis H1b is supported. (3) A positive relation is shown between cross-regional (β=0.136, p<0.05) and customer satisfaction with regards to the platform. Therefore, hypothesis H1c is supported. (4) A positive relation is shown between service price (β=0.228, p<0.05) and customer satisfaction with regards to the platform. Therefore, hypothesis H1d is supported.

3) ANOVA test for service factors of vegetable retailing platform

In this section, a one-way ANOVA will be used to investigate whether the service aspects of the vegetable retailing platform (product quality, logistics, cross-region, and price) will contribute to a positive impact on customer satisfaction.

Table 4. 20 ANOVA test for vegetable retail platforms in terms of service

	Multiple R	R²	Adjusted R²	F-value	P-value
Product quality Logistics Cross-regional Price	0.775	0.601	0.594	84.250	0.000

The variance test showed that F=84.25, p<0.05, Multiple R was 0.775, R² was 0.601 and adjusted R² was 0.594 (see Table 4.20). Service aspects (product quality, logistics, cross-regional services, and service price) of Hema Fresh were used as independent variables. In the regression model, customer satisfaction was used as the dependent variable with statistical significance.

4) ANOVA results for vegetable retail platforms of service

This section will use the results of the presented one-way ANOVA to analyze whether the service aspects (product quality, logistics, cross-regional and price) of the platform contributes to a positive impact on customer satisfaction.

Table 4. 21 ANOVA results for service factors of vegetable retailing platforms

	SS	df	MS	F-value
Regression analysis	124.693	4	17.813	84.251
Residual value	82.881	395	0.211	
Total	207.573	399		

Table 4.21 shows the results of the analysis done by one-way ANOVA, with α=0.05, p-value < 0.05. From the data, it can be seen that the Hema platform has a receive positive feedback on customer satisfaction, with regards to each independent variable, with basis to its services.

4.3.2   The impact of vegetable retail platforms on customer satisfaction in terms of quality

In this section, we performed a regression analysis using statistical analysis software, with the qualitative aspects (platform scale, platform design, and platform security) of the vegetable retailing platform as independent variables and customer satisfaction as dependent variables.

1)   Impact of platform scale, platform design and platform security on customer satisfaction

This section analyzes the impact of platform quality, which includes, platform scale, platform design, and platform security, in customer satisfaction. The results of the model fit test are shown in the following table.

Table 4. 22 Impact of platform scale, platform design, and platform security on customer satisfaction

	β	t-value	P-value
Intercept	0.041	0. 168	0.867
Platform scale	0. 145	3.120	0.000
Platform design	0. 122	3.498	0.000
Platform security	0. 122	2.999	0.000

The result of the experiment is shown in Table 4.22. The experiment has showed the result of customers' satisfaction in terms of platform quality based on Hema, a fresh vegetable retailing platform. The experiment produces a positive effect on all paired variables: platform size and customer satisfaction, platform design and customer satisfaction, and platform security and customer satisfaction, with values of: (β=0.145, p<0.05), (β=0.122, p<0.05), and (β=0.122, p<0.05) respectively. The platform quality aspects of the vegetable retailing platform (platform size, platform design and platform security) were used as independent variables while customer

satisfaction was used as the dependent variable. The regression equation Y = 0.041 + 0.145*platform size + 0.122*platform design + 0.122*platform safety was used. Finally, the above data were derived.

2) Summary of the results of the proposed hypothesis (platform quality)

In this section, proposed hypotheses from vegetable retail platforms in terms of platform scale, platform design, and platform security are presented. The results of the proposed hypotheses are then summarized.

(1) Hypothesis 2

The quality of the vegetable retail platform in terms of platform size, platform design, and platform security will contribute to a positive impact on customer satisfaction of the platform.

More specifically：

H2a: The scale platform has a positive impact on customer satisfaction.

H2b: The design of the platform has a positive effect on customer satisfaction.

H2c: Security of the platform has a positive effect on customer satisfaction.

(2) Summary of the results of the proposed hypothesis (quality of platform)

Table 4. 23 Summary the results on proposed hypothesis (quality of platform)

	H2a. Platform scale	H2b. Platform design	H2c. Platform security
Customer satisfaction	S	S	S

(Note S: Supported; NS: Not supported)

According to Table 4.8 and Table 4.23, (1) a positive relation is shown

between platform size (β=0. 145, p<0.05) and customer satisfaction for vegetable retailing platforms. Therefore, hypothesis H2a is supported. (2) A positive relation is shown between platform design (β=0. 122, p<0.05) and customer satisfaction with regards to the platform. Therefore, hypothesis H2b is supported. (3) A positive relation is shown between platform security (β=0. 122, p<0.05) and customer satisfaction with regards to the platform. Therefore, hypothesis H2c is supported.

ANOVA test of quality factors of vegetable retailing platform

In this section, a one-way ANOVA will be used to examine whether the platform quality factors (platform scale, platform design, and platform safety) will contribute to a positive effect on customer satisfaction.

Table 4. 24 ANOVA test for vegetable retail platforms in terms of service

	Multiple R	R²	Adjusted R²	F-value	P-value
Platform Scale					
Platform Design	0.861	0.741	0.736	193.49	0.000
Platform Security					

The variance test showed F= 193.49, p<0.05, Multiple R of 0.861, R² of 0.741, and adjusted R² of 0.736 (see Table 4.24). The qualitative aspects (platform scale, platform design, and platform security) of Hema Fresh's platform were used as independent variables. Customer satisfaction was used as a statistically significant dependent variable in the regression model.

3) ANOVA results for vegetable retail platforms of quality

This section will use the results of the presented one-way ANOVA to analyze whether the platform quality aspects (platform scale, platform design and platform security) of the platform contributes to a positive impact on customer satisfaction.

Table 4. 25 ANOVA results for quality factors of vegetables retailing platforms

	SS	df	MS	F-value	P-value
Regression analysis	121.998	3	16.908	139.493	0.000
Residual value	85.575	396	0. 121		
Total	207.573	399			

Table 4.25 shows the results of the analysis done by one-way ANOVA, with α=0.05, p-value < 0.05. From these statistics, it can be seen that the Hema platform has received positive feedback on customer satisfaction, with regards to each independent variable, with basis to the platform quality.

4.4 Conclusion

According to the results of this study, with regards to the Hema Fresh vegetable retailing platform, concerning platform services, product quality, logistics, cross-regional services, and price of service, have all proven to contribute to a positive effect on customer satisfaction of the platform. Moreover, concerning platform quality, platform size, platform design, and platform safety, have all proven to contribute to a positive effect on customer satisfaction as well.

Chapter 5

Discussion and Conclusion

This chapter is segmented into three main parts, and will presents the discussion, recommendations, and conclusions of this study. The first part discusses the impact of vegetable retailing platform services on customer satisfaction and the impact of platform quality on customer satisfaction. The second part proposes recommendations. The third part will house the conclusion.

5.1 Discussion

5.1.1 The impact of vegetable retail platform services on customer satisfaction

1) Quality of products

Hypothesis H1a stated that the product quality of vegetable retailing platforms will contribute to a positive effect on customer satisfaction. Based on the results of the study, it was found that the quality of the platform's products has a positive effect on customer satisfaction. Therefore, hypothesis H1a is supported. As mentioned by Wang and Yang (2020), platform product quality is positively related to customer satisfaction, and the better the platform product quality, the higher the satisfaction level. As can be seen, the results of this study are consistent and correlates with findings from previous scholars. Manasra and Taherqutaishat, (2013) mentioned that effective preservation technology is needed to ensure the food safety of vegetables, fruits, and frozen meat products. Therefore, vegetable retail platforms should ensure that customers receive fresh and accurate vegetables as well as receive intact packages to satisfy its customers.

2) Logistic

Hypothesis H1b hypothesizes that the logistics of the vegetable retailing platform have a positive impact on customer satisfaction. Based on the results of the

study, it was found that platform logistics contributes and has a positive impact on customer satisfaction. Therefore, hypothesis H1b is supported. As mentioned by Collier and Bienstock (2015), platform logistics is positively related to customer satisfaction, and the faster the platform logistics, the higher the satisfaction. Regarding Fuentes-Blasco, Moliner-Velázquez and Gil-Saura (2014) proposed that using the airline industry as a study, they stated that airline logistics can increase the value of delivery, the value of knowledge innovation, the value of value-added services, the value of information, and the value of performance satisfaction, which eventually leads to an increase in overall customer satisfaction. As can be seen, the results of this study are consistent and correlates with findings from previous scholars. Therefore, vegetable retail platforms should ensure that they can deliver goods to customers at the fastest speed, provide multiple logistics options for customers to choose from, and that the platform can handle logistics problems promptly to ensure customers' satisfaction.

3) Cross-region services

Hypothesis H1c hypothesizes that the cross-regional services of vegetable retailing platforms have a positive impact on customer satisfaction. Based on the results of the study, it was found that platform cross-regional services have a positive impact on customer satisfaction. Therefore, hypothesis H1c is supported. As Feng and Wu (2013) mentioned, platform cross-regional services is positively related to customer satisfaction, and the more thoughtful the platform cross-regional service is, the higher the satisfaction. Song (2019) also stated, regarding the special characteristics of cross-regional cold chain logistics distribution of fresh agricultural products, time, temperature, and cargo loss costs in the cross-regional cold chain logistics distribution process must be analyzed and defined, and the total distribution cost minimization model need to be established. Secondly, the optimal solution of the cold chain logistics distribution path is to be further explored. Lastly, the cost-saving method needs to use to reduce the distribution cost. Therefore, the dual requirements

of customers for distribution cost and time are met. Thus, customer satisfaction with the vegetable retail platform across regions will be improved. The results of this study are consistent and correlates with findings of previous scholars. Given the information from the study, vegetable retail platform should ensure three main points regarding its logistics: Provision of variety of products from multiple regions of China, delivery coverage of all regions in China, and ensure 24-hour cross-regional uninterrupted services. By achieving the aforementioned points, the platform should receive positive feedback, which translates to a high level of customer satisfaction regarding its cross-regional services.

4) Price of services

Hypothesis H1d hypothesizes that the service price of a vegetable retailing platform has a positive effect on customer satisfaction. Based on the results of the study, it was found that platform price service has a positive impact on customer satisfaction. Therefore, hypothesis H1d is supported. As Li and Hu (2015) mentioned, platform price is positively related to customer satisfaction, and the lower the platform price the higher the customer satisfaction. As can be seen, the results of this study are consistent and correlates with the findings of previous school website and references. Regarding the result, vegetable retail platform should ensure that it can provide customers with reasonable vegetable prices to ensure repeat business, as well as building trust for the platform. The platform should look at ways to ensure that their price is competitive comparing to others in order to become more favorable for customers. Platform should also offer discounts and promotions, with duration the duration of more than 2 days, in order to incentivize customers. By achieving the previously stated points, the platform should receive positive feedback, which translates to a high level of customer satisfaction regarding its service price.

Based on the results of the study, hypotheses H1a (product quality), H1b (logistics), H1c (cross-regional services), and H1d (service price) were all supported. Therefore, product quality, logistics, cross-regional services and service price have a

positive impact and correlates with customer satisfaction.

5.1.2 Impact of platform quality on customer satisfaction

1) Platform scale

Hypothesis H2a hypothesizes that the size of the vegetable retailing platform has a positive effect on customer satisfaction. Based on the results of the study, it was found that platform size has a positive effect on customer satisfaction. Therefore, hypothesis H2a is supported. As Ai (2011) mentioned, platform size is positively related to customer satisfaction, the larger the platform size, the higher the customer satisfaction. Chan and Zhang (2018) suggested that alongside the development of Internet, dishonesty becomes a problem for these online shopping platforms. To deal with such problem, word-of-mouth influences and has impacted the long-term development of these platforms. Moreover, platform size and reputation also play a role in attracting customers as well. This affects customer satisfaction to some extent. In cases of multiple sellers on the platform, the platform will be able to give customers more choices if they enter more stores. However, the platform must also strengthen the qualification audit of stores to improve customers' trust and reputation of the platform. As can be seen, the results of this study are consistent and correlates with findings from previous scholars.

Regarding the result and findings, vegetable retail platform should acquire high capital to win customers' trust, acquire multiple sellers to ensure variety of products, and attain good reputation among its customer bases. By achieving the previously stated points, the platform should receive positive feedback, which translates to a high level of customer satisfaction regarding its size.

2) Platform design

Hypothesis H2b hypothesizes that the design of the vegetable retail platform has a positive effect on customer satisfaction. Based on the results of the study, the platform design was found to have a positive impact on customer satisfaction. Therefore, hypothesis H2b is supported. As mentioned by Zhang (2019), platform

design is positively related to customer satisfaction, the clearer the platform design, the higher the customer satisfaction. As can be seen, the results of this study are consistent and correlates with findings from previous scholars. Therefore, vegetable retailing platforms should have a clear menu of platform services and therefore enable customers to complete their shopping quickly. The design of the platform must also portray a feeling of freshness, which help stimulates and creates the desire to buy. The platform page layout also plays an important role in helping customers navigate through the platform, and finally create a purchase order. By achieving the previously stated points, the platform should receive positive feedback, which translates to a high level of customer satisfaction regarding its design.

3) Platform security

Hypothesis H2c hypothesizes that the security of the vegetable retailing platform has a positive impact on customer satisfaction. Based on the results of the study, platform security was found to have a positive effect on customer satisfaction. Therefore, hypothesis H2c was supported. As mentioned by Liao (2016), platform security is positively related to customer satisfaction, the higher the platform security technology, the higher the customer satisfaction. Ta (2018) suggested that the current payment market occupies a larger market space. "Bound credit card, WeChat payment, and Alipay" is the current payment channel on which the platform payment is based. And the probability of risk events of credit and debit cards bound by users in the platform is greatly increased due to the increase of mobile payment ports. Phenomena such as illegal authorization, theft, password leakage, and misuse seriously affect the legitimate rights of users. As can be seen, the results of this study are consistent and correlates with findings from previous scholars. Therefore, vegetable retail platforms should have security policies (encryption, security standards, etc.) that can protect customers' personal information to ensure safety and create peace of mind for customers. The platform should also ensure that every function is working properly to enhance customers' experience. By achieving the previously stated points, the

platform should receive positive feedback, which translates to a high level of customer satisfaction regarding its security.

Based on the results of the study, hypotheses H2a (platform scale), H2b (platform design), and H3c (platform security) were all supported. Therefore, platform size, platform design, and platform security have a positive impact and correlates wtih customer satisfaction.

5.2 Suggestions

5.2.1 Recommendations for platforms (any platforms)

It is necessary for all vegetable retail platforms in China to provide customers with fresh products upon delivery. These platforms are judged based on their performance, in terms of their product quality, logistics, cross-regional services, and service price. Logistics speed and options, 24-hour cross-regional deliveries, and competitive prices all contributes to customer satisfaction which sums up the platform's relevancy in the market. Furthermore, the platform must also maintain enough capital cash flow and ensure products varieties, as well as good reputation among its customer bases to form trust. Finally, vegetable retail platform practitioners must listen to their customers' feedbacks and focus on tailoring their customer service to keep customers satisfied.

5.2.2 Suggestions for further studies

This study focuses only on the impact of vegetable retail platform services and the platform quality on customer satisfaction. This study collected information from customers of major vegetable retail platforms in China. Therefore, if someone a researcher desires to explore this area, it is recommended that they collect data from customers of different vegetable platforms. In addition, it is recommended that each factor must be studied in detail for future studies. For example, product quality, logistics, cross-regional services, service price, platform size, design, safety, etc. and its influence, to better understand customer expectations.

5.3 Conclusions

In terms of vegetable retail platform services, product quality has a positive impact on customer satisfaction, the fresher the products are upon arrival, the higher the customer satisfaction level. Moreover, this also translates to other points. as well. Correct product delivery, packaging conditions upon arrival, all contributes to a better customer satisfaction level. Regarding logistics, the experiment has shown that logistic also has a positive impact on customer satisfaction. A more timely and faster delivery, more logistics options, and faster logistic problem handling all contributes to a better customer satisfaction level. Regarding cross-region services, the experiment has shown that cross-region services have a positive impact on customer satisfaction. Provision of more vegetable varieties from multiple regions, more coverage of delivery to customers in all regions, and a more enhance 24-hour service across regions all contributes to a better customer satisfaction level. Finally, regarding service price, the experiment also shown that service price has a positive impact on customer satisfaction. A more reasonable prices offered, the more competitive the prices are comparing to other platforms, and a longer promotional time frame all contributes to a better customer satisfaction level.

In terms of the quality of the vegetable retail platform, the size of the platform has a significant positive effect on customer satisfaction. The higher the capital of the platform, the more sellers available to choose from, and the better the reputation all contributes to a higher level of customer satisfaction. Moreover, this finding also translates to other aspects regarding the platform quality. Regarding platform design, the experiment has shown that platform design has a positive impact on customer satisfaction. A clearer and more concise menu, and the better it portrays freshness of the products both contributes to a higher level of customer satisfaction. Regarding page layout, the experiment has shown that page layout has a positive impact on customer satisfaction. The more the layout meet and matches with customers' psychological expectations, the higher the customer satisfaction. Regarding platform

security, the experiment has shown that platform security has a positive impact on customer satisfaction. A more prudent and secure security policies in storing personal information, A safer account handling methods, and a better experience using the platform without causing interruptions all contributes to the level of customer satisfaction, as well as providing peace of mind for users upon using.

References

Adam, A. M. (2020). Sample Size Determination in Survey Research. *Journal of Scientific Research and Reports, 26*(5), 90-97.

Ai R. (2011). *JSY fresh food delivery B2C website marketing strategy research.* (Doctoral dissertation, University of Electronic Science and Technology).

Ali, F. (2016). Hotel website quality, perceived flow, customer satisfaction and purchase intention. *Journal of Hospitality & Tourism Technology, 7*(2), 213-228.

Al-Qeisi, K. , Dennis, C. , Alamanos, E. , & Jayawardhena, C. . (2014). Website design quality and usage behavior: unified theory of acceptance and use of technology. *Journal of Business Research.*

Ayoung,Y.,Daeyoung, J., & Jihwan, Y. (2013). Information system success model. Tourism and Leisure Research, 25.

Bressolles, G. , Durrieu, F. , & Senecal, S. . (2014). A consumer typology based on e-service quality and e-satisfaction. *Journal of Retailing & Consumer Services, 21*(6), 889-896.

Cha, J. C., & Wang, L.S.. (2006). An empirical study of factors influencing online shopping customer satisfaction. *Management Science, 19*(1), 9.

Chan, T., Liu, Z., & Zhang, W. (2018). Delivery service, customer satisfaction and repurchase: Evidence from an online retail platform. *Customer Satisfaction and Repurchase: Evidence from an Online Retail Platform (September 15, 2018).*

Chinanews.com.cn. 2021. *京东披露"618"成绩单：销售额超 3438 亿元创出新高-中新网* . [online] Available at: <https://www.chinanews.com.cn/cj/2021/06-19/9502791.shtml>

Collier, J. E., & Bienstock, C. C. (2015). A conceptual framework for measuring e-service quality. In *Creating and Delivering Value in Marketing* (pp. 158-162). Springer, Cham.

References (Continued)

Dai, H. (2016). Price analysis of main vegetable varieties in three domestic vegetable wholesale markets in January 2016. *Agricultural engineering technology, 36*(004), 25-26.

Du, Y. (2015). *长沙绿色蔬菜网络信息系统研发 (Research and development of Changsha Green Vegetable Network information System).* (Doctoral dissertation,Central South University of Forestry and Technology).

Duan, Z.X. (2012). Analysis of the development status and development trend of China's express industry. *Enterprise Herald* (3), 2.

Elling, S. (2017). Evaluating website quality: five studies on user-focused evaluation methods. *Utrecht University*.

Fan, R. (2011). Talking about e-commerce website functions from a marketing perspective. *Modern economic information* (11X), 1.

Feng, J.M. (2014). 蔬菜网上销售模式的探索与实践 (Exploration and practice of vegetable online sales model). *Chinese Vegetables*, 000(012), 1-3.

Feng, L. (2004). *Principles of Regression Analysis Methods and SPSS in Practice.* China Finance Press.

Feng, Y., Yun, l., and Wu, X. (2013). Coordination mechanism of fresh produce supply chain under cross-regional direct supply model. *Proceedings of the 8th (2013) Annual China Management Conference - Operations Management Session.*

Fuentes-Blasco, M., Moliner-Velázquez, B., & Gil-Saura, I. (2014). Effect of customer heterogeneity on the relationship satisfaction–loyalty. *Revista Española de Investigación de Marketing ESIC, 18*(2), 78-92.

References (Continued)

Generalfushi.com. 2018. The Supermarket Hema. [online] Available at: <http://www.generalfushi.com/index.php/photo/index/g/c/id/2.html> [Accessed 5 June 2022].

Handayani, V., Budiono, F. L., Rosyada, D., Amriza, R. N. S., & Masruroh, S. U. (2020, October). Gamified learning platform analysis for designing a gamification-based ui/ux of e-learning applications: A systematic literature review. In *2020 8th International Conference on Cyber and IT Service Management (CITSM)* (pp. 1-5). IEEE.

He, Y. Z., Liu, D., Yu, L., & Fan, Y.. (2014). Factors affecting customer satisfaction and its improvement measures. *Yunnan Electricity* (3), 2.

Hong, T. *(2020) 中国农产品电商发展报告 (2020 China Agricultural E-commerce Development Report)* 《Agricultural Engineering Technology》 2020-9

Hou, X.S. (2011). 探索使用电子报税系统的客户满意度：分解 DeLone 和 MacLean 信息系统成功模型 (Exploring Customer Satisfaction of Using Electronic Tax Filing System:Decompose DeLone and MacLean Information System Success Model)

Huang, W.T. (2018). Comparative analysis of China's cross-border e-commerce operation mode in the context of "Internet+". *National Circulation Economy* (31), 2.

Indeche, A. (2017). Role of Online Service Quality on Customer Satisfaction: Case of Online Retailing Sites in Nairobi Kenya.

Ito, M. (2018). Online sales of fruit and vegetables: current state and trends. *Journal for the Integrated Study of Dietary Habits, 29*(1), 17-21.

References (Continued)

Jiang, X.H., Shen, Z.Z, Zhang, N.N., Liao, H.X., & Xu, H.Y. (2010). - 问卷的信度和效度分析 (Analysis of the reliability and validity of the questionnaire). *Modern Preventive Medicine,2010*, 3.

Kim, S., Park, J. , & Lee, Y. . (2013). The e-word-of-mouth effect on consumers' internet shopping behaviour: focus on apparel products. *International Journal of Fashion Design Technology & Education, 6*(3), 160-172.

Cochran, W. G. (1977). *Sampling techniques.* John Wiley & Sons.

Kong, L.Y. (2013). Review on collaborative management of supply chain e-commerce. *Ecological economy* (07), 109-114.

Li, Y. (2017). "Internet +" opens the vegetable market. *Agricultural Science and Technology, 000*(003), 37-37.

Li, Y.P. & Hu, P. (2015). Research on influencing factors of customer satisfaction in online shopping. *Commercial Research, 000*(001), 160-165.

Li, Z. C., & Liu, M. L.. (2002). A study of consumer behavior in e-commerce environment. *Chinese Management Science, V* (6), 88-91.

Liao, M.H. (2016). A study on marketing-oriented e-commerce website interface design oriented to online consumer experience. *Business* (4), 2.

Liu, J. (2014). *我国农业电子商务的发展现状及对策研究 (Research on the development status and countermeasures of China's agricultural e-commerce).* (Dissertation, Central China Normal University).

Liu, N. (2017). A brief discussion of Taobao website marketing strategy. *Reading Digest, 000*(010), 80.

Liu, Y.Z, Jiang, Y.C & Zhang, J.K. (2008). Effectiveness Analysis of Evidence Reliability. *"System Engineering Theory and Practice"* 2008, 3.

References (Continued)

Liu, Z.X. (2020). 疫情视角下人工智能对消费和购物体验的影响研究 (Research on the impact of ARTIFICIAL intelligence on consumption and shopping experience from the perspective of epidemic). *Modernization of shopping malls* (4), 22-23.

Lu, L.X., Zhou, D., Lv, Chao, & Zhou, Y.H.. (2010). Analysis of factors influencing the concentration of vegetable production areas in China - A structural equation modeling study based on data from Shandong Shouguang wholesalers. *Finance and Trade Economics* (6), 9.

Majzoub, M. A. , Davidaviien, V. , & Meidute-Kavaliauskiene, I. . (2020). Measuring the impact of factors affecting reverse e-logistics' performance in the electronic industry in lebanon and syria. *Independent Journal of Management & Production, 11*(6), 1969.

Manasra, E., Zaid, "Mohammed Khair" Saleem Abu, & Taherqutaishat, F. . (2013). Investigating the impact of website quality on consumers' satisfaction in jordanian telecommunication sector. *Arab Economic and Business Journal, 8*(1-2), 31-37.

Montgomery, D. C., Peck, E. A. and Vining, G. G. (2021). *Introduction to linear regression analysis.*

Nevase, M. , & Rasal, R. A. (2016). Online Selling of Vegetables and Fruits an Effectual Marketing Stuff.

Rosenbaum, M. S., Ramirez, G. C., Campbell, J., & Klaus, P. (2021). The product is me: Hyper-personalized consumer goods as unconventional luxury. Journal of Business Research, 129, 446-454.et al, H.C. (2015). Research and development of changde Regional vegetable supply chain information Platform under Internet mode. *Sme Management and Technology.*

References (Continued)

Shi, X.L. (2011). 蔬菜渠道价值的悖论 (The paradox of vegetable channel value). *Agricultural Products Market Weekly* (21), 18-19.

Shi, Y., Waseem, R., & Shahid, H. M.. (2020). *Third-Party Logistics*.

Singh, D. P., Patil, C., & Meena, S. S.. (2021). Impact of online agriculture marketing policy -e-nam (electronic national agriculture market) on prices and arrivals of agricultural commodities in punjab, india. *International Journal of Current Microbiology and Applied Sciences, 10*(2).

Song, M. (2015). Agricultural production activity information tracing system.

Song, Y.J. (2019). *Research and design of organic Vegetable Sales Platform.* (DISSERTATION, Hebei Normal University of Science and Technology).

Ta, N. (2018). Research on the trend of online distribution channels based on Amazon bestseller distribution. *Friends of the editor.*

Taweesuk, P., & Khanchanapong, T. (2018). The Effect of Relationship Quality Practices on Electronic Word-of-Mouth: The Case Study of (Online) Organic Vegetable Buyers in Thailand. *Asia-Pacific ConfereSintao's Management and Business (pp. 565-574).*

Vosooghzadeh, B. (2020). Influential Transaction Theory for Improving the Economy.

Wan, Y. J., & Yu, Z. C. (2020). 电子商务法背景下生鲜农产品电子商务发展探索 (Exploring the development of e-commerce for fresh agricultural products under the background of e-commerce law). *The Journal of Internet Electronic Commerce Resarch, 20*(6), 135-163.

Wang, C.F. & Yang, B.H. (2020). A study of factors influencing customer satisfaction in fresh produce e-commerce.

References (Continued)

Wang, C.J. (2016). 北京市蔬菜零售市场转型升级分析 (Analysis on transformation and upgrading of Vegetable retail market in Beijing). *The Chinese market, 000*(005), 81-82.

Wang, D.H. (2011). Study on optimization strategy of vegetable supply chain from the perspective of market structure. *The agricultural economy*(08), 91-92.

Wang, J.Y., Zhuang, G.J., & Wu, L.J. (2018). A new species of the genus Phyllostachys (Coleoptera, Staphylinidae) from China. The influence of contextual factors on customers' online complaint styles in online shopping. *Management Review, 30*(12), 10.

Wang, M.Y. (2020). *Research on online retail customer satisfaction from the perspective of big data*. (China University of Geosciences, Beijing).

Watson, R. (2015). *Quantitative research. Nursing Standard (2014+), 29*(31), 44.

Wei, L., Luo, Y., Wang, M., Su, S., Pi, J., & Li, G. (2020). Essential fragmentation metrics for agricultural policies: Linking landscape pattern, ecosystem service and land use management in urbanizing China. *Agricultural Systems*, *182*, 102833.

Wu, L.F. (2017). 我国蔬菜产业经济热点回顾 (Review on the economic hot spots of Vegetable industry in China). *Acta Agriculturae Jiangxi, 29*(004), 139-145.

Xiao, F & Zhao, J. (2019). 基于微信背景的农业电子商务发展模式探索 (Exploration of agricultural e-commerce development mode based on wechat background). *Information week* (45), 1.

Yang, Z.F., & Gao, W. (2013). An analysis of Taobao online stores in the vegetable retail industry. *Science and Technology Economic Market* (5), 3.

Zhang, S, Huang, S. S & Zeng, R. (2020). Analysis of influencing factors of vegetable trading platform cost. *Fortune Today (China Intellectual Property)* (3).

References (Continued)

Zhang, S.H. (2018). "E-commerce operation and development of green vegetables under the background of "Internet+". *Industry and Technology Forum, 17*(7), 2.

Zhang, X, R. (2019). Designing an Internet platform for "old things for owners". *Digital Communication World,* (8), 2.

Zhou, N. (2014). *ACSI model-based study of consumer satisfaction with online vegetable purchases.* (Doctoral dissertation, Huazhong Agricultural University).

Appendix

Appendix A: Approval Ethical Committee

Acquire Knowledge to Serve Society

THE CERTIFICATE OF ETHICAL APPROVAL
(CERTIFICATE OF EXEMPTION)
THE ETHICS COMMITTEE OF RESEARCH
HUACHIEW CHALERMPRAKIET UNIVERSITY

July 19th, 2022

Project Title   Research Questionnaire on Customer Satisfaction Factors on
                      Vegetable Retail Platforms

Principal Investigator   Ms. Weng Yumei

Faculty / Program   Master of Business Administration Program in Digital Business

This is to certify that the research project above has been approved in accordance with the Declaration of Helsinki by the Research Ethics Committee at Huachiew Chalermprakiet University.

Signature

(Wirat Tongrod , Ph.D.)
Chairman of the Board
Research Ethics Committee
Huachiew Chalermprakiet University

Approval Date   July 19th, 2022

Certificate Number   อ.1211/2565

This approval is valid until 18th July 2024.

Appendix B: Consent form

เรียนรู้เพื่อรับใช้สังคม

My name is Weng Yumei - a graduate student of Master of Business Administration (M.B.A.) in Digital Business at Huachiew Chalearmprakiet University in Thailand. As a part of this degree, I am conducting a thesis on the topic"A Research Survey on Customer Satisfaction Factors in Vegetable Retailing Platforms". The study is designed factors that influence customer satisfaction with the products and services offered in vegetable retail platforms to improve customer satisfaction. For the complete of the study, we need the people of who use the vegetable retailing platforms to answer the questionnaires. The data collection is started from January 28, 2022.

This research is conducted on a strictly anonymous with the confidentiality of participants. Your name will not be identified in this report and data collected will be seen only the researcher and thesis advisor. Your participation is voluntary. If you are willing to answer the questionnaires, please tick to declare that you consent to give the data for this research. The data you provide will be used for this study only.

For more information and questions about this project, please contact me at 328202229@qq.com and my thesis advisor, Dr. Lanthom Jonjoubsong, at lanthomjon@gmail.com.

Regards

(Miss. Weng Yumei)

Request for Expect Inspection Letter

เรียนรู้เพื่อรับใช้สังคม

Dear Dr. Marissa Intarakerd

    Attachment 1) Thesis Proposal "A Research Survey on Customer Satisfaction Factors in Vegetable Retailing Platforms"

               2) Questionnaire

    My name is Weng Yumei - a graduate student of Master of Business Administration (M.B.A.) in Digital Business at Huachiew Chalearmprakiet University, Thailand. As part of this degree, I am working on a thesis entitled "A Research Survey on Customer Satisfaction Factors in Vegetable Retailing Platforms". The study has objectives, research questions, theoretical framework, and research methodology as described in the proposal. This study will collect data by distributing questionnaires to customers of vegetable retailing platforms. To ensure the quality of the study, I would like to ask you to check the questionnaire for me for data collection. For more information and questions about this project, please contact me at 328202229@qq.com and my thesis advisor, Dr. Lanthom Jonjoubsong, at lanthomjon@gmail.com.

    I would like to thank you in advance for your support of my research.

                                  Best Regards

                                  WengYumei

Appendix C: Questionnaire

The questionnaire is divided into three parts. The first part is information on customer characteristics, the second part is to investigate customers' expectations of B2C vegetable retailing platform services, and the third part is to investigate customers' satisfaction with B2C Hema fresh vegetable retailing platform.

Section 1: Please indicate your information by ticking (√) in the box that matches your information.

1、 Have you used the B2C Hema vegetable retail platform?

☐Yes (Answer "Yes" jump to the next question)

☐No (Answer "No" end the questionnaire)

2、 Which region of China are you come from?

☐East China

☐West China

☐South China

☐North China

If you have never used a B2C vegetable retail platform, please do not answer the questionnaire.

Section 2: Satisfaction for B2C vegetable retail platforms.

2.1: Please check (√) the B2C vegetable retail platform service that

meets your satisfaction.

Items	Lowest	Low	Middle	High	Highest
	1	2	3	4	5
1. The quality of products that you have expected when they arrive at your places					
1.1 Freshness of vegetables on arrival at my place is important to you.					
1.2 The correctness of the products you receive is important to you.					
1.3 The good condition of the package when it arrives at my place is important to you.					
2. The quality of logistics that you have expected					
2.1 The logistics could deliver products within the same day as the order has concerned me.					
2.2 Platforms provide several logistics companies for me to choose is concerned to me.					
2.3 It is important to me that the platform can handle logistics issues promptly.					
3. Cross-regional service quality you expect					
3.1 Platforms provide varieties of vegetables from several regions in China could make you satisfied to use the platforms.					
3.2 Platforms that could deliver products to every region in China are concerned to me.					
3.3 Platforms provide 24-hour cross-regional uninterrupted service and improve timeliness to your satisfaction.					
4. Platform prices for the quality you expect					
4.1 Platforms giving reasonable prices for vegetable products are important to me.					

2.1: (Continued)

Items	Lowest	Low	Middle	High	Highest
	1	2	3	4	5
4.2 Platforms giving lower prices than other platforms are important to me.					
4.3 Platforms giving discounts longer period (more than two days) is important to me.					

2.2: Please check (√) whether the quality of the Internet B2C vegetable retail platform meets your satisfaction.

Items	Lowest	Low	Middle	High	Highest
	1	2	3	4	5
1. Platform scale can affect your decision to choose a B2C platform					
1.1 Platforms that have high capital are important to me.					
1.2 Platforms have several seller members is important to me.					
1.3 It is important for me that platforms have a good reputation among a group of customers.					
2. Platform interface design could affect your decision to choose a B2C platform					
2.1 Platforms design a clear menu of functions of platform services that I can complete shopping fast is important to me.					
2.2 The design of platforms can make the customer feel that freshness is important to me.					
2.3 Platforms' page layout in line with your user experience is important to me.					
3. Platform security could affect your decision to choose a B2C platform					
3.1 Platforms' security policies (encryption, security standards, etc.) to protect customers' personal information could influence my decision to use the platforms.					

2.2: (Continued)

Items	Lowest	Low	Middle	High	Highest
	1	2	3	4	5
3.2 Platforms' security techniques to protect customers' account is important to me.					
3.3 Platform running every function properly is important to me.					

If you have never used Hema Fresh vegetable platform do not answer section 3 of the questionnaires.

Section 3: Satisfaction with the service quality of the Internet B2C Hema fresh vegetable retail platform.

3.1 Please check (√) the box that matches your opinion on how satisfied you are with the service of the B2C Hema fresh vegetable retail platform.

Items	Lowest	Low	Middle	High	Highest
	1	2	3	4	5
1. Your satisfaction with the high-quality products of the vegetable retail platform					
1.1 How satisfaction did you have with the freshness of the vegetables when they arrived for me.					
1.2 How satisfaction did you have with the correctness of products upon arrival.					
1.3 How satisfaction did you have with the platform providing multiple logistics companies for me to choose from.					
2. Your satisfaction with the logistics of the vegetable retail platform					
2.1 How satisfaction did you have for the delivery was completed within the agreed delivery date.					

3.1: (Continued)

Items	Lowest	Low	Middle	High	Highest
	1	2	3	4	5
2.2 How satisfaction did you have with the platform providing multiple logistics companies for me to choose from.					
2.3 How satisfaction did you have that the platform can handle my response about the logistics promptly.					
3.Your satisfaction with the cross-regional services of the vegetable retail platform					
3.1 How satisfaction did you have with the platform that offers a variety of vegetables from several regions of China.					
3.2 How satisfaction did you have with the platform can deliver products to all regions of China.					
3.3 How satisfaction did you have with the platform provides 2et alur uninterrupted service across the region.					
4.Your satisfaction with the price service of the vegetable retail platform					
4.1 How satisfied did you have with the reasonable prices given by the platform for vegetable products.					
4.2 How satisfaction did you have with the platform giving lower prices than other platforms.					
4.3 How satisfaction did you have with the discount period (more than two days) given by the platform.					

3.2：Please check (√) the box that matches your opinion on how satisfied you are with the service of the B2C Hema fresh vegetable retail platform.

Items	Lowest	Low	Middle	High	Highest
	1	2	3	4	5
1.Your satisfaction with the scale of the vegetable retail platform					
1.1 How satisfaction did you have that the platform has high capital.					
1.2 How satisfaction did you have with having many seller members on the platform.					
1.3 How satisfied did you have that the platform has a good reputation among customers.					
2.Your satisfaction with the design of the vegetable retail platform					
2.1 How satisfaction did you have with the clear menu of service functions designed by the platform, which allows me to finish shopping quickly.					
2.2 How satisfaction did you have that the design of the platform pages gives me a sense of freshness.					
2.3 How satisfaction did you have that the design of the platform page layout meets my user experience.					
3. Your satisfaction with the security of the vegetable retail platform					
3.1 How satisfaction did you have with the policies (encryption, security standards) provided by the Platform to protect my customers' personal information.					
3.2 How satisfaction did you have with the technology provided by the platform to protect the security of your account.					
3.3 How satisfaction did you have that the platform is working properly for every function.					

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วันที่ Date <u>29/3/2022</u>

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<u>Retail Platforms</u>

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