



**MAIN FACTORS AFFECTING CONSUMER PURCHASE
INTENTION OF FRESHIPPO APPLICATION IN CHINA**

BY

XIAOQIN JIA



**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF BUSINESS ADMINISTRATION
FACULTY OF BUSINESS ADMINISTRATION**

**GRADUATE SCHOOL, RANGSIT UNIVERSITY
ACADEMIC YEAR 2024**

Dissertation entitled

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was submitted in partial fulfillment of the requirements
for the degree of Doctor of Business Administration

Rangsit University
Academic Year 2024

Prof.Poomthan Rangkulnuwat, Ph.D.
Examination Committee Chairperson

Chanakiat Samarnbutra, Ph.D.
Member

Samita Klinphonng, Ph.D.
Member

Nakamol Chansom, Ph.D.
Member

Piyaporn Chucheepp, Ph.D., D.B.A.
Member and Advisor

Approved by Graduate School

(Prof.Suejit Pechprasarn, Ph.D.)

Dean of Graduate School

May 29, 2025

Acknowledgements

First and foremost, I would like to express my deepest appreciation to my supervisor, Piyaporn Chuchee,PH.D, for her invaluable guidance and unwavering support throughout my doctoral studies. Her expertise, rigorous academic approach, and genuine concern for students have been instrumental in shaping me into a better researcher.

I am also grateful to the faculty and staff of Business Administration at Ransit University, Thailand, for providing a nurturing environment conducive to academic excellence. His collective wisdom, insights, and willingness to share your knowledge have enriched my learning experience immeasurably. Special thanks go to Dr. Chanakiat Samarnbutra for his insightful comments and suggestions that significantly improved various aspects of my thesis.

Furthermore, I am deeply indebted to my family for their unwavering love, understanding, and sacrifices. Your unconditional support has been my rock, enabling me to pursue my academic aspirations without distractions. Their encouragement during difficult moments has been my source of strength and motivation.

Lastly, I would like to thank my parents and children, give me motivation and financial support.

Xiaoqin Jia

Researcher

6407126 : Xiaoqin Jia
 Dissertation Title : Main Factors Affecting Consumer Purchase Intention of
 Freshippo Application in China
 Program : Doctor of Business Administration
 Dissertation Advisor : Piyaporn Chuchee,Ph.D.,D.B.A.

Abstract

The purpose of this study is to explore how e-service quality (efficiency, fulfillment, and privacy) influence consumer purchase intentions through e-satisfaction and e-trust. And to understand the mediating role between customer satisfaction and customer trust in the purchase intention of China Freshippo APP. The study used a sample of 400 online consumers of freshippo APP users in China, and analyzed the data using SPSS and AMOS software. E-service quality, e-satisfaction, e-trust and e-purchase intention have significant positive relationship. Also, the study found that Efficiency, fulfillment and privacy significantly positively affect the electronic satisfaction and e-trust of Freshippo application, E-satisfaction significantly positively affects Freshippo application consumer purchase intention. Then, E-satisfaction and E-trust significantly positively affects Freshippo application consumer purchase intention. Finally, There are mediating effects between efficiency, execution and privacy and consumer purchase intention.

(Total 319 pages)

Keywords: Online Shopping, Consumer Behavior, New Retail, Freshippo APP, E-Satisfaction, E-Trust, Purchasing Intentions

Student's Signature Dissertation Advisor's Signature.....

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Chapter 1

Introduction

In the rapidly evolving digital landscape, understanding the dynamics of consumer behavior in online retail environments is crucial for businesses aiming to enhance their market presence and customer satisfaction. The interplay between efficiency, Fulfillment, privacy, electronic satisfaction, e-trust, and purchase intention forms a critical nexus in the study of online retail. This literature review aims to synthesize existing research across two key clusters: Purchase Intention and Retail Experience, and Consumer Behavior and Store Patronage. By examining these clusters separately, this review will critically analyze the current state of knowledge, identify gaps in the literature, and propose directions for future research. The ultimate goal is to provide a comprehensive understanding of how these elements influence each other and contribute to the success of online retail operations.

1.1 Background of the Study

The development of the retail industry has undergone a profound transformation, evolving from traditional family-owned stores to the modern era of unmanned retail outlets. Prior to the early 21st century, offline retail thrived, capturing consumer preference through its convenience, tangibility, and personalized services. However, with the progression of internet technology, offline retail has started to decline. online retail has introduced a more convenient shopping experience, a shift that has been expedited by the COVID-19 pandemic. Offline retail, with its high fixed costs, finds itself at a competitive disadvantage against online retail. The rise of online retail and the emergence of new retail models signify the advent of a new era in the retail sector.

Fresh food has non-standard characteristics and high-frequency rigid demand. Compared with clothing, shoes, and other categories, the online penetration rate of China's fresh e-commerce is low. Although, in the post-epidemic era, many consumers using online fresh food platforms have declined. However, it is undeniable that the novel coronavirus epidemic has accelerated the online penetration of fresh food, and the epidemic has cultivated the consumption habit of users using fresh e-commerce platforms.

Now China's fresh e-commerce industry presents a multi-point distribution of giants, and start-ups rush into the fresh e-commerce track. According to the research report of iMedia, due to the huge development space of fresh online shopping and the health needs of “contactless” shopping in the post-epidemic era, capital giants are investing in fresh e-commerce.

As can be seen from Table 1.1, Alibaba has established O2O platforms such as Taoxianda and Ele.me, and “To home + To store” services such as Freshippo. In addition to JD fresh, JD also used the O2O platform model to build JD Home, 7Fresh under the “To home + To store” model, and invested in the leading community group buying platform Xingsheng Preferred. Pinduoduo and Didi have also flooded into the community group purchasing circuit. The start-up companies such as MissFresh, Dmall, and Dingdong have been favored by capital, and there are many players in the fresh e-commerce industry. At present, the fresh electricity business has entered the economic model optimization and scale growth stage.

Table 1.1 The entry of giants and start-ups into fresh online retail

	Alibaba	JD	Meituan	Start-ups
Traditional fresh e-commerce	Tmall Fresh	JD Fresh	_____	_____
O2O platform model	Taoxianda, Ele.me New Retail	JD Home	Meituan flash sales	Dmall

Table 1.1 The entry of giants and start-ups into fresh online retail (Continued)

	Alibaba	JD	Meituan	Start-ups
Pre-warehouse model	_____	_____	Meituan purchase	MissFresh, Dingdong
“To home + To store” model	Freshippo	7Fresh	_____	_____
Community retail model	_____	Xingsheng Preferred (investment)	Meituan Youxuan	_____

Source: Baidu Encyclopedia, 2023

Since the early 21st century, online retail has rapidly ascended, benefiting from the widespread adoption of internet technology. The proliferation of online retail platforms, the ease of mobile payments, and personalized shopping experiences have offered consumers an unprecedented level of convenience and choice. Yet, as online retail has grown rapidly, so too have its drawbacks become more applicationarent, such as intensified industry competition, logistics delays, and privacy and security concerns. Online shopping lacks the experiential aspect of physical stores, which also affects consumer satisfaction.

According to data from China's National Bureau of Statistics, in 2022, the total retail sales of consumer goods in China were 4,397.33 billion yuan, a decrease from the previous year; meanwhile, online retail sales reached 1,378.53 billion yuan, with a growth rate of 4.0%. This reflects the challenges faced by offline retail, and although online retail is on the rise, it also encounters issues such as the disapplicationearance of the demographic dividend and inconsistent product quality. Both physical retail and online retail are seeking transformation and upgrading.

In this context, the “Freshippo application” has emerged, adopting an online and offline new retail model to provide consumers with a comprehensive lifestyle service experience. By integrating physical supermarkets with an online platform, Freshippo application not only enhances the consumer shopping experience but also

offers a new direction for the development of physical retail. The innovative model of Freshippo application showcases the trend of integrated development between physical retail and online retail, providing a successful transformation case for traditional retail and online retail platforms. Through continuous innovation, Freshippo application is creating a more convenient and better lifestyle for consumers, while also offering new ideas and possibilities for the transformation and upgrading of the entire retail industry. The Freshippo application, personally promoted by Jack Ma, Chairman of the Alibaba Group, represents a significant exploration in China's "new retail" domain. The uniqueness of Freshippo application lies in its ingenious combination of an online application with offline physical stores, providing consumers with a brand-new shopping experience. Through the application, users can conveniently place orders and enjoy the service of home delivery within 30 minutes; at the same time, they can also freely choose products in Freshippo's offline stores, experiencing the joy of traditional physical retail. This integrated online and offline model is a pioneering initiative in the global retail industry.

Unlike other online shopping applications, Freshippo application places special emphasis on the fresh food category. Relying on Alibaba's robust supply chain and logistics network, Freshippo application sources high-quality fresh produce from around the world, ensuring the freshness and quality of the ingredients. Whether it is seafood from across the ocean or local seasonal fruits and vegetables, consumers can easily enjoy the delicious taste of "freshness." This feature is undoubtedly highly attractive to China's new middle class who pursue a quality lifestyle.

With the advancement of internet technology and the transformation of consumer habits, online shopping has become an important choice for modern consumers. Particularly in China's developed cities such as Beijing, Shanghai, Guangzhou, and Shenzhen, residents' demands for shopping convenience and experience are increasingly high. Against this backdrop, the "FreshippoXiansheng application" was born, focusing strategically on a "supermarket + platform" model, aiming to provide users with a more convenient and rich shopping experience by integrating online and offline resources. The FreshippoXiansheng application has

shifted its operational focus from mere efficiency to consumer experience. By organically combining physical supermarkets with online platforms, the FreshippoXiansheng application not only enhances the consumer's shopping experience but also provides a new direction for the development of the physical retail industry. In the wave of new retail, the innovative model of FreshippoXiansheng application demonstrates the trend of integrated development between physical retail and online retail, offering a successful transformation case for traditional retail and online retail platforms. By continuously innovating and improving, FreshippoXiansheng application is creating a more beautiful and convenient lifestyle for consumers, while providing new ideas and possibilities for the transformation and upgrading of the entire retail industry.

However, despite the broad prospects of FreshippoXiansheng application in China's first and second-tier city markets, there is still some room for exploration on how to better meet the needs and expectations of residents in these cities due to the scarcity of research literature on online + offline supermarket purchase intentions. The main purpose of this study is to deeply understand the purchase intentions of consumers in developed Chinese cities towards the Freshippo “FreshippoXiansheng application” and to explore the various factors that affect this intention. The study will involve several key constructs through the established scale: efficiency, Fulfillment, privacy, electronic satisfaction, electronic trust, and repurchase intention. Each construct is quantified and evaluated through specific items, which aim to measure consumers' experience and feelings when using the FreshippoXiansheng application, including the convenience of using the application, the reliability of transactions, the security of personal information, satisfaction with the application's services, trust in the application, and the willingness to shop using the application in the future.

Through this study, in-depth insights into consumers' attitudes and behaviors towards online shopping platforms can be obtained. These insights will be of significant guidance for improving the service quality of online shopping platforms, enhancing user satisfaction and trust, improving user experience, and encouraging repeat purchase behavior. In addition, the research results can also help Freshippo

operators, such as FreshippoXiansheng application, to better understand consumer needs, formulate more effective market strategies, and stand out in the fiercely competitive online retail market.

1.2 Research Questions

1.2.1 Exploring the Direct Impact of Efficiency, Fulfillment, and Privacy on Electronic Satisfaction (E-Satisfaction) and electronic trust in Freshippo.

This research question seeks to investigate how the efficiency, Fulfillment, and privacy of Freshippo s directly influence the electronic satisfaction of consumers. Efficiency refers to the ease and speed with which consumers can navigate and complete transactions on the platform. Fulfillment encompasses the reliability and effectiveness of the services provided by the Freshippo. Privacy pertains to the measures taken to protect consumers' personal information and ensure secure transactions. The study will aim to determine if and how these factors contribute to the overall satisfaction of users with the electronic aspect of shopping.

1.2.2 Exploring the Direct Impact of Electronic Satisfaction and Electronic trust on consumers Purchase Intentions in Freshippo.

This inquiry aims to examine the relationship between a consumer's electronic satisfaction and their intention to make purchases on an Freshippo platform. Electronic satisfaction is considered a critical predictor of consumer behavior, as it reflects the consumer's contentment with the online shopping experience. The study will assess whether higher levels of electronic satisfaction lead to stronger purchase intentions among consumers.

1.2.3 Exploring the Indirect Impact (Mediating Role) of Efficiency, Fulfillment, and Privacy on consumers Purchase intention Intentions through Electronic Satisfaction (E-Satisfaction)

This research question proposes to investigate the potential mediating role of electronic satisfaction between the per-factors of efficiency, fulfillment, and privacy and consumers Purchase intention intentions. It suggests that the impact of these factors on purchase intentions might be indirect, with electronic satisfaction acting as a mediator that could either amplify or diminish the effect of the per-factors on the intention to purchase.

1.2.4 Exploring the Mediating Role of Electronic Trust (E-Trust) on consumers Purchase intention Intentions

This inquiry aims to delve into how electronic trust influences consumers Purchase intention intentions and whether it moderates the relationship between electronic satisfaction and purchase intentions. Electronic trust is the confidence consumers have in the Freshippo 's ability to deliver on its promises and maintain a secure and reliable shopping environment. The study will explore whether high levels of electronic trust can strengthen the positive relationship between electronic satisfaction and purchase intentions, or whether it might mitigate the negative effects in cases where electronic satisfaction is low.

1.3 Research Objectives

This objective can be further delineated into the following specific aims:

1.3.1 To study customer purchase intention and it's related factors of Freshippo applicationlication in China.

1.3.2 To investigate the impact on customer purchase intention of Freshippo applicationlication in China.

1.3.3 To introduce the practical ways to increase the customer purchase intention of Freshippo applicationlication in China.

1.4 Scopes and Limitations of the Research

The scope of the research are defined as follows:

Freshippo was established in 2016, but it developed rapidly during the epidemic in 2020. Therefore, this paper takes Freshippo application users as the research object. With the rapid development and stabilization of application technology, the research time of this paper is mainly limited to after 2020, and the questionnaire survey is adopted in this paper in August 2024. During the period from issuing questionnaires to collecting questionnaire results, this paper avoided the influence of seasonal changes and holiday promotions on consumers' willingness, so as to improve the accuracy of questionnaire results.

The main purpose of this study is to evaluate the factors influencing the purchasing intention of Chinese Freshippo customers. And the role of relevant factors such as e-service quality, e-satisfaction and e-trust on customer purchase intentions, and investigate the factors that drive consumer purchase intentions. The sample size is determined according to the rule of thumb of applicationlying structural equation model, in this study, with a total of 40 measurement items on the survey questionnaire, the minimum sample size should not be less than 400 copies.

The Limitations of the research are defined as follows:

1) Geographical Constraints and Sample Size and Representation

The study may be limited to a specific geographical region or market, which may affect the generalizability of the findings to other regions or countries. And The research could be constrained by the size and representativeness of the sample used in the surveys, which may impact the extent to which the results can be applicationlied to the broader population of consumers.

2) Scope of Technological Analysis and Market Dynamics

While the study examines the impact of big data and AI, it may not cover all emerging technologies or their potential future developments that could influence the retail sector. The research may not fully encapsulate the complexities and dynamics of the retail market, including competitive strategies, economic factors, and regulatory environments.

3) Temporal Dynamics and Cross-Cultural Factors

The study may not fully account for the rapid changes in technology and consumer behavior over time, which could affect the longevity of the findings. The research may not extensively explore cross-cultural factors that could influence consumer behavior and perceptions of online retail platforms in different cultural contexts.

Understanding these scope and limitations is crucial for interpreting the research findings and considering future research that can build upon or address these constraints.

1.5 Significance of the Study

1.5.1 To investigate the impact of efficiency, fulfillment, and privacy on electronic satisfaction, electronic trust and consumer purchase intentions, so as to advance existing theories and models, offering a fresh perspective on the dynamics of Freshippo application in China.

1.5.2 To introduce rigorous quantitative research methods, including survey questionnaires and structural equation modeling, the study delivers empirical insights that validate the proposed hypotheses, so as to guide practitioners in enhancing user experience to foster E-Trust and encourage purchases of Freshippo application in China.

1.5.3 To Introduce the related factors that affect consumers' purchase intention. So as to expand the theoretical basis of consumers' purchase intention.

1.5.4 Informing Strategic Decisions for Retailers: The findings from this research can guide retailers in making strategic decisions regarding application development and marketing. Knowing the factors that drive or deter users from making purchases can help in tailoring the application's features and services to meet user expectations, ultimately leading to increased customer satisfaction and loyalty.

1.6 Keywords

Retail : The retail sector constitutes a broad and diverse commercial domain, fundamentally centered on the direct sale of goods or services to the ultimate consumer for personal or non-commercial use. The retail operations can be undertaken by various types of entities, including but not limited to manufacturers, wholesalers, and retailers, with the latter typically holding a dominant position in the retail market. Notable characteristics of the retail industry include the sale of goods in small quantities per transaction with high frequency; the products sold are usually final consumer goods, not intended for further commercial sale; and once the transaction is completed, the goods transition from the circulation to the consumption sphere. The retail industry is not confined to the sale of tangible goods. In fact, it also encompasses the sale of various intangible services, which may be the primary target of consumers Purchase intentions, such as beauty services or flight tickets, or an adjunct to the purchase of goods, such as courier services or educational training. The forms of retail are varied, including television shopping, online shopping, door-to-door direct sales, and vending machines, all of which are quintessential manifestations of modern retail. It is noteworthy that the concept of a retailer is not limited to specialized retail enterprises. Manufacturing enterprises, importers, non-profit organizations, and wholesalers also assume the role of retailers when selling goods or services to end consumers. However, procurement activities for personal use or resale do not fall within the retail category. Moreover, with the development of online retail, online

retail channels have become an integral part of modern retail, with their convenience and accessibility further expanding the reach and consumer base of the retail industry.

Electronic service quality: Service quality (SQ) is often defined by marketing scholars depending on the expectancy disconfirmation paradigm (EDP). It refers to the level of perceived services (P) compared to expected services (E). Hence, the equation can be written as $SQ = P/E$. Service quality is crucial for customer satisfaction, business accomplishment, and survival. E-service quality originated from the work of marketing scholars, who introduced the concept of service quality, such as Parasuraman and his coworkers. E-service quality was defined as customer assessment of the extent to which the seller provides efficient, effective, and application appropriate e-service on the website and in the delivery of the service. E-service quality can also be defined as customer judgments relating to the quality of service delivered in a virtual environment. E-service quality can be considered as a relatively new concept but its importance to e-service has raised many hot issues in the recent years. E-service quality can provide organization competitive advantages in the online environment; involve clients in the production process through customers' feedback and improve clients' relationships and satisfactions. As such, the insurance of quality characteristics such as efficiency, fulfillment, Privacy and etc on online retail services has become an imperative.

Efficiency : Based on the aforementioned literature, this paper supports defining efficiency as the capability to efficiently satisfy and rapidly respond to consumer demands within the context of Freshippo applications by utilizing advanced technological means and innovative business models. In the Freshippo application environment, efficiency is primarily manifested as the ease of operation, simplicity of information acquisition, and speed of transaction processes. These factors collectively form the key dimensions of efficiency in Freshippo applications, directly influencing the shopping experience and satisfaction of users. Under this definition, efficiency encompasses not only technical optimizations such as page loading speed and user interface design but also aspects of user experience, such as the ease of obtaining information and the convenience of transaction processes.

Fulfillment : According to related research, this paper supports defining fulfillment as the overall reliability of Freshippo applications in handling and fulfilling customer orders. This definition encompasses ensuring that the products displayed online are consistent with actual inventory, delivering orders in a timely and accurate manner, providing truthful and accurate product descriptions, and convenient delivery times. fulfillment is not only positively correlated with customer E-Trust, perceived value, and online purchasing behavior but is also considered a key indicator of the success of Freshippo applications. The efficient implementation of fulfillment, including timely and accurate order processing and goods delivery, not only strengthens the customer's shopping experience but also plays a crucial role in building customer trust and improving sales fulfillment.

Privacy : In the 2009 study “Buying Behavior in Freshippo s” by Frederic Marimon and his colleagues, privacy in the retail industry (Privacy) was studied as an important dimension of electronic service quality. Privacy is particularly crucial in Freshippo retailing because it involves the secure protection of customer information, including the confidentiality of online shopping behaviors and credit card information. The study shows that although privacy may not significantly affect perceived value in specific Freshippo environments as other factors, such as website efficiency and fulfillment capabilities, once consumer privacy is challenged, its impact on other dimensions of the online application is almost devastating. Therefore, privacy is an issue that online retailers must take seriously. Hence, Freshippo s need to find a balance between protecting customer privacy and providing high-quality services.

Electronic Satisfaction : “electronic satisfaction” is not a universally recognized or standardized term. However, interpreting it literally, it could refer to the satisfaction or contentment derived from electronic means or experiences. This satisfaction might stem from a variety of electronic activities or encounters, such as the convenience and efficiency of online shopping, the enjoyment gained from digital entertainment like streaming videos, playing games, or listening to music, the ease of electronic communication that fosters connections, the productivity boost from work

automation tools, or the satisfaction derived from electronic learning platforms and resources. Essentially, it encapsulates the positive feelings and fulfillment one experiences through electronic interactions and endeavors.

E-Trust: In this paper, “electronic trust” refers to the trust that individuals or organizations place in electronic systems, platforms, or transactions conducted over digital means. It encompasses the belief that electronic interactions, transactions, or information exchanges will be secure, reliable, and conducted with integrity. This trust is essential for the widespread adoption and successful functioning of electronic commerce, online banking, digital identity verification, cloud computing, and other forms of electronic communication and collaboration. Building electronic trust often involves measures such as encryption, secure authentication, transparency in data handling, and compliance with relevant laws and regulations to ensure the privacy, security, and integrity of electronic interactions.

Customer Purchase Intention : In this paper, “customer purchase intention” refers to the likelihood or willingness of a customer to make a purchase of a product or service. It represents the customer's intention or decision to engage in a buying behavior. Customer purchase intention is influenced by various factors, including the customer's needs, preferences, perceptions of value (E-satisfaction), brand E-Trust, past experiences, marketing messages (E-trust), and external factors such as social trends and economic conditions. Understanding customer purchase intention is crucial for businesses as it helps them tailor their products, services, and marketing strategies to better meet customer needs and increase sales.

1.7 Conclusion

This chapter serves as the foundation of our research, beginning with a thorough exploration of the study's background to establish its relevance and importance within the current academic discourse. It identifies the gaps in existing knowledge that our research aims to bridge. From this basis, we articulate our research

questions and objectives, which are meticulously crafted to guide the direction of our inquiry and are intrinsically linked to addressing the aforementioned gaps.

Our approach is grounded in an extensive literature review and bolstered by empirical evidence, both of which underscore the necessity of our research. We then introduce our research hypothesis, which is the central proposition that our study will test. This hypothesis is derived from a critical analysis of existing literature and empirical findings, setting the stage for our investigation.

The significance of our research is highlighted, emphasizing its potential to contribute new insights to the field, its practical applications, and its capacity to fill the identified gaps in the literature. We also transparently acknowledge the limitations of our study, which may include methodological constraints and the scope of our research, as well as the generalizability of our findings.

Looking ahead, we discuss the prospects for future research, considering how our work may pave the way for further studies and contribute to the ongoing development of knowledge in our field. The chapter concludes with a summary of the key points, providing a cohesive transition to the subsequent chapters and sections of the paper.

Chapter 2

Literature Review

In the rapidly evolving digital landscape, understanding the dynamics of consumer behavior in online retail environments is crucial for businesses aiming to enhance their market presence and customer satisfaction. The interplay between efficiency, Fulfillment, privacy, electronic satisfaction, e-trust, and purchase intention forms a critical nexus in the study of online retail. This literature review aims to synthesize existing research across two key clusters: Purchase Intention and Retail Experience, and Consumer Behavior and Store Patronage. By examining these clusters separately, this review will critically analyze the current state of knowledge, identify gaps in the literature, and propose directions for future research. The ultimate goal is to provide a comprehensive understanding of how these elements influence each other and contribute to the success of online retail operations. The research content of this chapter is as follows

- 2.1 Electronic service quality
- 2.2 Theoretical Background on Consumer Purchase Intention
- 2.3 Efficiency of the application
- 2.4 Fulfillment of the application
- 2.5 Privacy of the application
- 2.6 Mediating Role of E-Satisfaction
- 2.7 Mediating Role of E-Trust
- 2.8 Online Retail
- 2.9 Background of Freshippo Company
- 2.10 Research Framework

2.11 Hypothesis Development

2.12 Research Hypothesis

2.13 Conclusion

2.1 Electronic Service Quality

The proposals for the description of e-SQ as a multidimensional construct, and for its measurement through a scale that adapts the dimensions of traditional service quality, were developed by Parasuraman, Zeithaml, and Malhotra (2005), using the E-S-QUAL scale in the field of e-commerce. However, the characteristics that differentiate traditional service from e-service led to a necessary revision of the dimensions and items that make up the traditional scale. Consequently, numerous authors have developed new models for understanding and measuring e-SQ (WebQual (Loiacono, Watson, & Goodhue, 2007), and eTransQual (Bauer, 2006), and have proposed a number of dimensions (efficiency, privacy, fulfillment, enjoyment, and customer service/communication).

A review of the literature evaluation reflected that there were many instruments to measure E-S-QUAL. In this study, the instrument from a study of Wolfinbarger and Gilly (2003) was used due to its concept base on the shoppers' perspective. This instrument included four dimensions: efficiency, fulfillment and privacy.

(1) Efficiency refers to the ability of a website to offer relevant information to help consumers obtain the products they desire with minimal effort (Zeithaml, Parasuraman, & Malhotra, 2002), and consequently affects e-SQ. The efficiency dimension is broken down into several sub-dimensions: informational

content and website updating (Li et al., 2002; Wolfinbarger & Gilly, 2003), website design (Yen & Lu, 2008), usability (Parasuraman et al., 2005), and navigation (Bauer, 2006). Swaid & Wigand (2009) and Águila, Padilla, & Al-dweeri (2013) confirmed that information has positive effects on e-satisfaction, while Herington & Weaven (2007) noted that, although efficiency is found to be most important overall and is rated most highly by respondents, it has the least impact upon satisfaction. Efficiency has a positive impact on customer trust, however (Kao & Lin, 2016; Kim, Jin, & Swinney, 2009). Hansen & Jonsson (2013) found that efficiency has no positive impact on e-trust.

(2) Fulfillment/ Reliability, that is, capability of providing accurate product information and delivering the right product within the time frame promised. In the early retail models, fulfillment primarily focused on physical store inventory management and on-site sales. However, with the proliferation of the internet and the development of online retail, fulfillment began to include online order processing, logistics management, and customer service Morganosky, (1997). For instance, retailers needed to ensure that the products listed on their websites were actually in stock, reflecting the principle that “it has the inventory that the company claims to have” Jones, (2002).

(3) privacy/Security, that is security of card payment and privacy of consumer’s information. Furthermore, privacy/security is considered one of the most important aspects of e-SQ (Lee & Lin, 2005; Parasuraman et al., 2005; Van Riel, Semeijn, & Janssen, 2003). Generally, online customers cannot interact with the employees or physical facilities of the firm with which they deal (Reichheld & Schefter, 2000), so it follows that trust must be established in other ways. In fact, among the factors that have prevented the more rapid development of electronic

commerce, the most noteworthy is the lack of trust and the perceived insecurity of making or receiving payments over the internet (Bauer, 2006; Malhotra & Segars, 2005). Some authors have found that privacy does not exert a significant influence on e-satisfaction (Cristóbal Flavián, & Guinalíu, 2007; Kim & Stoel, 2004). The results obtained by Kim et al. (2009) suggest that privacy is a driver of e-trust, which, in turn, leads to customer e-satisfaction. Ribbink, Van Riel, Liljander, & Streukens (2004) also found that in an online environment privacy has a high impact on customer trust and even on establishing long-term relationships with customers (Alshurideh, Al Kurdi, Vij, Obiedat, & Naser, 2016).

In general, electronic service quality literature has two main streams (Al-dweeri, Obeidat, Al-dwiry, Alshurideh, & Alhorani, 2017). First, scholars focus on developing scales to measure electronic service quality in a different context with different dimensions. Second, scholars focus on assessing the effect of the electronic service quality dimensions on other variables (Rami, et al., 2017; Alshurideh, Al Kurdi, & Salloum, 2019; Alzoubi, Alshurideh, Al Kurdi, & Inairata, 2020; ELSamen & Alshurideh, 2012). This study will follow the second stream by studying the influences of some electronic service quality dimensions (efficiency, fulfillment, and privacy) on electronic satisfaction and electronic trust. And E-S-QUAL in this proposed model was also incorporated as a factor leading and influencing customer purchase intention through two constructs: customer trust, and customer satisfaction.

2.2 Theoretical Background on Consumer Purchase Intention

Understanding customer purchase intention is pivotal for businesses aiming to enhance their marketing strategies and improve customer satisfaction. This literature review delves into the multifaceted determinants of customer purchase intention,

categorizing them into four primary clusters: digital marketing, banking and service quality, brand elements, and technological influences. Each cluster represents a distinct area of research that significantly impacts consumer behavior and decision-making processes. The review begins by examining these clusters individually, highlighting key findings and methodologies employed in each domain. Subsequently, a critical analysis will be conducted to evaluate the existing research gaps and shortcomings, particularly in terms of methodological rigor, scope, and theoretical integration. This comprehensive review aims not only to synthesize current knowledge but also to identify potential areas for future research, thereby contributing to a deeper understanding of customer purchase intention across various industries and contexts.

2.2.1 The Concept of Consumer Purchase Intention

Consumer Purchase Intention (CPI), In the fields of business and marketing research, consumers Purchase intention refers to the consumer's inclination to purchase a particular product or service. In early studies, purchase intention was considered an important indicator of consumer E-Trust. Oliver (1999), in his research on brand E-Trust, pointed out that purchase intention is driven by factors such as satisfaction, perceived value, and brand trust. With the proliferation of the internet and the development of online retail, research on consumers Purchase intention Intention (CPI) has gradually shifted from traditional retail to online environments. Harris and Goode (2004) found in their research that website quality, customer service, and online experience are crucial for online shopping purchase intentions. With technological advancements, the rise of Freshippo s and related applications has provided consumers with more convenient and personalized shopping experiences. Wang, Chi, & Yang (2015) noted that Freshippo s enhance consumers Purchase intention intention by offering an optimized user interface, personalized

recommendations, and convenient payment processes. Liu, Li, Xu, Kostakos, & Heikkilä (2020), in their study of Freshippo applications, discovered that the application's functionality, interactivity, and customized services are key factors in improving consumer satisfaction and purchase intention.

The literature focused on “Purchase Intention and Retail Experience” provides a comprehensive overview of how various retail factors influence consumer purchase intentions. Chu, Choi, and Song (2005) highlight the role of online retailer brand and infomediary reputation in shaping purchase intentions, particularly how these factors interact with manufacturer brand strength. Their findings suggest that a well-known online retailer brand enhances purchase intention for a weak manufacturer brand more than for a strong one, whereas a reputable infomediary increases purchase intention for a strong manufacturer brand more than for a weak one.

In a more recent study, Gu (2023) explore the impact of green finance availability to retailers on consumer purchase intention, with a focus on green products. Their research, grounded in the theories of planned behavior and reasoned action, demonstrates that access to green finance positively influences consumer purchase intention towards green products, especially when consumers exhibit environmental, status, and future consciousness. This study underscores the importance of policy support for green financing and consumer awareness in promoting sustainable consumption behaviors.

Al-Adwan, Al-Debei, & Dwivedi (2023) investigate the influence of omnichannel service quality on purchase intention in the fashion retail market post-COVID-19. Their findings indicate that higher levels of omnichannel service quality

significantly enhance consumer purchase intentions, highlighting the critical role of seamless and integrated retail experiences in driving consumer behavior.

Chetioui, Butt, Lebdaoui, Nevill, & El Bouzidi (2023) examine consumers' attitudes and intentions to purchase organic food in an emerging market context, specifically Morocco, before and after the COVID-19 pandemic. Their research reveals that attitude towards organic food significantly impacts purchase intention, influenced by factors such as subjective norms, organic labeling, perceived behavioral control, health consciousness, and environmental concern. The study also identifies significant differences in consumer attitudes and intentions pre- and post-pandemic, providing valuable insights for organic food retailers and practitioners.

Taheri, Yousaf, Gannon, Mishra, & Timmermans (2024) conduct a meta-analysis on the effects of virtual reality (VR) in retailing on consumer purchase and non-purchase behavioral intentions. Their findings indicate that VR experience is the strongest predictor of purchase decisions in a virtual environment, while consumer attitudes towards VR most strongly influence non-purchase behavior. The study also highlights the moderating effects of age, cultural backgrounds, and gender on these relationships, suggesting that marketers can influence consumer attitudes and behavioral intentions by optimizing the design and sensory experiences in virtual retailing.

Overall, this literature significantly contributes to our understanding of how retail experiences, financial incentives, and technological advancements influence consumer purchase intentions. However, there are areas where further research could enhance the existing body of knowledge. For instance, future studies could explore the long-term effects of these factors on consumer behavior, considering the dynamic

nature of consumer preferences and technological advancements. Additionally, more research is needed to understand the cross-cultural applicability of these findings, particularly in diverse and rapidly evolving markets.

Based on the aforementioned literature, this paper supports defining the purchase intention for Freshippo applications as a consumer's ongoing use and buying behavior towards a specific online retail platform, which is deeply influenced by user satisfaction, trust, personalized experience, and the functionality of the application. Specifically, customer purchase intention is not only a reflection of the consumer's level of satisfaction with the product or service but also an endorsement of the overall shopping experience provided by the platform. Furthermore, similar to the concept of user stickiness, customer purchase intention also involves the consumer's E-Trust to a specific application and the intention to use it long-term.

2.2.2 Customer Purchasing Intentions in Online Retail

The cluster of literature on purchasing intentions in online retail, as represented by Trivedi and Yadav (2020) and Rofifa, Rizq, and Muslichah (2023), provides a nuanced understanding of how various factors influence consumer behavior in the digital marketplace. Trivedi and Yadav (2020) focus on the role of trust and e-satisfaction in mediating the effects of vendor-specific attributes on repurchase intentions among Generation Y consumers in India. Their study employs a structural equation modeling approach to validate a proposed model, revealing that trust fully mediates the relationship between security and privacy concerns and repurchase intention, while e-satisfaction mediates the relationship between security and ease of use. This research underscores the importance of security features, ease of use, and

trusted privacy policies in shaping the online purchasing behavior of young consumers.

In contrast, Rofifa, Rizq, and Muslichah (2023) explore the impact of social media marketing activities, brand equity, and electronic Word of Mouth (e-WOM) on the intention to buy halal cosmetics. Their quantitative study, utilizing the PLS-SEM method, indicates that while social media marketing activities positively influence brand equity and e-WOM, they do not directly affect purchase intentions. Instead, it is the interplay between brand equity and e-WOM that significantly drives purchase intentions. This research highlights the potential of social media marketing in influencing brand equity and e-WOM, which in turn can enhance purchase intentions for halal skincare products.

Both studies contribute valuable insights into the factors that drive consumer purchasing intentions in online retail. Trivedi and Yadav (2020) emphasize the critical role of trust and e-satisfaction in the context of security and privacy concerns, while Rofifa, Rizq, and Muslichah (2023) focus on the indirect effects of social media marketing activities through brand equity and e-WOM. However, there are limitations and potential areas for future research. For instance, Trivedi and Yadav (2020) could expand their sample to include a broader demographic to generalize their findings beyond Generation Y and Northern India. Additionally, both studies could benefit from integrating qualitative methods to gain deeper insights into consumer perceptions and motivations.

Future research could also explore the cross-cultural applicability of these findings, examining how trust, e-satisfaction, and social media marketing activities influence purchasing intentions in different cultural and geographic contexts.

Moreover, investigating the long-term effects of these factors on consumer E-Trust and brand advocacy could provide a more comprehensive understanding of their impact on online retail success.

2.2.3 Theoretical Frameworks in Purchase Intention Research

In the realm of online retail purchase intention, the theoretical frameworks employed significantly influence the understanding and prediction of consumer behavior. Two prominent studies within this cluster, Al-Adwan et al. (2022) and Widyarini and Gunawan (2018), utilize distinct theoretical lenses to explore different facets of online purchase intention, each contributing valuable insights.

Al-Adwan et al. (2022) applicationly Signaling Theory to examine how e-retailers can mitigate perceived uncertainty among customers in high-uncertainty-avoidance societies. The study identifies return policy leniency (RPL), cash on delivery (COD), and social commerce constructs (SCCs) as costly signals that enhance customer trust and subsequently boost purchase intention. Empirical data from 560 online retail users in Jordan support the positive relationship between these signals and customer trust, which in turn positively influences purchase intention. This research not only extends the application of Signaling Theory to online retail but also provides practical implications for e-retailers operating in high-UA societies.

Conversely, Widyarini and Gunawan (2018) integrate Self-Determination Theory (SDT) and Theory of Planned Behavior (TPB) to predict consumer purchase intention for fashion products in online retail. The study highlights the role of intrinsic and extrinsic motivations, as well as social cognition, in shaping consumer behavior. Data from 240 internet users in Indonesia analyzed through variance-based SEM

reveal that variables from both SDT and TPB, such as attitude, behavioral control, and self-determination motivation, significantly influence purchase intention. However, subjective norms were found to be irrelevant in this context. This research underscores the importance of psychological needs and social influences in understanding online purchase behavior.

Both studies contribute significantly to the literature by applying robust theoretical frameworks to elucidate online purchase intention. Al-Adwan et al. (2022) focuses on the role of e-retailer signals in reducing uncertainty, while Widyarani and Gunawan (2018) emphasizes the internal and external motivations driving consumer behavior. Despite their differences, both studies converge on the importance of trust and motivation in shaping purchase intention.

However, there are limitations and potential areas for future research. Al-Adwan et al. (2022) could expand its scope to include other types of signals and explore their impact in varying cultural contexts. Additionally, the study could benefit from a longitudinal approach to understand the long-term effects of these signals on customer behavior. On the other hand, Widyarani and Gunawan (2018) might consider incorporating more diverse product categories to generalize the findings beyond fashion products. Exploring the interaction between different theoretical constructs and their combined impact on purchase intention could also yield richer insights.

In conclusion, while both studies provide valuable contributions, future research should aim to integrate multiple theoretical perspectives and explore their synergistic effects on online purchase intention. This approach could lead to a

more comprehensive understanding of consumer behavior in the dynamic landscape of online retail.

2.2.4 Determinants of Consumer Purchase Intention

The cluster of studies focusing on the determinants of customer purchase intention provides a comprehensive overview of various factors influencing consumer behavior in the digital space. Rizwan & Nova (2023) explore the impact of social media marketing of luxury brands on brand equity, customer equity, and customer purchase intention. Similarly, Alalwan (2018) investigates the impact of social media advertising features on customer purchase intention, identifying key factors that predict purchase intention. Hazar, Telceken, & Sevinc (2022) extend this by examining the mediation role of brand attitude through social media influencers, highlighting the significance of attributes like Information Quality (IQ), Trustworthiness (TRU), Attractiveness (ATT), Meaning Transfer (TRA), and Expertise (EXP) in influencing purchase intentions.

Parulian & Bebasari (2023) both contribute to understanding customer purchase intention in specific contexts, with the former examining online food delivery services and the latter focusing on Electronic Word of Mouth (eWOM) on Instagram. Tahir (2021) develops a model that integrates online reviews, customer trust, and source credibility in the social online retail context, demonstrating the positive effects of online reviews on purchase intentions mediated by trust and moderated by source credibility.

AL-Sous, Almajali, & Alsokkar (2023) provide a contextualized study on the antecedents of social media influencers on customer purchase intention in Jordan,

emphasizing the significant impact of Information Quality (IQ) and Trustworthiness (TRU) on brand attitude and purchase intentions.

These studies collectively underscore the multifaceted nature of customer purchase intention in digital marketing. They highlight the importance of social media attributes, brand attitude, and various mediating and moderating factors in shaping consumer decisions. However, the cluster also reveals several limitations and gaps. For instance, while most studies employ quantitative methods, there is a lack of qualitative insights that could provide deeper understanding of consumer motivations and behaviors. Additionally, the studies predominantly focus on specific contexts (e.g., luxury brands, food delivery services, social online retail), which may limit the generalizability of their findings.

Future research could benefit from a more holistic approach, integrating qualitative methods to complement quantitative findings and exploring cross-contextual comparisons to enhance the robustness of the conclusions. Moreover, there is a need for more diverse geographical and cultural perspectives to ensure the applicability of these findings across different markets. Addressing these gaps could provide valuable insights for marketers and policymakers aiming to optimize digital marketing strategies and enhance customer engagement.

2.2.5 Technological Influences on Consumer Purchase Intention

The cluster of literature focusing on technological influences on customer purchase intention provides valuable insights into how various technological factors can impact consumer behavior in the digital age. Baker El-Ebiary et al. (2021) investigate the determinants of customer purchase intention using the Zalora mobile

commerce application. Their empirical results highlight that perceived friendliness, convenience, and influence significantly impact purchase intention. This suggests that an easy shopping experience and trust-building measures are crucial for maintaining customer intent to buy. Similarly, Nilashi et al. (2020) explore the factors influencing customer purchase intention for smart home security systems, although the abstract provided does not detail their findings.

Both studies contribute to the understanding of how technological interfaces and user experiences can shape purchase intentions. El-Ebiary et al. (2021) specifically address the role of mobile commerce applications, emphasizing the importance of user-friendly interfaces and trust in fostering purchase intentions. This aligns with broader literature on online retail and digital marketing, which often underscores the significance of user experience and trust in online transactions.

However, the cluster also reveals certain limitations and gaps. For instance, Nilashi et al. (2022) do not provide detailed findings in the abstract, making it difficult to assess their contribution fully. Additionally, both studies focus on specific technological applications (mobile commerce and smart home security systems), which may limit the generalizability of their findings to other technological contexts. There is also a lack of discussion on how broader technological trends, such as artificial intelligence and augmented reality, might influence purchase intentions.

Future research could benefit from a more comprehensive examination of technological influences across various digital platforms. Exploring the impact of emerging technologies like AI and AR on purchase intentions could provide deeper insights into consumer behavior in the digital era. Additionally, studies could adopt a more interdisciplinary approach, integrating perspectives from psychology,

sociology, and human-computer interaction to better understand the multifaceted factors influencing purchase intentions in the technological landscape.

2.3 Efficiency of the application

Efficiency in the retail industry, as a core metric of its operational and managerial capabilities, has experienced significant evolution and innovation. In its nascent stages, the retail sector relied heavily on traditional brick-and-mortar stores, with efficiency constrained by physical space and geographic location. During this period, retail efficiency was more dependent on store location, inventory management, and the effectiveness of customer service Porter, (1985). Concurrently, traditional wholesale and distribution models faced challenges in inventory management and logistics efficiency, which significantly impacted the overall operational efficiency of the retail industry Fernie and Sparks, (2014). However, with the rise of self-service retail and supermarkets in the mid-20th century, the efficiency of the retail industry saw marked improvement. Supermarkets reduced reliance on service staff through self-service models, lowered product costs through bulk purchasing, and improved inventory control and supply chain management efficiency with innovative inventory management technologies such as barcodes and Electronic Data Interchange (EDI) Levy and Weitz, (2009).

Entering the 21st century, the development of internet technology has spearheaded the emergence of online retail and online retailing, greatly enhancing the efficiency of the retail industry. Online retail platforms such as Amazon and eBay have significantly reduced operational costs by minimizing reliance on physical stores and optimizing logistics systems. The application of digital technologies, such as advanced analytical tools and the introduction of cloud computing, has further

improved supply chain and logistics efficiency, enabling retailers to respond more swiftly and flexibly to market changes and consumer demands Laudon and Traver, (2009).

Recently, retailers have begun adopting multi-channel strategies, integrating online and offline shopping experiences to provide seamless customer experiences. This model not only improves operational efficiency but also expands market reach. On this foundation, the application of big data analysis and artificial intelligence has enabled retailers to manage inventory more effectively, optimize pricing strategies, and enhance personalized service levels, thereby achieving overall efficiency improvement Verhoef, Huang and Rust, (2018). The efficiency of the retail industry continues to evolve with technological advancements and changes in the market environment. From the traditional retail model dependent on physical stores to the modern multi-channel, technology-driven retail model, the enhancement of efficiency is reflected not only in cost reduction and operational optimization but also in the rapid response to consumer demands and the provision of personalized services. These transformations have collectively shaped the modern face of the retail industry, making it more efficient, agile, and customer-oriented.

Based on the aforementioned literature, this paper supports defining efficiency as the capability to efficiently satisfy and rapidly respond to consumer demands within the context of Freshippo applications by utilizing advanced technological means and innovative business models. In the Freshippo application environment, efficiency is primarily manifested as the ease of operation, simplicity of information acquisition, and speed of transaction processes. These factors collectively form the key dimensions of efficiency in Freshippo applications, directly influencing the shopping experience and satisfaction of users. Under this definition, efficiency

encompasses not only technical optimizations such as page loading speed and user interface design but also aspects of user experience, such as the ease of obtaining information and the convenience of transaction processes.

2.4 Fulfillment of the application

2.4.1 The Concept of Fulfillment

Fulfillment is a concept that is explored in various contexts in the literature. Govindarajan, Ananthakrishnan, & Jacob (2020) discusses joint inventory and fulfillment decisions for omnichannel retail networks, highlighting the importance of efficient fulfillment strategies in the retail industry. Bayram (2021) focus on order fulfillment policies for ship-from-store implementation in omni-channel retailing, emphasizing the dynamic nature of fulfillment decisions in a multi-channel retail environment. On the other hand, Gardner, Gardner, & Udrea (2020) examines the relationship between psychological contract fulfillment and organizational citizenship behaviors, suggesting that psychological ownership complements social exchange in explaining the effects of relational psychological contract fulfillment on employee outcomes. Liu, Li, Xu, Kostakos, & Heikkilä (2020) delves into the effect of gig workers' psychological contract fulfillment on their task fulfillment in the sharing economy, considering the mediation of organizational identification and the moderation of length of service. In a different context, Saban et al. (2020) discusses the rising opioid prescription fulfillment among non-cancer and non-elderly patients in Israel, highlighting concerning trends in prescription fulfillment.

Additionally, Lei, Y., & Lei, L. (2021) proposes a randomized heuristic policy for joint product framing and order fulfillment under the multinomial logit

model for online retail retailers, presenting a novel applicationroach to fulfillment decision-making in online retail settings. Furthermore, Barros et al. (2021) provides a survey on recent developments and research opportunities in robotic mobile fulfillment systems, showcasing advancements in fulfillment technology. Omran (2021) focus on the design and fulfillment of a smart home material powered by the Internet of Things (IoT) using the Blynk application, highlighting the integration of technology in fulfillment processes. Lastly, Fadare (2022) explores the moderating role of job resources in how job demands influence burnout and professional fulfillment among U.S. pharmacists, emphasizing the importance of considering job resources in promoting professional fulfillment. Bullington (2022) proposes framing postpartum permanent contraception fulfillment as a health disparities issue, suggesting multi-level interventions to address barriers to fulfillment in this context.

Overall, the literature on fulfillment spans various industries and contexts, emphasizing the importance of efficient fulfillment strategies, the impact of psychological contract fulfillment on employee outcomes, and the need for addressing barriers to fulfillment in different settings. Fulfillment, in the retail industry, is a pivotal concept that pertains to how retailers manage and fulfill customer orders. With the rise and evolution of online retail, fulfillment has transformed from the traditional “delivery of goods” to a more complex and dynamic service system.

2.4.2 Fulfillment in Retail Sector

In the retail sector, Govindarajan (2020) delves into joint inventory and fulfillment decisions for omnichannel retail networks. Understanding how inventory and fulfillment strategies interact is crucial for optimizing operations and meeting customer demands efficiently. Additionally, Heydari (2020) examines order

fulfillment processes in the Disposable Products Industry, highlighting the importance of managing risk to create sustainable fulfillment processes. By identifying and addressing fulfillment risk factors, organizations can enhance their order fulfillment capabilities and overall industry impact. The healthcare sector also grapples with fulfillment-related challenges, as seen in studies by O'Brien et al. (2021) and Fadare (2022). focus on professional fulfillment, burnout, and wellness among anesthesiologists during the COVID-19 pandemic, shedding light on the impact of external factors on healthcare professionals' fulfillment and well-being. Fadare (2022) explores how job demands, burnout, and professional fulfillment intersect in the context of U.S. pharmacists, emphasizing the role of job resources in moderating these relationships. Understanding these dynamics is crucial for promoting the well-being of healthcare professionals and optimizing patient care outcomes.

In the early retail models, fulfillment primarily focused on physical store inventory management and on-site sales. However, with the proliferation of the internet and the development of online retail, fulfillment began to expand to include online order processing, logistics management, and customer service Morganosky, (1997). For instance, retailers needed to ensure that the products listed on their websites were actually in stock, reflecting the principle that “it has the inventory that the company claims to have” (Jones, 2002).

As consumer demand for shopping convenience and rapid delivery grew, retailers started seeking innovative logistics and supply chain management strategies to improve efficiency and customer satisfaction. This included ensuring the accuracy and convenience of delivery times, as highlighted by statements such as “the application can deliver items within an appropriate time frame” and “it provides convenient delivery times” Cai and Jun, (2003). The continued expansion of

online retail has made fulfillment not only about logistics and inventory management but also about every aspect of customer experience, such as the accuracy of orders, the truthfulness of product descriptions, and the timeliness of services. This means that retailers must ensure that their products and services meet the promises made in advertisements, such as “it sells genuine products” and “this application delivers orders as promised” (Kotler & Keller, 2016).

In particular, Frederic Marimon and his colleagues explored the concept of fulfillment in online retail in their 2009 study “Buying Behavior in Freshippo s.” The study emphasized the significant positive correlation between fulfillment and customer E-Trust, perceived value, and actual purchasing behavior in Freshippo s. The research showed that efficient and reliable delivery, accurate inventory management, and truthful product descriptions have a positive impact on customer satisfaction and purchasing behavior. This study effectively established the importance of fulfillment in online retail, emphasizing its key role in building customer trust and improving sales fulfillment.

According to related research, this paper supports defining fulfillment as the overall reliability of Freshippo applications in handling and fulfilling customer orders. This definition encompasses ensuring that the products displayed online are consistent with actual inventory, delivering orders in a timely and accurate manner, providing truthful and accurate product descriptions, and convenient delivery times. fulfillment is not only positively correlated with customer E-Trust, perceived value, and online purchasing behavior but is also considered a key indicator of the success of Freshippo applications. The efficient implementation of fulfillment, including timely and accurate order processing and goods delivery, not only strengthens the customer's

shopping experience but also plays a crucial role in building customer trust and improving sales Fulfillment.

2.5 Privacy of the application

2.5.1 The Concept of Privacy

Privacy is a fundamental aspect of data protection and security in various domains, including machine learning, social media, online shopping, and location-based services. Different applicationroaches and techniques have been proposed to address privacy concerns and challenges in these areas. Triastcyn et al. (2019) introduced Bayesian differential privacy as a means to provide sharper privacy loss bounds in federated learning settings. This applicationroach aims to improve privacy budgeting efficiency at different levels by adapting Bayesian privacy accounting methods.

Similarly, (Bu & Lu, 2019) explored the use of Gaussian differential privacy for training neural networks, emphasizing the importance of privacy analysis in deep learning applicationlications. In the context of social media and online shopping, privacy concerns have become increasingly prevalent. Bandara, Ranjith, and Rathnaweera (2020) conducted a qualitative inquiry into the privacy paradox phenomenon, highlighting themes such as psychological distance of privacy, perceived social contracts of privacy, and learned helplessness and privacy empowerment. Jozani, Ayaburi, and Choo (2020) delved into the dynamics of privacy concerns and benefits in social mobile applications, drawing on the privacy calculus theory to examine the impact of institutional and social privacy concerns on user engagement. Privacy in location-based services (LBS) has also been a focus of

research, with Wu (2020) proposing the construction of dummy query sequences to protect location and query privacy of mobile users. Their approach demonstrated effectiveness in safeguarding user privacy through theoretical analysis and experimental evaluation.

Furthermore, Jiang et al. (2020) surveyed the applications of differential privacy in social network analysis, highlighting the importance of privacy preservation in the context of social interactions and data sharing. The intersection of privacy and machine learning has garnered significant attention, as highlighted by Liu Li, Xu, Kostakos, & Heikkilä (2020, 2021). Their survey and outlook on the topic emphasized the need for comprehensive solutions that address privacy concerns throughout the machine learning process. Additionally, Tahaei, Afifi, Asemi, Zaki, and Anuar (2020) analyzed privacy-related questions on Stack Overflow to understand developers' challenges and confusions regarding privacy topics, showcasing the importance of privacy awareness in software development. In the realm of data capitalism and user privacy, Lutz, M., and Lutz, S. (2020) discussed privacy cynicism as a coping mechanism in the face of digital inclusion and privacy desires. They highlighted the need to address user resignation and apathy towards privacy issues in the context of data-driven economies.

Moreover, Solove (2020) debunked the myth of the privacy paradox, shedding light on misconceptions surrounding privacy attitudes and behaviors. Overall, the literature on privacy spans various domains and methodologies, emphasizing the importance of privacy preservation, awareness, and accountability in today's data-driven society. From differential privacy techniques to privacy calculus theories, researchers continue to explore innovative ways to protect user data and mitigate privacy risks in an increasingly interconnected world. As privacy concerns

evolve and new technologies emerge, ongoing research and collaboration are essential to safeguarding individuals' privacy rights and promoting responsible data practices.

In accordance with relevant research, this paper supports defining privacy as a critical dimension of electronic service quality within Freshippo applications, focusing on the protection of customer personal information and shopping data. This definition encompasses not only the safeguarding of sensitive data related to customer online shopping behavior and credit card information but also involves ensuring that such data is not unauthorizedly shared with third parties.

2.5.2 Privacy in Online Retail

As the online retailers evolves, privacy has become an increasingly important concept. In the traditional retail era, consumer privacy mainly focused on the protection of personal information in physical transactions. However, with the development of technology and the rise of online retail, privacy issues in the retail industry have become more complex and multifaceted. Early studies, such as Culnan and Armstrong (1999), pointed out that with the digitization of consumer information, protecting consumer information from misuse has become a major challenge for retailers.

Entering the 21st century, with the popularity of online retail platforms like Amazon and eBay, consumer privacy issues have become more prominent. These platforms collect a large amount of consumer data, including shopping habits, payment information, and personal preferences Laudon and Traver (2009). In this context, retailers must balance the need for personalized services with the responsibility of protecting consumer privacy. Freshippo s, as part of online retail, also

face similar privacy challenges. With the development of technology, especially the application of big data and artificial intelligence, Freshippo's can optimize services and product recommendations by analyzing consumer shopping data Huang and Rust (2018).

However, this has also raised concerns about the infringement of consumer privacy. Consumers are increasingly aware that their shopping data may be used for different purposes, including targeted advertising and behavioral analysis, which requires online retailers to ensure proper protection of consumer privacy while providing a personalized experience Verhoef, Kannan, & Inman (2015). Privacy in the retail industry, especially in Freshippo s, has shifted from a simple protection of personal information to a broad issue covering data usage and processing. Retailers need to focus not only on how to collect and store consumer information but also on how to use this information reasonably and how to find a balance between providing personalized services and protecting consumer privacy.

In the 2009 study "Buying Behavior in Freshippos" by Frederic Marimon and his colleagues, privacy in the retail industry (Privacy) was studied as an important dimension of electronic service quality. Privacy is particularly crucial in Freshippo retailing because it involves the secure protection of customer information, including the confidentiality of online shopping behaviors and credit card information. The study shows that although privacy may not significantly affect perceived value in specific Freshippo environments as other factors, such as website efficiency and fulfillment capabilities, once consumer privacy is challenged, its impact on other dimensions of the online application is almost devastating. Therefore, privacy is an issue that online retailers must take seriously. Hence, Freshippo s need to find a balance between protecting customer privacy and providing high-quality services.

2.5.3 Role of Privacy on Concerns on Purchase Intention

The cluster of literature focusing on the influence of privacy concerns on purchase intention provides a diverse yet interconnected set of insights across various technological and market contexts. Belkhamza and Niasin (2017) 1. explore the impact of privacy concerns on smartphone application purchases in Malaysia, suggesting that enhancing privacy protections could improve consumer trust and purchase intentions. Similarly, Jin (2023) 2. emphasizes the need for online retail live streaming platforms to improve privacy protection policies to safeguard consumer privacy and enhance trust, thereby potentially increasing purchase intentions.

Afifi (2023) 3. investigates the moderating role of privacy concerns in the relationship between artificial intelligence (AI) and consumer purchase intention within the Egyptian telecommunications sector. This study highlights how privacy concerns can either facilitate or hinder the acceptance of AI technologies in influencing purchase decisions. Garima and Sheokand (2024) 4. contribute by examining the interplay between social media advertising, electronic word-of-mouth (eWOM), and privacy concerns on the purchase intentions of Indian millennials. Their findings underscore the significant role of eWOM in shaping consumer attitudes and subsequent purchase behaviors, moderated by privacy concerns.

Alaa El-Din, & Atiya (2023) 5. also explore the moderating effect of AI on the relationship between consumer privacy concerns and online purchase intention in Egypt, although specific details of their findings are not provided. Gana and Koce (2016) 6. focus on mobile marketing, suggesting that personalized services can mitigate privacy concerns and enhance consumers' intention to use mobile marketing tools.

So, these studies collectively highlight the critical role of privacy concerns in shaping consumer behaviors across different digital platforms and technologies. They suggest that addressing privacy concerns through robust policies and personalized, secure services can significantly enhance consumer trust and purchase intentions. However, the cluster also reveals a gap in the literature regarding the comparative effectiveness of different strategies to mitigate privacy concerns across diverse cultural and technological contexts.

Privacy is a crucial aspect of consumer behavior, influencing their purchase intentions in various contexts. Several studies have explored the impact of privacy concerns on purchase intention in different settings, shedding light on the mediating role of trust, attitude, and other psychological factors. Wang, C., Wang, T., & Wang, P. (2019) conducted a study on the effect of emotion, expectation, and privacy on purchase intention in WeChat health product consumption. The findings revealed that trust played a mediating role in influencing consumers' intentions to buy health products on WeChat. This highlights the importance of establishing trust in online platforms to mitigate privacy concerns and enhance purchase intentions. Similarly, Konstantoulaki, Rizomyliotis, & Papangelopoulou (2019) focused on personalized content in mobile applications and its impact on consumers' purchase intentions in the UK beauty shopping sector. The study emphasized the significance of personalized content in influencing purchase intentions, providing valuable insights for m-retailers and managers in the mobile commerce industry. In a cross-cultural context, Wang et al. (2020) investigated the effects of trust, privacy concerns, and attitude on mobile advertising effectiveness in China and the U.S. The study highlighted the role of beliefs about mobile advertising in shaping consumers' attitudes and purchase intentions, emphasizing the need to address privacy concerns to enhance advertising effectiveness. Jibril et al. (2020) explored the influence of online identity

theft on consumer purchase intention in an emerging economy, with a focus on the mediating role of online security and privacy concerns. The study revealed how fear of financial loss and reputational damage impacted online purchase intentions, underscoring the importance of addressing security and privacy issues to build consumer trust.

Moreover, Mostafa, Youssef, Abdel-Ghaffar, & Bashtar (2022) examined the determinants of online purchase intention of applicationarel products in Lebanon, including factors such as perceived usefulness, ease of use, privacy concerns, trust, and perceived benefits. The study highlighted the complex interplay of these factors in shaping consumers' attitudes and intentions towards online purchases, emphasizing the need for a holistic applicationroach to address privacy concerns. Furthermore, Bhattacharya, Sharma, and Gupta (2022) investigated the influence of e-retailer's country of origin on consumer privacy, trust, and purchase intention. The study highlighted how consumers' concerns about sharing sensitive information during online shopping were influenced by the e-tailer's country of origin, emphasizing the role of trust and privacy in shaping purchase intentions.

Overall, these studies underscore the importance of addressing privacy concerns and building trust to enhance consumers' purchase intentions in various contexts. By understanding the mediating role of trust, attitude, and other psychological factors, businesses can develop strategies to mitigate privacy issues and foster positive consumer behaviors. Further research in this area is essential to explore the evolving dynamics of privacy and its impact on consumer purchase intentions in the digital age.

2.6 Mediating Role of E-Satisfaction

2.6.1 The Concept of E-Satisfaction

Satisfaction in the virtual environment (i.e., online satisfaction) has become an important topic of analysis, being a key factor in competing with rivals and achieving success in the market (Anderson & Srinivasan, 2003; Cox & Dale, 2001; Zeglat, Shrafat, & Al-Smadi, 2016). However, it is a difficult concept to define, because of its numerous interactions with other variables. Nevertheless, it may be considered an affective attitude, influencing the customer behavior and assessment of the products/services, which in turn determines the user's fidelity (Zhang & Dran, 2000). The determinants of the construct have been studied (Szymanski & Hise, 2000), as have its relationships with e-SQ and online loyalty (Cyr, Kindra, & Dash, 2008; Gounaris, Koritos, & Vassilikopoulou 2010; McKinney, Yoon, & Zahedi, 2002). The relationship between e-SQ and satisfaction, including information quality and customer expectation matching, has been modeled by a number of researchers (McKinney, 2002; Zeglat et al., 2016). Moreover, Hsu (2008), Shahabuddin (2014), and Zeglat et al. (2016) found that there were significant and positive correlations between service quality and both customer satisfaction and customer loyalty.

Krisnadi (2024) investigated the impact of mobile application attractiveness, functionality, security, and consumer fulfillment on e-E-Trust, with e-satisfaction acting as an intervening variable. The study concluded that attractiveness, security, and customer fulfillment significantly impacted e-satisfaction, whereas functionality did not have a significant effect. This finding suggests that while certain attributes of mobile applications enhance user satisfaction, not all application features contribute equally to this outcome.

Similarly, Andra, Arsyia, and Besra (2022) explored the effects of e-service quality and perceived value on e-trust, with e-satisfaction mediating these relationships in the context of the Shopee application during the COVID-19 pandemic in Indonesia. The results indicated that neither e-service quality nor perceived value had a significant effect on e-trust through e-satisfaction. This suggests a complex interplay between service quality, perceived value, and trust, where e-satisfaction does not consistently mediate the relationship between these variables.

In a related study, Sheu and Chang (2022) examined the relationship between service quality dimensions, customer satisfaction, and E-Trust in the Shopee application. They identified a significant difference in the importance of four service quality dimensions—efficiency, fulfillment, system availability, and privacy—which positively influenced customer satisfaction. Notably, efficiency and fulfillment emerged as the most critical dimensions, highlighting the importance of operational effectiveness and order fulfillment in enhancing customer satisfaction.

These studies collectively contribute to the understanding of e-satisfaction in online retail applications by identifying key factors that influence customer satisfaction and E-Trust. However, there are notable gaps and limitations in the current literature. For instance, the studies by Krisnadi (2024) and Candra, Tulangow, and Winalda (2022) did not fully explore the dynamic interactions between different application attributes and customer perceptions. Additionally, the sample sizes and geographical focus of these studies may limit the generalizability of their findings.

Future research could benefit from a more comprehensive analysis of the multifaceted nature of e-satisfaction, incorporating additional variables such as user interface design, personalization, and customer service interactions. Expanding the

geographical scope and increasing the sample size could also enhance the robustness of the findings. Moreover, longitudinal studies could provide deeper insights into how e-satisfaction evolves over time and under different market conditions.

Overall, these studies contribute significantly to understanding the complex dynamics of consumer behavior in online retail. They highlight the importance of trust, satisfaction, and various signaling mechanisms in influencing consumer decisions. However, there are gaps in the literature. For instance, the negative correlation between reputation and trust identified by Ahamed and Jalal (2021) warrants further exploration to understand its implications fully. Additionally, the moderating effects of product type and feedback mechanisms suggest a need for more granular studies that consider these variables in different contexts.

2.6.2 Electronic Satisfaction in Online Retail

Electronic satisfaction plays a crucial role in various aspects of online retail and digital services. Aisyah (2019) found that e-satisfaction significantly influences electronic trust and E-Trust, emphasizing its importance in building consumer trust and E-Trust. Similarly, Chandra et al. (2020) highlighted the impact of e-satisfaction on purchase intention, indicating that factors such as application usability and service quality contribute to shaping consumers' buying interests through electronic satisfaction.

Moreover, Gelashvili et al. (2024) reported that electronic service quality and electronic word-of-mouth positively affect electronic E-Trust, with electronic satisfaction and trust acting as intervening variables. This underscores the significance of e-satisfaction in fostering electronic E-Trust in the fashion online retail industry.

Jeyaprabha (2021) also explored the mediating effect of e-satisfaction on the link between e-service quality and e-E-Trust in the securities brokerage industry, further emphasizing the role of e-satisfaction in enhancing customer E-Trust. Furthermore, Alhanatleh (2021) investigated the factors influencing electronic E-Trust in the electronic banking sector, revealing that e-satisfaction and e-trust positively impact e-E-Trust. This highlights the importance of e-satisfaction in driving customer E-Trust in the context of electronic banking services. Juwaini, Chidir, Novitasari, & Purwanto (2021) examined the influence of electronic service quality, electronic satisfaction, and electronic trust on electronic word of mouth, underscoring the role of e-satisfaction in shaping consumer behavior and perceptions in the marketplace.

Additionally, Avianto et al. (2021) focused on identifying satisfaction factors in the Indonesian national civil servant recruitment system, highlighting the importance of understanding electronic satisfaction factors in enhancing user experience. Wu et al. (2022) explored the effects of health information seeking on e-satisfaction in online health communities, emphasizing the role of different types of information seeking in influencing users' electronic satisfaction.

Finally, Shafiya, Sayekti, and Prayogo (2023) assessed the impact of banking mobile application quality factors on consumers' electronic E-Trust, with electronic satisfaction mediating this relationship. This study further supports the notion that e-satisfaction plays a crucial role in driving customer E-Trust in the commercial banking sector. Overall, the literature reviewed underscores the significance of electronic satisfaction in various industries and its impact on consumer trust, E-Trust, and behavior.

2.6.3 Customer Satisfaction in Service Quality Contexts

The cluster of literature focused on customer satisfaction within service quality contexts provides a comprehensive overview of how various factors influence customer satisfaction and subsequent purchase intentions. Borhan, Liu, and Alam (2023) investigated the mediating role of perceived flow in the relationship between QR code factors and customer satisfaction among Malaysian shoppers. Their findings indicate that perceived flow positively mediates the relationship between QR code factors (usefulness, acceptability, and feasibility) and both customer satisfaction and purchase intention.

Their study revealed that customer satisfaction influences both adjusted expectations and repurchase intention, suggesting that enhancing customer satisfaction and adjusted expectations could increase online repurchase intentions.

In another study, Natalia and Suparna (2023) examined the role of customer satisfaction in mediating the effect of product quality and service quality on customers repurchase intention in a Bali coffee shop. The results showed that product and service quality positively affect satisfaction and repurchase intentions, with customer satisfaction mediating this relationship.

Zariman, Humaidi, and Abd Rashid (2022) focused on the mediating role of customer satisfaction in enhancing customer E-Trust intention through mobile commerce application-lications service quality. Their findings indicated that customer satisfaction mediates the relationship between SERVQUAL dimensions (assurance, personalization, responsiveness, and information quality) and customer E-Trust intention.

Overall, these studies collectively underscore the critical role of customer satisfaction in mediating the effects of various service quality factors on purchase and repurchase intentions. However, there are some limitations and gaps in the literature that future research could address. For instance, while the studies provide valuable insights into the mediating effects of customer satisfaction, they often focus on specific contexts (e.g., QR codes, sportswear retailers, coffee shops) and may not generalize to broader consumer behaviors. Future research could benefit from a more comprehensive and cross-industry analysis to validate the generalizability of these findings.

Additionally, the studies predominantly employ quantitative methods, which, while effective in measuring correlations, may limit the depth of understanding of consumer behavior. Incorporating qualitative methods, such as interviews or focus groups, could provide richer insights into the underlying motivations and perceptions that drive customer satisfaction and purchase intentions.

In conclusion, while the literature provides a robust foundation for understanding the mediating role of customer satisfaction in service quality contexts, there is room for further exploration and refinement to enhance the applicability and depth of insights in future research.

2.6.4 Role of E-Satisfaction in Online Purchase Intentions

The cluster of literature focusing on the mediating role of customer satisfaction in online purchase intentions provides a comprehensive view of how various factors influence consumer behavior in the digital marketplace. Bhattacharya, K., Bhattacharya, N., & Bhattacharya, A. (2022) explore the impact of country-of-

origin (COO) and ethical practices of online retailers on purchase intention, mediated by trust and satisfaction. Their study, conducted in an emerging market, highlights the significant role of trust and satisfaction in shaping consumer perceptions and intentions. Similarly, Hameed, Qayyum, and Awan (2018) investigate the dimensions of Corporate Social Responsibility (CSR) and their influence on purchase intention, with customer satisfaction, commitment, and trust acting as mediators. This study underscores the importance of CSR practices in enhancing consumer E-Trust and intention to purchase.

Anees (2022) 3. delves into the relationship between website quality, perceived convenience, and online purchase intention, with customer satisfaction as a mediating factor. The findings suggest that high-quality websites and convenient online experiences significantly enhance consumer satisfaction and, consequently, purchase intentions. Shakeel and Sultana (2019) focus on the role of store image and service quality in influencing purchase intention, with service quality mediating the relationship. This study emphasizes the critical role of physical store attributes and service quality in driving consumer behavior.

Overall, these studies collectively underscore the pivotal role of customer satisfaction in shaping online purchase intentions. They highlight how various antecedents, including ethical practices, CSR, website quality, and store image, can enhance consumer satisfaction and, ultimately, drive purchase behavior. However, the studies also reveal several limitations and areas for future research. For instance, Bhattacharya et al. (2022) suggest the need for validation in different geo-demographic scenarios and online retail settings. Similarly, Hameed, Qayyum, and Awan (2018) call for research in other sectors and developed economies to generalize the findings.

Future research could benefit from a more nuanced understanding of how cultural and contextual factors influence the mediating role of customer satisfaction. Additionally, exploring the dynamic interactions between different mediators (e.g., trust, commitment, and satisfaction) and their combined effects on purchase intention could provide deeper insights. Furthermore, longitudinal studies could help understand the long-term impact of these factors on consumer behavior, offering a more robust framework for predicting and influencing online purchase intentions.

2.6.5 Mediating Role of E-Satisfaction in Consumer Purchase Intentions

The cluster of literature focusing on the mediating role of satisfaction in customer purchase intentions within digital and service environments presents a nuanced examination of how customer satisfaction influences the reuse of digital services, particularly in financial institutions. Ballesteros (2023) both explore the mediating effect of satisfaction on the intention to reuse digital services in a financial institution located in Chiclayo. These studies collectively underscore the importance of customer satisfaction as a critical intermediary between customer experience and behavioral outcomes such as reuse intentions.

Both studies by Ballesteros et al. (2023) 9. and Ballesteros et al. (2023) 10. employ similar methodologies and theoretical frameworks, which enhances the robustness of their findings. They utilize customer experience as a primary antecedent to satisfaction, which in turn influences the intention to reuse digital services. This applicationroach aligns with established consumer behavior theories, particularly the expectancy-value model, which posits that perceived satisfaction mediates the relationship between service experiences and subsequent behavioral intentions.

However, there are limitations to this cluster of research that future studies could address. Firstly, both studies are geographically constrained to Chiclayo, which may limit the generalizability of their findings to other regions or countries with different cultural and economic contexts. Expanding the geographical scope could enhance the external validity of the research. Secondly, while satisfaction is a well-established mediator, other potential mediators such as trust, perceived value, and E-Trust could also be explored to provide a more comprehensive understanding of customer behavior in digital financial services.

Future research could also benefit from longitudinal studies to observe changes in customer intentions over time, as well as experimental designs to manipulate variables and observe direct effects, which would strengthen causal inferences. Additionally, integrating qualitative methods such as interviews or focus groups could provide deeper insights into the qualitative aspects of customer experiences and satisfaction that quantitative methods might overlook.

In conclusion, while the studies by Ballesteros et al. (2023) offer valuable contributions to understanding the mediating role of satisfaction in digital services, there remains ample opportunity for further research to explore additional mediators, such as E-Trust to broaden geographical applicability, and employ mixed-methods approaches to enhance the depth and breadth of understanding customer purchase intention in the online retail such as Freshippo application.

2.7 Mediating Role of E-Trust

2.7.1 Concept of E-Trust

The concept of trust has been studied widely in many disciplines including sociology, philosophy, economics, and marketing and recently in E-commerce, but each field has its own interpretation (Ahmed & Sayed, 2011). Trust has been applicationlied to different contexts and situations in the e-commerce literature: trust in the vendor, trust in third parties, and trust in the Internet (McCole, Ramsey, & Williams, 2010). Online Trust relates to trust that buyers placed on transactional or informational websites and the Internet technology in general (Ratnasingam et al., 2002). Trust in the transacting vendor has been found to be important for an online buyer to accept risks associated with an e-purchase (McCole et al., 2010). Trust in third parties relates to online buyers' trust in institutions that sell/provide certificate pledging integrity, ability, and intent in an online environment (Luo, 2002).

E-trust is defines as qualified reliance on the information that the customer gets from the Web site (Thakur & Summey, 2003). Ribbink et al. (1983) illustrated the degree of confidence customers have in online exchange or in online exchange channel. According to Mcknight, Choudhury, & Kacmar (2002) e-trust is a strategic that strongly influences consumer intentions to transact with websites, they laid emphasis on three behaviors that are critical to the realization of trust via website's strategic objectives: following advice offered by website, sharing personal information and purchasing from website (Putela, 2016). Chen and Dhillon (2003) identified dimensions of trust in an internet vendor as: competence, integrity and benevolence. Competence refers to a company's ability to fulfill promises made with the consumers, Integrity suggests that company acts in a consistent, reliable and honest manner and

Benevolence is the ability of a company to hold consumer interests ahead of its own self-interest.

2.7.2 Empirical Study on E-Trust

Yang, Zhi, Ngo, Quang Van (2023) explore consumer trust in B2C online retail, emphasizing its multidimensional nature and the role of ethical perceptions of retailers, product type, and consumer habits in shaping trust and repurchase intentions. Their study, conducted in Vietnam, utilizes structural equation modeling (SEM) to analyze data from 518 online shoppers, revealing that trust in B2C online retail is categorized into three types, with ethical perceptions and repurchase intentions acting as both antecedents and consequences of trust.

Similarly, Hong and Cho (2011) investigate the impact of trust in e-marketplaces, distinguishing between trust in intermediaries and sellers. Their research, based on a survey of 222 Korean e-marketplace shoppers, indicates that trust in intermediaries significantly influences attitudinal E-Trust and purchase intentions, whereas trust in sellers does not show a significant effect. This study underscores the critical role of intermediary trust in transferring trust to sellers within the e-marketplace.

Trivedi and Yadav (2020) focus on the Generation Y cohort in India, examining the mediating roles of trust and e-satisfaction in the relationship between vendor-specific attributes and repurchase intentions. Their findings suggest that trust fully mediates the relationship between security and privacy concerns and repurchase intention, while e-satisfaction mediates the relationship between security and ease of use. This study highlights the importance of security features, ease of use, and trusted

privacy policies in influencing the online purchasing behavior of Generation Y consumers.

Rizomyliotis (2024) extends the discussion to sustainable products, exploring how consumer trust in sustainable products sold online influences purchase intentions. The study, based on data from 278 participants, identifies perceived risk, security, and privacy as predictors of trust, which in turn predicts purchase intentions for sustainable products. Additionally, consumer trust in sustainable products moderates the relationship between trust and purchase intentions.

Overall, these studies collectively contribute to a deeper understanding of the multifaceted nature of consumer trust in online retail and its direct and indirect impacts on purchase intentions. However, the literature also reveals several gaps and areas for future research. For instance, while the studies provide valuable insights into the factors influencing trust, there is a lack of comparative analysis across different demographic groups and geographic regions. Future research could benefit from a cross-cultural perspective to generalize findings and understand variations in consumer behavior. Additionally, the role of technological advancements and evolving consumer expectations in shaping trust and purchase intentions warrants further investigation. Addressing these gaps could provide online retail platforms with more tailored strategies to enhance consumer trust and ultimately drive purchase intentions.

2.7.3 E-Service Quality and E-Trust in E-Commerce

The cluster of literature on E-Service Quality and E-Trust in E-Commerce provides a nuanced understanding of how various factors influence consumer trust and purchase intentions in the digital marketplace. Octavia and Tamerlane (2017) 1.

investigated the impact of website quality on online purchase intentions, finding a significant influence of website quality on e-trust, which in turn affects purchase intentions. However, they noted an insignificant direct impact of website quality on purchase intentions, suggesting that e-trust mediates this relationship.

Similarly, Wang and Zhang (2014) 2. explored the role of e-service quality and transaction feedback in shaping e-trust and purchase intention within the consumer-to-consumer (C2C) e-retailing context in China. Their findings underscore the importance of understanding customer decision-making processes and the potential for enhancing online services based on insights into e-service quality and feedback.

In a more recent study, Maia (2023) 3. focused on the effects of brand and online reviews on consumer trust and purchase intentions in the context of online travel agencies (OTAs) in Brazil. They identified brand equity as the primary driver of trust, with online reviews playing a crucial role for lesser-known brands. This study also confirmed that trust significantly influences purchase intentions, providing valuable insights for e-commerce strategies across different scales of businesses.

These studies collectively highlight the multifaceted nature of trust in e-commerce, influenced by factors such as website quality, e-service quality, transaction feedback, brand equity, and online reviews. However, the cluster also reveals certain gaps and limitations. For instance, while Octavia and Tamerlane (2017) 1. and Maia (2023) 3. both acknowledge the mediating role of trust, the former does not explore the impact of brand or reviews, and the latter does not delve into the specifics of website or service quality.

Moreover, the geographical focus of these studies varies, with Wang and Zhang (2014)² focusing on China, and Maia (2023)³ on Brazil. This diversity, while enriching the literature, also suggests a need for more comparative studies across different markets to generalize findings and understand regional nuances.

Future research could benefit from a more integrated application approach, examining the combined effects of all these factors within a single framework. Additionally, exploring the role of emerging technologies such as artificial intelligence and virtual reality in enhancing e-service quality and trust could open new avenues for research. Furthermore, longitudinal studies could provide deeper insights into how trust evolves over time in the dynamic e-commerce environment.

2.7.4 E-Trust in Online Retail

The cluster of literature on E-trust in online retail provides a multifaceted view of how these constructs influence consumer behavior and platform Fulfillment . Adebayo, Ilesanmi, and Adekunle (2020) recommend the use of a Multi-Criteria Decision Making (MCDM) application approach for trust assessment in online retail platforms, suggesting that further studies could expand the application of this model to other domains to refine the trust assessment method. This application approach underscores the importance of systematic evaluation techniques in enhancing trust in online retail environments.

In contrast, Al-dweeri et al. (2019) focus on the elements of e-service quality that impact e-E-Trust among Jordanian students, identifying privacy, reliability, emotional benefit, and customer service as critical factors. Interestingly, their study finds that efficiency is not a significant element in this context, highlighting a

divergence from traditional views that often emphasize efficiency as a cornerstone of online retail success.

Casadei, Schlögl, and Bergmann (2022) explore the impact of task complexity on perceived trust and user satisfaction with chatbots in robotic process automation. Their findings reveal that higher task complexity negatively affects both trust and satisfaction, particularly when chatbots provide broad, descriptive answers. This research adds to the understanding of how technological interfaces can influence user perceptions in online retail settings.

Jalil, & Makkatenni (2024) introduce a novel framework that integrates trust in online retail platforms with Green Supply Chain Management (GSCM) and online shopping satisfaction. Their study employs Structural Equation Modeling (SEM) to analyze the relationship between these variables, emphasizing the role of GSCM in enhancing ecological sustainability and consumer satisfaction. This research contributes to the literature by bridging the gap between environmental sustainability and online retail practices.

Overall, the literature cluster demonstrates a diverse range of methodologies and focuses, from MCDM applications to SEM analyses, and addresses various aspects of online retail, including trust, service quality, and sustainability. However, a common limitation across these studies is the focus on specific populations or contexts, which may limit the generalizability of their findings. For instance, Adebayo, Ilesanmi, and Adekunle (2020) 1. And Jalil et al. (2024) both concentrate on specific applications within online retail, which may not fully represent the broader online retail landscape.

Future research could benefit from a more comprehensive application that integrates these diverse perspectives and methodologies to develop a unified model of trust and satisfaction in online retail. Additionally, exploring the cross-cultural applicability of these findings could provide deeper insights into the universal and culturally specific factors influencing trust and satisfaction in online retail. Furthermore, investigating the long-term impacts of these constructs on consumer behavior and platform sustainability could offer valuable insights for practitioners and policymakers in the online retail sector.

2.7.5 Mediating Role of E-Trust in Consumer Purchase Intention

The cluster of literature focused on the mediating role of e-trust in customer purchase intention provides a comprehensive overview of how trust in digital environments influences consumer behavior across various sectors. Febrin, & Batubara (2020) investigated the role of customer trust in mediating the influence of brand image and brand awareness on purchase intention in Indonesia AirAsia's e-business implementation. Their findings indicated a significant positive relationship between corporate image and purchase intention, mediated by customer trust. Similarly, Kamalasena and Sirisena (2021) explored the impact of online communities and e-word of mouth on purchase intention of Generation Y, finding that brand trust mediated this relationship. This study underscores the importance of social media marketing in shaping consumer perceptions and intentions.

Bhattacharya et al. (2022) delved into the role of country-of-origin (COO) and online retailing ethics, revealing that consumer perceptions of online retailers' ethics and COO influence purchase intention through the mediation of trust and satisfaction. This research highlights the need for ethical practices in online retailing to

build consumer trust. Sawaftah (2020) examined the effectiveness of electronic integrated marketing communications (E-IMC) on customer purchase intention, with customer trust mediating this relationship. The study found that E-IMC positively impacts purchase intention, emphasizing the role of trust in digital marketing strategies.

Purnamasari and Suryandari (2023) examined the effect of e-service quality on e-repurchase intention, with e-satisfaction and e-trust as mediation variables. Their findings underscore the positive impact of e-service quality on customer behavior, mediated by e-trust and e-satisfaction. Atito, El-Jalil, Rady, & Fawy (2023) investigated the effect of e-WOM through social media on purchasing intention, with e-trust mediating this relationship. The study emphasizes the role of e-trust in enhancing customer purchase intent through credible service and interaction convenience.

Salhab (2023) examined the impact of social media marketing on purchase intention, with brand trust and image mediating this relationship. The study found that social media marketing significantly influences brand image and trust, which in turn influence purchase intention. This research highlights the importance of social media strategies in building brand trust and image.

Overall, the cluster of literature demonstrates a consistent theme: the critical mediating role of e-trust in influencing customer purchase intention across various digital contexts. While these studies contribute significantly to understanding the dynamics of trust in digital environments, there are areas for future research. For instance, future studies could explore the moderating effects of cultural factors on the relationship between e-trust and purchase intention. Additionally, more research is

needed to understand the long-term impacts of e-trust on customer E-Trust and retention in diverse market segments.

2.8 Online Retail

The study of consumer purchase intention within the context of online retailing has garnered significant attention in recent years, driven by the rapid growth of online retail and the evolving consumer behavior in digital environments. This literature review aims to synthesize and critically analyze the existing research on online retailer purchase intention, focusing on five key clusters: Theoretical Frameworks in Purchase Intention Research, Influence of Retailer Attributes on Purchase Intention, Consumer Perception Factors Impacting Online Purchase Intention, and Channel Integration and Purchase Intention among Specific Demographics. Each cluster will be reviewed in detail to explore the current state of knowledge and identify gaps in the literature. Following this, a critical analysis will be conducted to evaluate the limitations and shortcomings of the current research, paving the way for future studies to address these deficiencies and contribute to a more comprehensive understanding of online purchase intention.

2.8.1 The Concept of Online Retail

The development of the online retail has been a narrative of dynamic evolution and technological innovation. From the 19th century to the early 20th century, the retail sector was primarily characterized by traditional marketplaces and small-scale retailers such as grocery stores and family-owned shops. Retail activities during this era were highly contingent upon interpersonal interactions and geographical location (Benson, 2009).

With the advent of self-service retail in the 1930s, particularly the emergence of supermarkets, the industry began to undergo significant transformation. Originating in the United States, this self-service shopping paradigm gradually influenced the global retail landscape, altering not only the way goods were displayed and consumer shopping habits but also propelling the industry towards large-scale operations and standardization (Cox & Brittain, 2004; Lebharr, 1963).

By the mid-20th century, the proliferation of shopping malls and chain stores had introduced modern retail management and marketing techniques, significantly enhancing the shopping experience through centralized shopping and a diverse range of product offerings (Goldman, 1974; Treadgold, 1988). The dawn of the 21st century marked the rise of online retail and online retailing. The advancement of internet technology enabled the rapid emergence of online retail platforms such as Amazon and eBay, revolutionizing consumer shopping habits and the business models of retailers. Online retailing not only offered greater convenience and a broader range of product choices but also facilitated price comparison, thereby greatly enriching the consumer shopping experience (2009).

In recent years, the latest trend in retail has been the development of multi-channel retailing and seamless retail experiences. Retailers have begun actively integrating online and offline shopping experiences to provide a more personalized and seamless customer experience. Leveraging advanced technologies such as big data and artificial intelligence, retailers can gain a deeper understanding of customer needs and offer more customized services (Huang and Rust, 2018).

The online retail has evolved from its initial small-scale, interpersonal interaction-focused model to today's multi-channel, technology-driven industry. This

transformation process has not only witnessed the powerful driving force of technological innovation but also reflected the continuous changes in consumer needs and behavior. Looking ahead, the retail industry is expected to continue developing along the trajectory of technological innovation and customer experience optimization.

2.8.2 Impact of Online Influences on Consumer Purchase Intentions

The cluster of literature focused on the impact of online influences on purchasing intentions provides a comprehensive view of how various digital factors shape consumer behavior in the context of online retail. Yuan and Yin (2024) 1. explore the role of the internet celebrity economy in influencing online purchase intentions, highlighting the mediating effects of consumer involvement and the moderating effects of perceived attractiveness of internet celebrities. Their study, conducted among Weibo users in China, underscores the significant impact of the internet celebrity economy on purchase decisions, offering insights for businesses leveraging digital influencers in marketing strategies.

Similarly, Hu, Jiexiang, Zhang, Chenming, and Yang (2021) 2. investigate the factors influencing consumers' online purchase intention of over-the-counter (OTC) drugs in China. Their research, based on a survey of both offline and online consumers, reveals that both internal factors (attitude, personality, emotions) and external factors (network environment, website design, logistics) significantly affect purchase intentions. Notably, perceived risk has a negative impact on purchase behavior, suggesting that reducing perceived risks could enhance online drug purchases.

Peng and Li (2018) 3. focus on the effects of electronic word-of-mouth (eWOM) on online consumer purchase intentions, emphasizing the cross-cutting effects of different product types and information sources. Their empirical analysis supports the positive relationship between eWOM and purchase intentions, providing strategic insights for online marketing.

Wan, Jun, Dai, Haiming, and Ma (2013) 4. examine the impact of online commentary on network clothing consumers' purchase intentions. Their structural equation modeling applicationroach confirms that the timeliness, quality, and quantity of online commentary positively influence consumer trust and purchase intentions, with trust playing a mediating role.

These studies collectively contribute to understanding the multifaceted influences of online factors on consumer purchasing intentions. However, there are notable gaps and limitations. For instance, while Yuan and Yin (2024) 1. and Wan, et al. (2013) 4. focus on specific online platforms (Weibo and online clothing retail, respectively), there is a lack of broader cross-platform analysis. Additionally, the studies predominantly concentrate on Chinese markets, limiting the generalizability of findings to other regions.

Future research could benefit from a more comprehensive cross-platform analysis to understand the broader implications of online influences across different digital environments. Expanding the geographical scope would also enhance the applicationlicability of findings to diverse markets. Furthermore, integrating qualitative methods to complement the quantitative applicationroaches used in these studies could provide deeper insights into the underlying mechanisms driving consumer behavior in the digital era.

2.8.3 Impact of COVID-19 on Online Retail

The cluster of literature focusing on the impact of COVID-19 on online retail provides valuable insights into how the pandemic has altered consumer behavior and the growth trajectory of the online retail sector. Fihartini, Helmi, Hassan, & Oesman (2021) conducted a study in Indonesia to explore the influence of perceived health risk and online retail ethics on consumer behavior during the pandemic. The authors identified seven variables—perceived health risk, security, privacy, non-deception, reliability fulfillment, service recovery, and online shopping behavior—and found that perceived health risk and four ethical variables significantly influenced online shopping behavior. Notably, non-deception had an insignificant effect, suggesting that consumers are more concerned about their health and the ethical practices of online retailers than the honesty of the transactions.

In contrast, Szász (2022) utilized high-frequency data on GPS-based population mobility and government stringency to analyze the monthly evolution of online sales in 23 countries. Their findings indicate that the pandemic has induced a level shift in the long-term growth trend of the online retail sector, driven by time spent in residential areas and governmental restrictions. This study provides a broader, international perspective on the impact of COVID-19 on online retail, highlighting the sector's resilience and adaptability.

Both studies contribute significantly to our understanding of the pandemic's impact on online retail. Fihartini et al. (2021) offer a detailed examination of consumer behavior, emphasizing the role of perceived health risk and ethical considerations. In contrast, Szász (2022) provide a macro-level analysis, demonstrating the pandemic's role as a catalyst for the growth of online retail across multiple countries.

However, there are limitations to consider. Fihartini et al. (2021) focused solely on Indonesian consumers, which may limit the generalizability of their findings. Expanding the study to include a broader geographical scope could enhance its applicability. Additionally, both studies could benefit from a longitudinal perspective, examining the long-term effects of the pandemic on online retail rather than focusing on immediate impacts.

Future research should consider integrating qualitative methods to gain deeper insights into consumer perceptions and motivations. Exploring the role of cultural factors in shaping consumer behavior during the pandemic could also provide valuable insights. Furthermore, examining the sustainability of the observed trends post-pandemic would be crucial for understanding the enduring impact of COVID-19 on the online retail sector.

2.8.4 Consumer Behavior in Online Retail

The cluster of literature on consumer motivations and behavior in online retail provides a nuanced understanding of how various factors influence consumer behavior in the digital marketplace. Gallino, Karacaoglu, and Moreno (2022) explore the impact of in-process delays on customer behavior in online retail, highlighting the significant negative effects of website slowdowns on sales and conversion rates. Their study extends the literature on customer sensitivity to service speed and wait times, traditionally studied in offline contexts, to the online retail environment. Notably, they find that customer sensitivity to delays varies throughout the shopping journey, with heightened sensitivity at the checkout stage. This research is particularly relevant given the ongoing policy debates about net neutrality, suggesting that website fulfillment is a critical factor in consumer decision-making.

In contrast, Childers, Carr, Peck, and Carson (2001) focus on the attitudinal aspects of online retail shopping behavior, developing and empirically testing a model that integrates constructs from technology acceptance research and models of web behavior. Their findings support the differential importance of immersive, hedonic aspects of the new media alongside traditional utilitarian motivations. This study underscores the psychological underpinnings of consumer behavior in online retail, emphasizing the role of both enjoyment and practicality in driving online shopping behaviors.

Fihartini et al. (2021) investigate the influence of perceived health risk and customer perception of online retail ethics on consumer online shopping behavior during the COVID-19 pandemic. Their research reveals that perceived health risk and several aspects of online retail ethics, including security, privacy, reliability fulfillment, and service recovery, significantly affect online shopping behavior. Interestingly, non-deception was found to have an insignificant effect, suggesting that consumers are more concerned about their health and the overall service quality provided by online retailers during a pandemic.

The contributions of these studies are significant as they collectively enhance our understanding of consumer motivations and behaviors in the online retail environment. However, there are areas where further research could be beneficial. For instance, while Gallino et al. (2022) provide valuable insights into the impact of website Fulfillment on consumer behavior, future research could explore the role of artificial intelligence and machine learning in optimizing websiteFulfillment and reducing delays. Additionally, Childers (2019) highlight the importance of hedonic and utilitarian motivations, but there is scope to investigate how these motivations evolve with changing consumer demographics and technological advancements.

Fihartini et al. (2021) offer a timely analysis of consumer behavior during the COVID-19 pandemic, but future studies could delve deeper into the long-term impacts of such global events on consumer perceptions and behaviors in online retail. Expanding the scope to include cross-cultural comparisons could also provide richer insights into the universality of these findings.

Rizomyliotis (2024) focuses on the role of consumer trust in the context of sustainable products, highlighting that perceived risk, security, and privacy significantly predict trust, which in turn influences online purchase intentions for sustainable products. This study contributes to understanding the specific dynamics of trust in the burgeoning market of eco-friendly products.

In contrast, Zhou and Wang (2017) explore the impact of perceived value on purchasing intentions in the context of Meituan.com, emphasizing both monetary and non-monetary factors such as perceived risk, convenience, and pleasure. Their findings underscore the multifaceted nature of perceived value in shaping online purchasing decisions, offering practical insights for online sellers to enhance sales.

Zhai, Chunjuan, and Zhang (2014) investigate consumer purchase intentions towards online group buying in China, identifying factors such as perceived usefulness, ease of use, and social influences as significant predictors. This study extends the technology acceptance model (TAM) to the context of developing countries, providing specific directions for online group buying websites to improve their services and competitiveness.

Yanez, Navarro, and Flores (2022) examine the effects of web experience (WE) factors on online purchase intentions among millennials in Lima Metropolitan,

focusing on usability, interactivity, trust, and aesthetics. Their research highlights the importance of effective website design in influencing consumer behavior, particularly in the clothing category.

Lastly, Xue and Liang (2006) delve into the relationship between consumer information search behavior and online purchase intentions, building a conceptual model to understand the underlying dynamics. This foundational study provides insights into the early stages of the consumer decision-making process in online retail.

Overall, these studies collectively enhance our understanding of consumer behavior in online retail by addressing different aspects such as trust, perceived value, social influences, web experience, and information search behavior. However, there are limitations and gaps that future research could address. For instance, the studies predominantly focus on specific contexts or platforms, and there is a need for more cross-contextual analyses to generalize findings across different online retail environments. Additionally, while trust and perceived value are extensively studied, other emotional and psychological factors influencing online purchasing decisions could be explored further. Future research could also benefit from longitudinal studies to capture the dynamic nature of consumer behavior over time and incorporate more diverse geographical and cultural perspectives to enhance the generalizability of the findings.

In summary, while the current cluster of literature provides valuable insights into consumer motivations and behavior in online retail, there are opportunities for future research to explore technological advancements, long-term impacts of global events, and cross-cultural variations. These areas could further enhance our understanding of consumer behavior in the ever-evolving digital marketplace.

2.9 Background of Freshippo Company

Freshippo application is a new retail supermarket for fresh food delivery under Alibaba Group, established in 2015 and opened its first store nationwide in 2016. Driven by data and technology, Hema Fresh integrates online and offline services with modern logistics, creating an innovative business model. It mainly sells fresh food and provides fast delivery services, supporting consumers to shop in-store or place orders through the Freshippo application. Freshippo also features high-hygiene refrigerated transportation and electronic product tagging, using big data, mobile internet, and other technologies to achieve the optimal matching of people, goods, and the shopping environment.

The business model of Freshippo Fresh mainly adopts a "1+3" strategy, which takes Freshippo Fresh as the core, supplemented by different business forms such as Freshippo X Membership Store, Freshippo Neighborhood, and Fresh Olai, to serve different types of users. As of March 31, 2022, Freshippo has 273 self-operated stores in first and second-tier cities in China. Freshippo application also provides a one-stop shopping experience through its application, supporting customers within a 3-kilometer radius of the store to receive home delivery services within 30 minutes.

Freshippo application has innovated in the new retail model, combining the characteristics of supermarkets, catering, and e-commerce to meet users' needs for quality, service, and efficiency. The customer positioning of Hema Fresh is mainly the Internet natives of the post-80s and post-90s generations, who pay attention to quality and service experience and are relatively insensitive to prices. Freshippo application Fresh also improves user stickiness and retention rate through community sections and membership systems.

Meanwhile, according to their income level, the annual income level of users will be divided into five levels: above 20K, 10-20K, 5-10K, 3-5K, and below 3K. According to 2023 (Android market), the research results are shown in the figure below, and the positioning of Freshippo products and user portraits are shown in Table 2.1 and Figures 2.1 and 2.2

Table 2.1 Freshippo product positioning

Name	Freshippo
Company background	Alibaba Group
Slogan	Delicious Life
On line	2016.01
Product positioning	online + offline combination, O2O one-stop consumption model, "30 minutes delivery within 3 kilometers.
Typical user	Middle and high-end customers in second-tier cities have high consumer demand and consumption power, and are not sensitive to price
Scale	covers 200+ stores in 21 cities
Storage mode	front store after warehouse

Source: Android market, 2023

About Freshippo user portrait , According 2023 (Android market) , The typical users of Freshippo life are the elite group of first-tier and second-tier cities, the proportion of male users is 53.2%, 76.9% of users are married, its main characteristics are high income, high education, with a house and a car, most of them have a higher pursuit of quality of life, a higher purchasing power level, pay more attention to the quality of fresh products, and are not sensitive to price, As shown in the following picture.

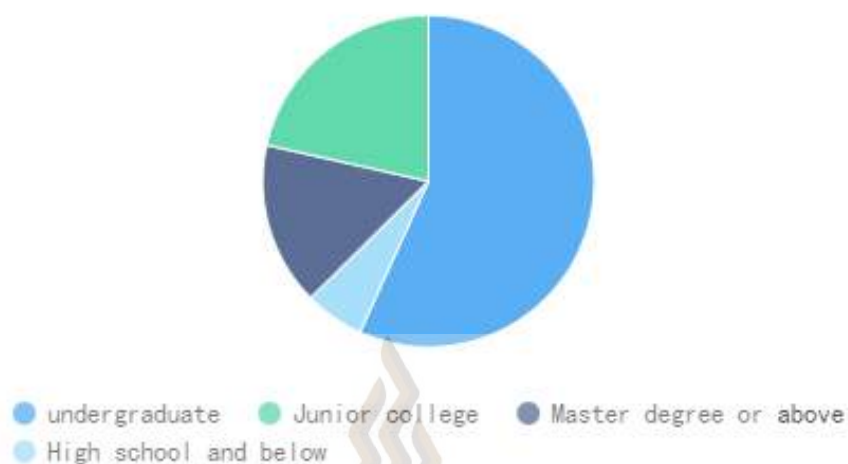


Figure 2.1 Distribution of educational background among Freshippo application users in 2023

Source: iResearch, 2023

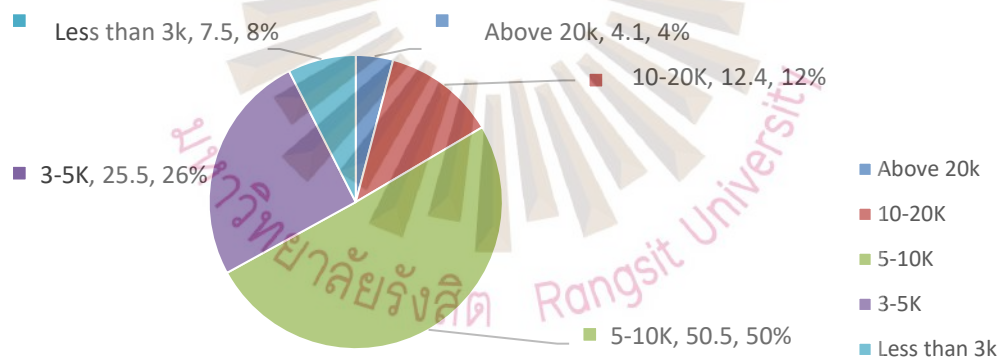


Figure 2.2 Income distribution of Freshippo Food application users in 2023

Source: iResearch, 2023

All in all, On March 30, 2023, Freshippo application announced the launch of the "1-hour reach" service, expanding the delivery range to the area of 3-5 kilometers. In addition, in March 2024, Freshippo application adjusted the employee structure to reduce costs and raised the threshold for orders to be eligible for free delivery to 99 yuan. Freshippo application uses big data, mobile internet, and other technologies to

achieve a complete logistics system from supply chain, warehousing to distribution, although this brings higher initial investment costs.

According to the survey conducted by iResearch (2023), Freshippo's user characteristics are as follows:

First, the gender ratio of Hema Fresh users is relatively balanced, with slightly more male users than female users. Second, the main user group is aged 31-35, which indicates a shift from ordering takeout to cooking at home, increasing the demand for fresh food products. Users over 41 years old account for a smaller proportion, possibly due to the difficulty of the Alipay-only payment method for the elderly and the relatively high-end product positioning that may not align with the consumption views of this age group. Third, the majority of Hema Fresh consumers fall into the middle to high-income bracket, with over 69% of them being medium or high consumers. More than 80% of users have a monthly family income of over 10,000 yuan, indicating a preference for quality and service over cost. Then, Convenience is the main reason users choose to shop for fresh food online, with the ability to deliver directly to the home and a rich variety of products being significant attractions. However, slow delivery speeds are a major concern for users. Meanwhile, Users of Hema Fresh are typically well-educated and have a strong ability to accept new things. They are part of the current society's "middle class," with high income and consumption levels. They are mostly busy with work, pursue service efficiency, and are highly sensitive to time. Typical users include young professionals in their 20s and 30s, such as office workers who prefer the convenience of on-time food delivery, young mothers who seek high-quality and organic food products for their children, and food and beverage professionals who value the quality and supply chain of Hema Fresh's products. Finally, Hema Fresh's offline stores are mainly located in first- and

second-tier cities with high consumption levels and developed logistics, which aligns with the application user distribution and supports the online business model .

In summary, Hema Fresh's user base is characterized by a balanced gender distribution, a focus on middle-aged consumers, high income levels, a preference for convenience and quality in online grocery shopping, and a concentration in urban areas with developed logistics and consumption power.

2.10 Research Framework

Studies collectively emphasize the critical roles of trust, satisfaction, and perceived value in shaping consumer purchase intentions in the digital retail environment.

Trivedi and Yadav (2020) conducted a study focusing on Generation Y in India, examining the mediating roles of trust and e-satisfaction in the relationship between vendor-specific attributes and repurchase intention. Their findings indicate that trust fully mediates between security and privacy concerns and repurchase intention, while e-satisfaction mediates between security and ease of use. This research underscores the importance of security, ease of use, and privacy in shaping the online purchasing behavior of Gen Y consumers.

Similarly, Ata, Baydaş, and Yaşar (2021) explored the mediating role of customer e-trust in the relationship between website determinants and purchase intention, satisfaction, and repurchase intention. Their study, conducted in Bingöl province of Turkey, revealed that image, interface, security, and privacy subdimensions of web determinants positively affect purchase intention, customer

satisfaction, and repurchase. E-trust was found to have a partial mediating role in this relationship. This research highlights the significance of website determinants in shaping consumer behavior and E-Trust.

Fried et al. (2020) investigated the impact of perceived value on consumers' continuous purchase intention in live streaming online retail, mediated by consumer trust and online shopping satisfaction. Their findings suggest that perceived value significantly positively affects consumer trust and online shopping satisfaction, which in turn increase continuous purchase intentions. This study adds to the understanding of how perceived value and trust influence consumer behavior in a specific online retail format.

Miao (2021) examined the influence of e-customer satisfaction, e-trust, and perceived value on consumers repurchase intention in the B2C online retail segment. Their research provides valuable insights for online retailers to strategize based on consumer behavior and encourage repeat purchases.

Rahayu (2020) investigated factors influencing online purchase intention among university students in Jakarta, finding that customer trust mediated the relationship between perceived risk and reputation on purchase intention. This study reinforces the critical role of trust in mitigating perceived risks in online transactions. Yunus et al. (2022) explored the mediating role of customer relationship management (CRM) in the relationship between digital marketing, online trust, and online purchase intention, highlighting the importance of CRM in fostering trust and influencing purchase decisions.

Purnamasari and Suryandari (2023) examined the effect of e-service quality on e-repurchase intention, with e-satisfaction and e-trust as mediation variables. Their findings underscore the positive impact of e-service quality on customer behavior, mediated by e-trust and e-satisfaction. Atito, El-Jalil, Rady, and Fawy (2023) 8. investigated the effect of e-WOM through social media on purchasing intention, with e-trust mediating this relationship. The study emphasizes the role of e-trust in enhancing customer purchase intent through credible service and interaction convenience.

The cluster of literature focused on efficiency and fulfillment in customer E-Trust provides a comprehensive view of how these factors influence customer satisfaction and E-Trust in the context of online services. Supriyantini (2014) investigates the impact of efficiency, fulfillment, system availability, and privacy on eSatisfaction among customers of PT. Danareksa Securities. The study utilizes multiple linear regression analysis on data collected from 78 customers through questionnaires. The findings indicate that all these variables significantly influence e-Satisfaction, highlighting the critical role of these factors in enhancing customer satisfaction in online transactions.

Similarly, Chandra (2013) examines the influence of efficiency, system availability, fulfillment, and privacy on E-Trust through perceived value in the context of Garuda Indonesia's online ticketing in Surabaya. This study also emphasizes the importance of these factors in shaping customer E-Trust, albeit through the lens of perceived value, which is a mediating factor in the relationship between service attributes and E-Trust.

Christy (2022) extends this line of research by analyzing the influence of efficiency, requirement fulfillment, system accessibility, and privacy on customer satisfaction and E-Trust among Shopee customers in Surabaya. The study employs a broader sample size of 123 respondents and focuses on a different service platform, Shopee, which is a significant online retail player in the region. The results reinforce the earlier findings by Supriyantini (2014) and Chandra (2013), indicating that these factors are crucial in driving both satisfaction and E-Trust in the online retail sector.

The contributions of this cluster of literature are significant as they collectively underscore the importance of service quality dimensions such as efficiency, fulfillment, system availability, and privacy in enhancing customer satisfaction and E-Trust. These studies provide empirical evidence that supports the implementation of strategies aimed at improving these service attributes in various online service platforms.

2.10.1 Defining the Research Constructs

E-services have been defined as services that are offered via the internet (Rust, 2001; Zeithaml, Parasuraman, and Malhotra, 2002), are managed by customers (Ruyter, Wetzels, & Kleijnen, 2001), and are interactive in nature (Fassnacht & Koese, 2006). Initially, it was thought that a web presence and low prices for the items were the main factors ensuring success in e-services. Recently, issues related to e-SQ have been identified as the key elements (Parasuraman, Zeithaml, and Malhotra, 2005; Zeithaml et. al, 2002). Previous research has highlighted the poor quality of service delivery over the internet (Ahmad, 2002; Cox & Dale, 2002), and the need to modify previous e-SQ measures such as SERVQUAL, so that they better suit the context of a web-based service (Li, Tan, & Xie, 2002). It is necessary to understand better how

customers perceive and evaluate services (Zeithaml, Parasuraman, & Malhotra, 2002), and to develop a strategy based on providing customers with high quality e-SQ. Following such a strategy, customers would feel satisfied with the service and their loyalty would be gained, as is the case with traditional services (Reichheld & Scheffer, 2000).

At present, there is no unanimous agreement in the literature on the concept of e-SQ. While some scholars have focused their studies on the quality of the website (e.g., Loiacono, Watson, & Goodhue, 2002; Li et al., 2002), others have adopted a broader view, including contacts with personal agents for customer services (Yang, Peterson, & Cai, 2003). The first stream is represented by Grönroos, Heinonen, Isoniemi, & Lindholm (2000), who believe that e-SQ can be divided into a functional dimension (what is delivered as a result of the service) and a technical dimension (how the service process is delivered). This view has been echoed and expanded by other researchers (Bauer, Falk, & Hammerschmidt, 2006; Parasuraman et al., 2005; Rust & Lemon, 2001), who believe that a comprehensive definition of e-SQ should go beyond mere commercial transactions and take into account all the key events and interactions that occur before, during and after the delivery of e-services.

In this view, e-SQ is the degree to which a website facilitates a purchase efficiently, meeting the needs and expectations of the customer and without creating problems (Gummerus, Liljander, Pura, & Van Riel, 2004). Generally, when looking at the e-SQ literature, two main research themes application near. The first stream of research in the E-SQ literature focuses on developing scales to measure e-SQ in a number of different contexts and dimensions. For example, in the library context, O’Niell, Wright, & Fitz (2001) developed an online library service quality scale. In the tourism context, Ho & Lee (2007) developed an E-travel service quality scale, and

Cristóbal, Flavián, & Guinalíu (2007) developed a scale to measure e-SQ for a tourism website. In the banking context, a scale to measure E-banking service quality was developed by Ibrahim, Agag, and Gomaa (2006). In the web context, a number of scholars (e.g., Aladwani & Palvia, 2002; Barnes & Vidgen, 2002; Bauer, 2006; Gounaris & Dimitriadis, 2003; Swaid & Wigand, 2009; Yang, Peterson, & Cai, 2005) have developed scales to measure website service and portal quality. Moreover, in the retailing context, a number of scales to measure electronic retailing service quality have been developed by Yoo & Donthu (2001), Collier & Bienstock (2006), Wolfinbarger & Gilly (2003).

The second stream of research in E-SQ literature focuses on the influence of E-SQ on a number of variables, and positive and significant links have been found between E-SQ and these variables. The variables include satisfaction (e.g., Zeglat, et al., 2016), behavioral intentions and attitudes (e.g., Lien, Wen, & Wu, 2011; Zeglat et al., 2016), trust (e.g., Beneke, Acton, Richardson, & White, 2011), and loyalty (e.g., Chen et al., 2013; Cristóbal et al., 2007; Kassim & Abdullah, 2010; Swaid & Wigand, 2009; Prougestaporn, Visansakon, & Saowapakpongchai, 2015; Wali & Opara, 2012).

However, despite the insights provided by these studies, limited research attention has been given to exploring this issue in a new context such as Jordan. In addition, so in this paper, will aim to measure the influence of e-SQ (efficiency, fulfillment, privacy) on customer purchase intention through e-satisfaction and e-trust.

2.10.2 Construction of Models

The construction of the influencing-factor model of consumers' purchase intention on online retail application is based on the SOR model and combined with

the theory of perceived-value, which is obtained by summarizing the existing research results of relevant scholars, in the above research hypothesis. It can be seen that the research hypothesis examines the antecedent variables and consequence variables of perceived value.

Therefore, firstly, efficiency, fulfillment and privacy are taken as antecedent variables; secondly, E-satisfaction and E-trust is selected as the mediate factor; and again, purchase intention is taken as the consequence variable. This is entirely applicationropriate. Therefore, this study builds a model of influencing factors of consumers' purchase intentions on online retail application, with regard to this objective and the literature review that is reported above, the research model was developed as shown below Figure 2.3

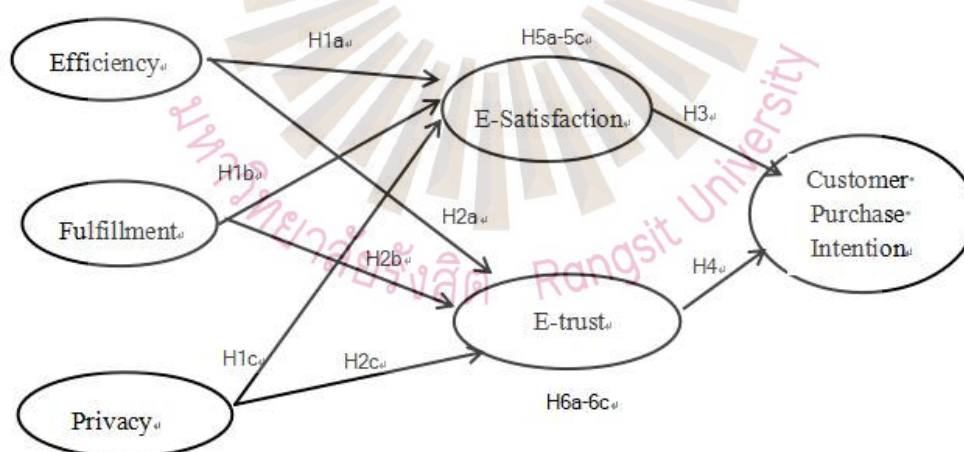


Figure 2.3 Research Framework

Source: Researcher, 2024

So, this study aims to conduct an in-depth analysis of the various factors influencing consumer behavior in the Freshippo sector, employing an integrated model that combines the Stimulus-Organism-Response (S-O-R) framework with flow theory. The theoretical underpinnings of this model are derived from the research conducted

by Doris et al. (2022) and Shiu (2023). The core of the study is centered on these hypotheses:

2.11 Hypothesis Development

The first proposals for the description of e-SQ as a multidimensional construct, and for its measurement through a scale that adapts the dimensions of traditional service quality, were developed by Parasuraman et al. (2005), using the E-S-QUAL scale in the field of e-commerce. However, the characteristics that differentiate traditional service from e-service led to a necessary revision of the dimensions and items that make up the traditional scale.

Consequently, numerous authors have developed new models for understanding and measuring e-SQ (WebQual (Loiacono, Watson, & Goodhue, 2007), and eTransQual (Bauer, 2006), and have proposed a number of dimensions (efficiency, privacy/security, fulfilment/reliability, enjoyment, and customer service/communication).

2.11.1 The Relationship Between Efficiency and Electronic Satisfaction

The theoretical foundation for the relationship between efficiency and electronic satisfaction in this paper is primarily derived from the research by Frederic et al. (2009). In the retail industry, particularly in the domain of Freshippo applications, the relationship between efficiency and electronic satisfaction is an important research topic.

According to Zhou (2012), efficiency is defined as the smoothness, speed, ease of use, and convenience of completing specific tasks within an application, which is crucial to user experience. In online retail applications, an efficient interface not only provides quick responses but also greatly enhances user experience through a streamlined user interface and seamless shopping process (Lin & Lu, 2015). Electronic satisfaction, on the other hand, refers to the overall sense of satisfaction that users form during the process of using online retail applications, encompassing evaluations of service quality, product information, and interactive experience (Anderson & Srinivasan, 2003). Leonard (2019) explored the relationship between electronic service quality, electronic trust, electronic satisfaction, and E-Trust in higher education institutions.

The study found that efficiency and fulfillment significantly affect electronic satisfaction, with fulfillment having the greatest impact on electronic satisfaction and electronic trust. The research confirmed the relationship between electronic trust, electronic satisfaction, and E-Trust.

Trivedi and Mistry (2022) analyzed the relationship between the efficiency of electronic banking services and customer satisfaction. The results showed that the efficiency of electronic banking services significantly affects customer satisfaction. The study emphasized the importance of adaptability and efficiency in electronic banking services for customer satisfaction and their role in innovating the banking industry. Khan and Alhumoudi (2022) used structural equation modeling to explore the mediating effect of electronic banking fulfillment and customer satisfaction. The study found that efficiency, reliability, and service quality significantly affect customer satisfaction with electronic banking services. Customer satisfaction, as a mediating variable for customer retention, highlights the importance of these factors in

retaining customers. Azmi and Dewi (2020) explored the impact of efficiency, privacy, reliability, affective benefits, and customer service on electronic satisfaction in Indonesian Railway (KAI) mobile applications. The study results showed that these factors have a positive and significant impact on electronic satisfaction, emphasizing their importance in improving user satisfaction with mobile applications.

Putri (2022) explored the impact of electronic service quality (mobile banking) on customer satisfaction. The study found that efficiency, fulfillment, reliability, and privacy significantly affect customer satisfaction with mobile banking users, indicating the importance of electronic service quality in improving customer satisfaction. Zhou (2012) found in their research that efficiency is one of the key factors affecting electronic satisfaction, especially when users encounter inefficient operations or slow loading times while using an application, which significantly reduces their satisfaction. Similarly, Lin & Lu (2015) also pointed out that the efficiency of user experience directly affects their satisfaction with the application. An efficient experience not only improves user satisfaction but also enhances user E-Trust and willingness to repurchase. In addition, Kim, Gupta, & Koh (2012) support this view, suggesting that by optimizing application design, improving server response speed, and simplifying the shopping process, companies can significantly enhance user electronic satisfaction, thereby increasing user stickiness and market competitiveness.

In summary, from the above literature, it can be concluded that there is a positive influence relationship between the efficiency of Freshippo applications and electronic satisfaction. An efficient application can significantly enhance user electronic satisfaction, which is crucial for improving user E-Trust, enhancing market competitiveness, and promoting long-term business development. The results of all

studies support the positive impact of efficiency on electronic satisfaction, whether in higher education, banking, mobile applicationlications, or online retail.

Therefore, improving application efficiency should become one of the key strategies for businesses to enhance user satisfaction and E-Trust. Efficiency refers to the ability of a website to offer relevant information to help consumers obtain the products they desire with minimal effort (Zeithaml et al., 2002), and consequently affects e-SQ. Theefficiency dimension is broken down into several sub-dimensions: informational content and website updating (Li et al., 2002; Wolfinbarger & Gilly, 2003), website design (Yen & Lu, 2008), usability (Parasuraman et al., 2005), and navigation (Bauer, 2006). Swaid & Wigand (2009) and Águila, Padilla, & Al-dweeri (2013) confirmed that information has positive effects on e-satisfaction.

Based on this, the following hypothesis is proposed:

H1a: Efficiency significantly and positively direct influences the electronic satisfaction derived from the use of Freshippo applicationlications.

2.11.2 The Relationship Between Fulfillment and Electronic Satisfaction

The theoretical foundation for the relationship between fulfillment and electronic satisfaction in this paper is primarily derived from the research by Frederic et al. (2009). In the retail industry, particularly in the domain of online applicationlications (applications), fulfillment refers to the effectiveness of the application in providing services and features, including the accuracy of product information, the efficiency of order processing, and the quality of customer service. Electronic satisfaction, on the other hand, involves the overall satisfaction level of

users when using online retail applications, encompassing a comprehensive evaluation of the application usage experience, service quality, and product satisfaction. The research by Frederic et al. (2009) indicates that fulfillment is a key factor affecting electronic satisfaction. When an Freshippo application can efficiently handle orders, provide accurate product information, and promptly respond to customer service requests, user satisfaction significantly increases. This enhancement stems mainly from the positive evaluation of the service's speed, accuracy, and reliability.

Additionally, a study conducted by Harris and Goode (2004) supports this view, finding that the service quality of online retail platforms, especially in terms of fulfillment, significantly impacts the enhancement of user electronic satisfaction. Users' high expectations for the efficiency of order processing, the accuracy of product information, and the speed of customer service response are important considerations when evaluating electronic satisfaction.

Furthermore, the research by Lin and Lu (2015) further emphasizes the impact of fulfillment on user experience and satisfaction. They point out that good fulfillment not only enhances the user's operational experience but also increases their trust in the online retail platform, thereby enhancing electronic satisfaction. Xie and Zhang (2020) demonstrated that in China's B2C online retail, improving after-sales service activities and flexible order fulfillment can enhance customer satisfaction and E-Trust. Leonard (2019) found that the efficiency and fulfillment dimensions of electronic service quality significantly affect the electronic satisfaction and trust of students in higher education institutions and have an impact on E-Trust. Ochoa (2017) showed that the fulfillment of adults' needs for survival, relationships, and growth is associated with both subjective and objective life satisfaction. Koufteros, Cheng & Lai (2006) found that customers' historical satisfaction with electronic retailers moderates

the relationship between order fulfillment service quality and immediate satisfaction, which in turn affects customer retention. He et al. (2011) demonstrated that satisfaction with online fulfillment quality is positively correlated with customer purchase satisfaction and retention rates.

In summary, from the research by Frederic et al. (2009), it can be seen that there is a close positive correlation between fulfillment and electronic satisfaction. The fulfillment efficiency and service quality of online retail applications directly affect user satisfaction, which is of great significance for enhancing user E-Trust, strengthening market competitiveness, and promoting long-term business success.

Based on this, the following hypothesis is proposed:

H1b: Fulfillment has a significant positive direct impact on the electronic satisfaction of Freshippo applications.

2.11.3 The Relationship Between Privacy and Electronic Satisfaction

The theoretical foundation for the relationship between privacy and electronic satisfaction in this paper is primarily derived from the research by Frederic et al. (2009). In the 2009 study “Buying Behavior in Freshippo s,” the concept of privacy (Privacy) in the retail industry was studied as an important dimension of electronic service quality. The study pointed out that in the Freshippo environment, privacy is a key factor affecting customer electronic satisfaction. Privacy mainly involves the security of user data, the protection of personal information, and privacy protection measures during the transaction process.

Following the research of Frederic Marimon, more scholars have further explored the impact of privacy on electronic satisfaction. For example, Kim et al. (2012) emphasized in their research that customers' trust in online retail platforms, especially trust in the protection of personal information, is crucial for the formation of electronic satisfaction.

They found that a high level of perceived privacy protection can significantly enhance their satisfaction with the platform. The study by Chellapattana and Sin (2005) also supports this view, pointing out that privacy is not only directly related to consumer trust but also affects consumers Purchase intention decisions and E-Trust. When consumers perceive a high level of privacy protection, they are more inclined to continue using a specific online platform and show higher satisfaction. The research by Miyazaki and Fernandez (2001) also confirmed the importance of privacy to electronic satisfaction.

Their study showed that the transparency and effectiveness of privacy protection measures are key factors in improving consumer satisfaction with online shopping platforms. Khan, Khan, & Hoque (2022) in their study "Factors Affecting Customer Satisfaction in Electronic Banking Services in Pakistan" examined the impact of key service factors, including privacy, on customer satisfaction with online banking services in Pakistan. The study found a significant positive correlation between electronic banking services (reliability, privacy, and convenience) and customer satisfaction, emphasizing the importance of privacy protection for customer satisfaction. Carvalho (2022) in the study "The Impact of Privacy (Security) Settings, application Design, and Electronic Trust on Electronic" Relationship Satisfaction and Electronic E-Trust in Surabaya Go Food" explored the impact of privacy settings,

application design, and electronic trust on electronic relationship satisfaction and electronic E-Trust.

The study highlighted the impact of application design and electronic trust on electronic relationship satisfaction, emphasizing the importance of these factors in cultivating satisfaction and E-Trust. Martínez-Navalón, Gelashvili, and Gómez-Ortega (2021) in the study "Evaluating Platform User Satisfaction and Trust Assessment: The Influence of Privacy and Electronic Word of Mouth in the TripAdvisor Case" explored the impact of privacy on user satisfaction and trust on the well-known travel platform TripAdvisor. The study confirmed a positive correlation between user privacy and satisfaction, indicating the importance of privacy protection in improving user satisfaction. Tamaro, Sugiono, Adistya, and Wulandari (2021) in the study "The Impact of User Interface, Perceived Security, and Perceived Privacy on Electronic Satisfaction with the Traveloka application" analyzed the impact of user interface, perceived security, and perceived privacy on electronic satisfaction with the Traveloka application.

The study found that the user interface, perceived security, and perceived privacy significantly affect electronic satisfaction, with the user interface being the main factor affecting satisfaction. Girsang et al. (2020) in the study "Can Information Security, Privacy, and Satisfaction Influence online retail Consumer Trust?" surveyed the impact of information security and privacy on online retail customer satisfaction and trust, emphasizing the importance of privacy in achieving consumer trust and satisfaction. The study emphasized that online retail participants need to focus on improving consumer privacy to establish trust.

Some authors have found that privacy does not exert a significant influence on e-satisfaction (Cristóbal et al., 2007; Kim & Stoel, 2004). The results obtained by Kim et al. (2009) suggest that privacy is a driver of e-trust, which, in turn, leads to customer e-satisfaction. In summary, starting from the research by Frederic et al. (2009) the positive relationship between privacy and electronic satisfaction has been confirmed by multiple studies. In Freshippo applications, providing adequate privacy protection is not only a legal and moral requirement but also a key factor in enhancing customer electronic satisfaction and E-Trust.

Based on this, the following hypothesis is proposed:

H1c: Privacy has a significant positive direct impact on the electronic satisfaction of Freshippo applications.

2.11.4 The Relationship Between Efficiency and Electronic Trust

The cluster of literature on employee efficiency and trust in public administration provides a nuanced examination of how digital tools and practices impact organizational Fulfillment and public trust. Novachenko et al. (2020) analyze the uneven implementation of e-learning tools in Ukrainian public administration, highlighting the potential for information technology to enhance both economic efficiency and credibility. This study underscores the regional disparities in digitization efforts, suggesting that uniform adoption of digital strategies could significantly bolster efficiency and trust across different administrative regions.

Nwinyokpugi and Dornanu (2022) build on this by concluding that electronic administrative strategies positively correlate with organizational efficiency. They

recommend the use of specific digital tools such as enterprise content management and electronic transaction systems to enhance efficiency. This empirical evidence supports the broader narrative that technology integration in public administration can lead to more streamlined operations and potentially higher levels of public trust.

In contrast, Latkovska (2023) explores the principles of disciplinary responsibility among civil servants as a foundational element for efficiency and trust in the public sector. Although the abstract is not provided, this application roach suggests that traditional administrative practices, such as accountability and discipline, remain crucial even in the context of digital transformation. This perspective complements the technological focus of the other studies by emphasizing the human and institutional factors that underpin public trust and efficiency.

Kutuzov & Kuzmenko (2021) present a unique case study within an orthopaedic department, assessing the efficiency and financial implications of using two different electronic systems. Their findings indicate that simplifying the technological landscape can reduce documentation time and improve efficiency, which has broader implications for public sector organizations considering multiple digital solutions. This study adds to the cluster by demonstrating the practical benefits of streamlining technology use in administrative settings.

While Herington & Weaven (2007) noted that, although efficiency is found to be most important overall and is rated most highly by respondents, it has the least impact upon satisfaction. Efficiency has a positive impact on customer trust, however (Kao & Lin, 2016; Kim, Jin, & Swinney, 2009). Hansen & Jonsson (2013) found that efficiency has no positive impact on e-trust.

Based on this, the following hypothesis is proposed:

H2a: Efficiency significantly and positively direct influences the electronic trust derived from the use of Freshippo applicationlications.

2.11.5 The Relationship Between Fulfillment and Electronic Trust

Syed, Sade, and Tat (2024) emphasize the role of social influence and self-efficacy in the adoption of e-marketing in Bangladesh, highlighting the importance of corporate digital responsibility in ensuring privacy and ethical practices. This study underscores the generational shift where younger, tech-savvy individuals influence household decisions, thereby shaping the digital landscape in developing economies.

In contrast, Mohamad, Ali, and Jaharadak (2021) focus on the quality factors that enhance trust between customers and SMEs in Libya's online retail sector. Their model posits that process quality, service quality, website quality, and information security are critical in fostering trust and purchase intention. This research contributes to understanding the specific elements that SMEs must prioritize to build customer trust in a digital marketplace.

Price and Lewis (2017) introduce a novel applicationroach to enhancing trust in digital transactions through the automatic Fulfillment of authentication actions at high trust levels. This method aims to streamline the user experience while maintaining security, suggesting a technical solution to address trust concerns in digital environments.

Comparing these studies, it is evident that while Syed et al. (2024) and Mohamad et al. (2021) focus on the socio-economic and quality aspects of trust in e-marketing and online retail, respectively, Price and Lewis (2017) offer a technical perspective. The former two emphasize the need for ethical practices and quality assurance in digital platforms, whereas the latter addresses trust through technological enhancements in authentication processes.

The contributions of this cluster are significant as they collectively address the multidimensional nature of trust in digital environments. However, the literature also reveals gaps in the geographical and methodological diversity of the studies. For instance, while Syed et al. (2024) and Mohamad et al. (2021) provide insights specific to developing economies, there is a lack of comparative studies across different economic contexts. Additionally, the technical perspective offered by Price and Lewis (2017) could be expanded to include more comprehensive user-centered design principles to enhance trust.

Based on this, the following hypothesis is proposed:

H2b: Fulfillment significantly and positively direct influences the electronic trust derived from the use of Freshippo applicationlications.

2.11.6 The Relationship Between Privacy and Electronic Trust

Tronnier, Harborth, and Hamm (2022) investigate the specific case of the digital Euro in Germany, exploring public applicationrehensions and trust levels. Their findings, though not detailed in the provided abstract, likely contribute to understanding the broader implications of digital currencies on privacy and trust.

In contrast, Martínez-Navalón, Gelashvili, and Gómez-Ortega (2021) analyze user satisfaction and trust on TripAdvisor, emphasizing the direct relationship between privacy, electronic word-of-mouth (E-WOM), and user satisfaction. Their study highlights that enhanced privacy leads to greater satisfaction, which in turn fosters trust in the platform. This empirical evidence underscores the critical role of privacy in shaping user trust and satisfaction in online review platforms.

Gelman, Cuneo, Roberts, Kulkarni, and Snay (2021) shift the focus to children's perceptions of digital tracking, revealing that as children age, they develop a deeper appreciation for digital privacy. Interestingly, younger children tend to be more accepting of digital tracking compared to older participants. This study provides valuable insights into the evolving understanding of privacy among different age groups, particularly highlighting the developmental aspects of privacy awareness.

Furthermore, privacy/security is considered one of the most important aspects of e-SQ (Lee & Lin, 2005; Parasuraman et al., 2005; Van Riel, Semeijn, & Janssen, 2003). Generally, online customers cannot interact with the employees or physical facilities of the firm with which they deal (Reichheld & Scheffer, 2000), so it follows that trust must be established in other ways. In fact, among the factors that have prevented the more rapid development of electronic commerce, the most noteworthy is the lack of trust and the perceived insecurity of making or receiving payments over the internet (Bauer, 2006; Malhotra & Segars, 2005). Ribbink, Van Riel, Liljander, and Streukens (2004) also found that in an online environment privacy has a high impact on customer trust and even on establishing long-term relationships with customers (Alshurideh, Al-Kurdi, Vij, Obiedat, and Naser, 2016).

The contributions of these studies are significant as they collectively enhance our understanding of how privacy and trust intersect in digital environments. However, there are notable gaps and limitations. For instance, Tronnier, Harborth, and Hamm (2022) do not provide specific findings or insights, which limits the depth of analysis that can be drawn from their work. Additionally, while Martínez-Navalón, Gelashvili, and Gómez-Ortega (2021) offer a robust analysis of TripAdvisor, the generalizability of their findings to other platforms or contexts remains uncertain.

These are also descriptions of sites' practices for online collection, use and dissemination of personal information. Liu et al. (2004) found that a successful relationship between buyer and seller in the website is subjected to the level of the buyer's e-trust which is shown in their Privacy–E-trust–Behavioral Intention model. The model enlightens how privacy impacts e-trust and then, e-trust influences customer behavioral intention for online transactions. In addition to all these, consumers have anxiety related to websites asking for personal information in detail, and this can be considered as a factor affecting the sense of e-trust. According to the research by Ginosar and Ariel (2017), customers consider that there should be various restrictions on websites requesting personal information.

Based on this, the following hypothesis is proposed:

H2c: Privacy significantly and positively direct influences the electronic trust derived from the use of Freshippo applicationlications.

2.11.7 The Relationship Between Electronic Satisfaction and consumers Purchase Intention

The relationship between electronic satisfaction and consumers Purchase intention is an important research topic in the online retail industry, especially in the field of Freshippo applications. Anderson and Srinivasan (2003) define electronic satisfaction as the sense of satisfaction formed by consumers when using online retail platforms or applications, which typically includes aspects such as the friendliness of the user interface, service quality, product diversity, and the convenience of the shopping process. A substantial body of research indicates that there is a significant positive relationship between electronic satisfaction and consumers Purchase intention.

Oliver (1999) proposed in his research that a high level of satisfaction can enhance consumer E-Trust and encourage repeat purchases. Harris and Goode (2004) also showed that in the online retail environment, satisfaction is a key factor driving consumer repeat purchase and recommendation behavior. Chiu et al. (2007) further found that in the online context, electronic satisfaction indirectly affects their purchase decisions by increasing customer trust.

To enhance consumers' Purchase intention, online retailers and application developers strive to improve the interface design of websites and applications, enhance service quality, and strengthen product diversity to increase user electronic satisfaction (Kim et al., 2012). The implementation of these strategies is crucial for the long-term success of online retail applications.

Recent studies have further explored the mediating role of electronic satisfaction in the process of affecting purchase intention. Wardana (2023), taking Fore Coffee customers as the research subject, investigated the mediating role of trust and customer satisfaction in the relationship between electronic service quality,

reciprocity, and repeat purchase intention. They found that customer satisfaction significantly affects repeat purchase intention, and this effect is mediated by trust and reciprocity.

Santoso and Ardianti (2023) analyzed Bukalapak consumers and found that digital marketing, electronic service quality, and electronic trust have direct and significant impacts on electronic repeat purchase intention and electronic satisfaction. They proposed that customer satisfaction mediates between these factors and purchase intention.

Another study on local micro-enterprise food customers on digital platforms found that electronic satisfaction positively affects repeat purchase intention. However, the positive impact of electronic satisfaction on electronic word-of-mouth (e-WOM) intention is not significant, indicating that the mechanisms affecting repeat purchase and word-of-mouth intentions may differ (Santoso & Ardianti, 2023).

Mtotywa and Kekana (2023) explored the dynamics of online shopping in South Africa post-COVID-19 and found that customer satisfaction mediates between electronic service quality and purchase intention. They emphasized the importance of understanding customer value and adjusting strategies to meet their online shopping needs.

Chandra et al. (2022), taking Shopee customers as the research subject, examined the relationship between electronic service quality, customer experience, customer satisfaction, and repeat purchase intention. They found that customer satisfaction mediates between electronic service quality and repeat purchase intention,

highlighting the importance of a satisfying customer experience in driving repeat purchase behavior.

In summary, a substantial body of research consistently shows that there is a significant positive relationship between electronic satisfaction and consumers Purchase intention intention. Electronic satisfaction not only directly affects purchase intention but also indirectly affects purchase decisions by increasing trust and other factors. In practice, online retailers and application developers enhance electronic satisfaction by optimizing user experience, thereby promoting consumer repeat purchase behavior. The latest research further reveals the mediating role of electronic satisfaction between electronic service quality, customer experience, and other factors with purchase intention, emphasizing the importance of providing a satisfying online shopping experience to drive consumer repeat purchase behavior.

These research findings provide important insights for the online retail industry. Firstly, improving electronic satisfaction should be the top priority for online retailers and application developers as it directly affects consumers Purchase intention intention and E-Trust. Secondly, optimizing user experience is a key strategy for enhancing electronic satisfaction, including improving user interface design, service quality, and product selection. Thirdly, establishing customer trust and promoting reciprocity also help to enhance the impact of electronic satisfaction on purchase intention. Lastly, online retailers need to deeply understand customer value and adjust service strategies according to customer needs to maintain a competitive edge in the fierce market competition.

As the online retail industry continues to develop, the relationship between electronic satisfaction and consumers Purchase intention intention will continue to

attract the attention of scholars and practitioners. Future research can further explore the antecedents and consequences of electronic satisfaction, as well as the boundary conditions of the relationship between electronic satisfaction and purchase intention under different contexts. At the same time, the research results also provide guidance for the design and operation of online retail applications, helping enterprises to achieve sustainable development in the digital era.

In summary, electronic satisfaction plays a crucial role in the field of online retail applications, as it not only directly affects consumers Purchase intention but also promotes consumers Purchase intention decisions by enhancing trust. Therefore, improving electronic satisfaction is an important goal pursued by online retailers, which is significant for enhancing consumer E-Trust, improving market competitiveness, and achieving long-term business development.

Based on this, the following hypothesis is proposed:

H3: Electronic satisfaction has a significant positive direct impact on the consumers Purchase intention of Freshippo applications.

2.11.8 The Relationship Between Electronic Trust and Consumers Purchase Intention

The literature cluster on "Trust and Purchase Intention in Online Shopping" presents a multifaceted examination of factors influencing consumer behavior in the digital marketplace. Refi, Jamali, and Jamil (2021) investigated the impact of customer trust and commitment on purchase intention for electronic products in Banda Aceh, finding that both variables significantly influence consumer decisions. Similarly,

Monfared, Ghaffari, Barootkoob, and Malmiri (2021) explored the role of social commerce, emphasizing the mediating effects of social interactions, trust, and electronic word of mouth on purchase intention, though they noted less significant effects on emotional support and purchase intention.

Mtotywa and Kekana (2023) conducted a study in the context of post-COVID-19 South Africa, focusing on the mediation of customer satisfaction in the relationship between e-service quality and purchase intention. Their findings highlighted the critical role of customer satisfaction in enhancing purchase intentions through various e-service quality dimensions. In contrast, Zhao, et al. (2023) empirically analyzed trust, perceived benefits, and purchase intention in China's C2C electronic commerce, providing insights into the structural relationships among these variables.

Gulam (2015) earlier explored consumer purchasing decisions towards online shopping, particularly focusing on student behavior, and highlighted the importance of initial trust and intention to purchase in the online environment. This study underscores the foundational role of trust in shaping consumer behavior, a theme echoed in later studies.

The contributions of these studies are significant in advancing our understanding of the complex dynamics between trust, satisfaction, and purchase intention in online shopping. However, there are notable gaps and limitations. For instance, while Refi & Siagian (2021) and Monfared et al. (2021) both emphasize the role of trust, the latter's focus on social commerce introduces a broader context that could be further explored in terms of its impact on traditional online retail models.

Moreover, the geographical and cultural specificity of studies like those by Mtotywa and Kekana (2023) and Zhao (2023) suggests a need for more cross-cultural research to generalize findings across different markets. Additionally, the rapid evolution of online retail technologies and practices necessitates ongoing research to continually update and refine models of consumer behavior.

The lack of e-trust, which is one of the basic requirements when establishing online shopping relationships, can play an important deterrent role in online shopping. Satisfaction is thoroughly associated with customer attitudes and intentions, which are part of customer behavior and directly impact customers' positive behavioral intentions (Rita & Kesselring, 2019). Satisfaction in online shopping indicates the user's response to the output of an information system which can be measured by the dimensions of repeat purchases and repeat visits (Husain, 2019). Rust and Zahorik (1993) stated that greater customer satisfaction brings about greater intent to repurchase. Customer e-trust affects the willingness to buy by shaping the risk and benefit perceptions of the consumers. E-trust shows a significant role in deciding the online purchasing behavior of consumers, and low e-trust significantly reduces online shopping behavior such as intention, satisfaction, and repurchases (Rehman, 2019).

Based on this, the following hypothesis is proposed:

H5: Electronic trust has a significant positive direct impact on the consumers Purchase intention intention of Freshippo applications.

2.11.9 Electronic satisfaction has a mediating effect in the relationship between the per-factors (a. efficiency, b. fulfillment, and c. privacy) and consumers Purchase intention intention.

The theoretical foundation for the proposition that antecedents (efficiency, fulfillment, and privacy) indirectly influence purchase intention through electronic satisfaction is also based on the research by Frederic et al. (2009). In the field of online retail applications, electronic satisfaction plays a key mediating role between antecedents (such as efficiency, fulfillment, and privacy) and consumers Purchase intention intention. This finding has been supported by numerous studies.

According to Baron and Kenny's (1986) theory, the mediating role describes how a variable can act as an intermediary or explanation between two other variables. In the context of online retail applications, efficiency typically refers to the smooth operation, speed, and ease of use of the application, which significantly affects electronic satisfaction, as pointed out by Zhou (2012). fulfillment, including aspects such as order processing and product delivery, is also considered an important factor in increasing electronic satisfaction by Lin and Lu (2015). Privacy, which is the perception of user personal information protection, similarly has a significant impact on electronic satisfaction according to Kim et al. (2012). Harris and Goode (2004) found that electronic satisfaction is a key factor affecting consumers' willingness to repurchase.

Anderson and Srinivasan (2003) emphasized the mediating role of electronic satisfaction between antecedents and consumers Purchase intention intention, indicating that electronic satisfaction can transform the effects of these antecedents into changes in purchase intention. This transformative function is the core characteristic of a mediating variable, as described by Baron and Kenny (1986). Recent research has further explored the mediating role of electronic satisfaction between factors such as efficiency, fulfillment, privacy, and purchase intention.

Mtotywa and Kekana (2023) surveyed the dynamics of online shopping in South Africa post-COVID-19 and found that various dimensions of electronic service quality, including efficiency, fulfillment, and privacy, collectively influence purchase intention. Customer satisfaction fully mediated the relationship between electronic service quality dimensions, compensation, and privacy with purchase intention, and partially mediated the relationship between other dimensions (such as responsiveness and system availability) and purchase intention. Wardana et al. (2023) explored the mediating role of trust and customer satisfaction between electronic service quality and repeat purchase intention. Although privacy was not directly mentioned, the study indicated that satisfaction and trust mediate between electronic service quality and repeat purchase intention, suggesting that electronic satisfaction may have a mediating effect.

Bhattacharya et al. (2022) explored the impact of consumers' perception of online retailers' ethics (CPEOR) and country of origin (COO) on purchase intention, which is mediated by trust and satisfaction. Although privacy was not explicitly mentioned, the overall electronic service quality and consumer perceptions affect trust and satisfaction, which in turn affect purchase intention, highlighting the potential mediating role of electronic satisfaction.

Mardalis and Nugroho (2023) investigated the impact of usability, servitude, and security on repeat purchase intention in online retail, which is mediated by customer satisfaction. Although privacy was not directly involved, it emphasized the mediating role of satisfaction between online retail factors and repeat purchase intention, implying that electronic satisfaction may act as a mediator.

Mulyono (2023) surveyed the impact of trust on repeat purchase intention, which is mediated by electronic satisfaction. The study found that trust indirectly affects repeat purchase intention by positively influencing electronic satisfaction.

A study on Bukalapak consumers analyzed the impact of digital marketing, electronic service quality, and electronic trust on electronic repeat purchase intention and electronic satisfaction. The study showed that these factors have direct and significant impacts on electronic repeat purchase intention and electronic satisfaction, with electronic repeat purchase intention mediating between them (Anonymous, 2023).

Purnamasari and Suryandari (2023) explored the impact of electronic service quality on electronic repeat purchase intention, which is mediated by electronic satisfaction and electronic trust. They found that electronic satisfaction and electronic trust mediated the relationship between electronic service quality and electronic repeat purchase intention, highlighting their importance in shaping customer behavior.

Nabila & Sonita (2023) studied the impact of usability and trust on repeat purchase intention, which is mediated by electronic satisfaction. The study indicated that among Shopee online platform users, electronic satisfaction mediated the relationship between usability, trust, and repeat purchase intention.

Anees (2022) explored the relationship between website quality, perceived convenience, and purchase intention, which is mediated by customer satisfaction. Although privacy was not explicitly mentioned, it emphasized the mediating role of satisfaction between various factors and purchase intention, indicating that electronic satisfaction may have a mediating effect.

In summary, a substantial body of research consistently indicates that electronic satisfaction plays a key mediating role between antecedents such as efficiency, fulfillment, privacy, and consumers Purchase intention intention. Electronic satisfaction can transform the effects of these antecedents into changes in purchase intention, which is the core characteristic of a mediating variable. In the context of online retail applications, factors such as efficiency, fulfillment, and privacy indirectly influence consumers Purchase intention intention by affecting electronic satisfaction.

Based on this, the following hypotheses are proposed:

H5a-H5c: Electronic satisfaction has a mediating effect in the relationship between the antecedents (a. efficiency, b. fulfillment, and c. privacy) and consumers Purchase intention intention.

2.11.10 Electronic trust has a mediating effect in the relationship between the per-factors (a. efficiency, b. fulfillment, and c. privacy) and consumers Purchase intention intention.

Mtotywa and Kekana (2023) expanded this by examining the mediation effect of customer satisfaction on the relationship between e-service quality dimensions and purchase intention in South Africa, revealing significant relationships and the nuanced role of customer satisfaction as a mediator. Baqai, Qureshi, and Morah (2021) explored the ES-QUAL model's impact on purchase intention, emphasizing its positive and significant effect. Robustin (2022) 4 focused on the role of e-service quality in building consumer trust on the Shopee marketplace in Indonesia during the COVID-19 pandemic, underscoring the criticality of trust in online transactions.

These studies collectively underscore the multifaceted nature of e-service quality, encompassing dimensions such as efficiency, responsiveness, fulfilment, privacy, and compensation. Mtotywa and Kekana (2023) and Robustin (2022) both highlight the importance of trust and satisfaction, with the former detailing the mediation effects and the latter emphasizing trust as a direct outcome of e-service quality. This convergence suggests a robust framework where e-service quality not only directly influences purchase intention but also indirectly through mediators like customer satisfaction and trust.

However, the cluster also reveals certain gaps and limitations. The geographical focus is predominantly on Asia (China, Indonesia) and South Africa, which may limit the generalizability of findings to other regions. Additionally, while Mtotywa and Kekana (2023) and Baqai, Qureshi, and Morah (2021) both discuss the ES-QUAL model, there is a lack of comparative analysis across different models of e-service quality, potentially overlooking diverse perspectives on service quality assessment.

Based on this, the following hypotheses are proposed:

H6a-6c: Electronic trust has a mediating effect in the relationship between the antecedents (a. efficiency, b. fulfillment, and c. privacy) and consumers Purchase intention intention.

2.12 Research Hypothesis

The research hypotheses of this paper are delineated as follows:

Hypothesis 1a: Efficiency directly influences the electronic satisfaction derived from the use of Freshippo applicationlications. with theoretical foundations laid by the research of Frederic et al. (2009).

Hypothesis 1b: Fulfillment directly influences the electronic satisfaction derived from the use of Freshippo applicationlications. with theoretical foundations laid by the research of Frederic et al. (2009).

Hypothesis 1c: Privacy directly influences the electronic satisfaction derived from the use of Freshippo applicationlications.with theoretical foundations laid by the research of Frederic et al. (2009).

Hypothesis 2a: Efficiency directly influences the electronic trust derived from the use of Freshippo applicationlications. with theoretical foundations laid by the research of Chandra (2013) and Christy (2022).

Hypothesis 2b: Fulfillment directly influences the electronic trust derived from the use of Freshippo applicationlications. with theoretical foundations laid by the research of Chandra (2013) and Christy (2022).

Hypothesis 2c: Privacy directly influences the electronic trust derived from the use of Freshippo applicationlications. with theoretical foundations laid by the research of Chandra (2013) and Christy (2022).

Hypothesis 3: Electronic satisfaction directly affects consumers Purchase intention within Freshippo applicationlications. supported by the findings of Chao, J., & Chao, L. (2012) and Doris et al. (2022).

Hypothesis 4: Electronic trust directly affects consumers Purchase intention within Freshippo applicationlications. supported by the findings of Rahayu (2020) , Purnamasari and Suryandari (2023) and Yunus et al. (2022).

Hypothesis 5a: Efficiency indirectly affect consume purchase intentions through electronic satisfaction,also based on the research of Frederic et al. (2009).

Hypothesis 5b: Fulfillment indirectly affect consume purchase intentions through electronic satisfaction,also based on the research of Frederic et al. (2009).

Hypothesis 5c: Privacy indirectly affect consume purchase intentions through electronic satisfaction,also based on the research of Frederic et al. (2009).

Hypothesis 6a: Efficiency indirectly affect consume purchase intentions through electronic trust, also based on the research of Supriyantini (2014) and Chandra (2013)

Hypothesis 6b: Fulfillment indirectly affect consume purchase intentions through electronic trust, also based on the research of Supriyantini (2014) and Chandra (2013)

Hypothesis 6c: Privacy indirectly affect consume purchase intentions through electronic trust, also based on the research of Supriyantini (2014) and Chandra (2013).

In terms of research methodology, this paper will adopt a quantitative applicationroach, collecting data through survey questionnaires and employing structural equation modeling for data analysis to validate the relationships between

these hypotheses. It is anticipated that this study will provide valuable insights for understanding and optimizing consumer behavior in Freshippo s, particularly in terms of the impact of electronic satisfaction and electronic trust, thereby offering theoretical and empirical support for market strategies and customer relationship management in the online retail sector and online retail supermarket applicationlication.

Also, a set of codes was developed for each construct to simplify the process of coding the questionnaire t materials and notices as seen in Table 2.2

Table 2.2 Summary of study factors and related codes

NO.	Factors	Code
1	Efficiency	EFF
2	Fulfillment	FUL
3	Privacy	PRI
4	Electronic-Satisfaction	E-SAT
5	Electronic-Trust	E-TUR
6	Customer Purchase Intention	CPI

2.13 Conclusion

Research on the relationship among e-service quality, e-satisfaction, and e-trust showed a positive influence of the dimensions of e-service quality on both e-satisfaction and e-trust of the customer. The study of Kundu and Datta on internet banking customers showed that e-service quality has a strong association with e-satisfaction and e-trust. Additionally, Kassim and Abdullah found that service quality has a significant impact on satisfaction and trust in an e-commerce setting, even in two

countries with different cultures, i.e., Malaysian and Qatari. As discussed earlier regarding the different dimensions of e-service quality, this research adopted the three dimensions of e-service quality, i.e., efficiency, system availability, and privacy protection, because they are the most accepted dimensions of measuring service quality among scholars in the e-commerce context. Efficiency refers to the ease and speed of the website, while system availability refers to technical functioning of the website. The privacy protection dimension refers to the safety and protection that a website offers to protect customer information. The study of Yen and Lu drew on EDP to examine the influence of these three dimensions of e-service quality on e-satisfaction among auctioneers and found that the three dimensions positively influence e-service quality. We also expect that the dimensions of e-service quality affect e-trust, as there is evidence that e-service quality influences e-trust. Additionally, the authors of showed that e-trust is related to the efficiency and user-friendliness dimensions of service quality. On the basis of these arguments and as pictured in Figure 1, the following hypotheses are proposed:

The integration of technology in retail has ushered in a new era of consumer expectations, focusing on efficiency, fulfillment, and privacy. Freshippo, a pioneering model of new retail in China, serves as an exemplary case to explore these dimensions.

Efficiency in the retail context refers to the speed and convenience with which consumers can find and purchase products. Emphasizes that Freshippo's operational efficiency is underpinned by its robust supply chain and technology infrastructure, which allows for swift order processing and delivery, thereby enhancing consumer satisfaction and E-Trust.

Fulfillment is the ability of a platform to fulfill its promises and meet consumer expectations. Freshippo has demonstrated its commitment to fulfillment through high-quality products and services, as well as innovative application roaches such as the integration of dining experiences within its stores, which sets it apart in the competitive retail landscape.

Privacy is a critical concern for consumers, especially in digital platforms. Discusses the growing consumer privacy concerns due to the widespread collection and use of personal information by businesses. Freshippo has had to navigate these concerns by implementing stringent privacy protection measures, which are crucial for building consumer trust and maintaining a positive brand image.

The literature suggests that these three factors are interlinked and collectively influence consumer purchasing intentions. Efficiency and fulfillment directly impact the consumer's perception of the brand's reliability and service quality, while privacy concerns can either bolster or undermine this perception.

Studies analyze consumer satisfaction based on online reviews, indicate that Freshippo's ability to provide a seamless and efficient shopping experience is a significant factor contributing to high consumer satisfaction levels. Furthermore, the innovative business model of Freshippo, as discussed in, addresses user pain points by offering a “supermarket plus dining” fresh food consumption innovation model that is favored by consumers with medium to high incomes and education levels.

The importance of quality, as highlighted in, is not only the primary consideration for Chinese consumers when choosing fresh food products but also represents the biggest business opportunity for Chinese retailers like Freshippo.

In conclusion, the literature review indicates that Freshippo's success can be attributed to its high platform efficiency, strong fulfillment of services, and robust privacy protection measures. These factors collectively foster a positive consumer experience, build trust, and ultimately drive purchasing intentions in the new retail environment. In the rapidly evolving landscape of online retail, understanding consumer purchasing intentions has become paramount for businesses aiming to thrive in the digital marketplace. This literature review delves into the multifaceted aspects of consumer behavior within the context of online retail, specifically focusing on the case study of the Freshippo application in China. The review is structured to first explore three key clusters of literature: the impact of online influences on purchasing intentions, consumer behavior analysis in online retail, and the effects of visual and social marketing on conversion rates. Each cluster will be examined to synthesize current knowledge and identify patterns and gaps in the existing research. Following this, a critical analysis will be conducted to evaluate the limitations and shortcomings of the current studies. This comprehensive review aims not only to consolidate the existing body of knowledge but also to highlight areas for future research, thereby contributing to the advancement of strategies that effectively engage and convert online consumers.

Chapter 3

Research Methodology

The current study draws upon the research conducted by Frederic et al. (2009) and Chiu, Y., & Chiu, A. (2012), emulating and integrating their academic foundations and research design. Subsequently, a selection of application appropriate, established scales, such as the E-S-QUAL scale, was made as the foundation for the questionnaire, with further refinement of the content through discussions with a supervisor. The questionnaire is divided into several sections, including personal information and assessments of constructs such as efficiency, fulfillment, privacy, electronic satisfaction, and electronic trust. Each section contains specific items and question types, such as matrix questions and single-choice questions. The questions in the questionnaire are primarily based on the scale's items to ensure the validity and reliability of the quantitative measurement.

The Efficiency (EFF) section includes 7 items, such as “The Freshippo application allows me to easily find the products I need,” aiming to assess the application's usability and user satisfaction. These items are scored using a five-point Likert scale (ranging from “Strongly Disagree” to “Strongly Agree”). The Fulfillment (FUL) section comprises 6 items related to order fulfillment and product delivery, such as “The application delivers orders as promised,” etc. The Privacy (PRI) section includes 5 items, such as “The application protects my online shopping behavior information,” aiming to evaluate the application's fulfillment in safeguarding user personal information. The Electronic Satisfaction (E-Satisfaction, SATIS) section consists of 5 items, assessing user satisfaction with the application's services and

products, such as “I am satisfied with the services provided by the Freshippo application.” The Electronic Trust (E-Trust, TRUST) section includes 5 items, such as “I feel that I can trust the Freshippo application,” aiming to understand the extent of user trust in the application's security. The Customer Purchase Intention (CPI) section contains 5 items, evaluating the user's intention to use the application for shopping in the future, such as “I plan to continue using the Freshippo application for shopping in the future.” All the above dimensions use a five-point Likert scale.

The personal information section includes questions about gender, age, education level, and monthly income. All data processing strictly adheres to the principle of confidentiality, ensuring the privacy and security of participants. The entire questionnaire design process focuses on scientific rigor and aims to deeply understand consumer behavior, providing reliable data support for research in related fields. The research content of this chapter is as follows:

3.1 Population and Samples

3.2 Questionnaire Scale Sources

3.3 Researching Tools

3.4 Instruments Testing

3.5 Data Collection

3.6 Data Analysis

3.1 Population and Samples

Putri (2021) conducted a study to analyze the effect of e-service quality and relationship marketing on e-satisfaction through user experience. Chandra et al. (2022) aimed to analyze the influence of factors affecting e-E-Trust with e-trust and e-satisfaction as mediating variables on Halodoc application users. The sample

size calculator provides information on determining the sample size based on the population size, margin of error, and z-score (Sample size calculator, formula, and examples). Life satisfaction among a clinical eating disorder population was found to be below the population mean in a study (Life satisfaction among a clinical eating disorder population - PMC). The association of e-cigarette flavors with satisfaction and enjoyment was studied using a raking procedure to adjust sampling weights based on population characteristics (Association of E-cigarette Flavors with Satisfaction, Enjoyment, and ...).

Changes in burnout and satisfaction with work-life integration were analyzed using standard descriptive statistics in physician and population samples (Changes in Burnout and Satisfaction with Work-Life Integration in ...). Happlicationiness and life satisfaction trends can vary over time, as seen in data from France (Happlicationiness and Life Satisfaction - Our World in Data).

Drawing from the research conducted by scholars across various countries on survey sampling, it is understood that the number of valid questionnaires should be ten times the number of measurement items on the questionnaire, and the number of collected questionnaires should exceed 200 copies. In other words, for this study, with a total of 40 measurement items on the survey questionnaire, the minimum sample size should not be less than 400 copies.

3.1.1 Population

This paper studies the influencing factors of consumers' purchase intention of Shanghai Freshippo application, focusing on the direct influence of efficiency, Fulfillment and privacy of Shanghai Freshippo application on customer E-

satisfaction, and the influence of customer E-satisfaction and customer E-Trust on purchase intention. Therefore, in the process of determining the population, this paper should understand the daily download volume and monthly active users of Freshippo application, so as to determine the population.

As one of the representatives of China's new retail, Freshippo Life's users are mainly distributed in the first and second tier cities with high consumption level and developed cold chain logistics. According to iResearch data, users in first-tier cities accounted for 41.4%, and users in second-tier cities accounted for 40.4%, which indicates that Hema Fresh's user group is more concentrated in economically developed areas. Hema's target users are mainly young groups born in the 80s and 90s, this part of the user group usually has a high-income level, a high demand for fresh goods, and is more inclined to use online shopping platforms.

From the point of view of the number of downloads of Freshippo application, Freshippo application has reached 340 million downloads by August 2023 (Android market), and from the point of view of the download trend, there is a significant increase around April 2020; In terms of active users, Big Data-Research's monitoring data in December 2023 showed that the number of active users of Freshippo was 10.274 million.

Define the population scope: Clarify the population of the survey, that is, all the 10.274 million active users of Freshippo shopping application in China.in December 2023.

The Freshippo products studied in this paper are Ali products. With strong capital flow and brand power, it has achieved rapid expansion in the first and second

tier cities in China. According to the official website of Freshippo, its offline stores have reached 230+. Freshippo is the first new retailer in China, founded in 2015, the first store opened in January 2016, is regarded as Alibaba's new retail sample. Freshippo is a new retail format that Alibaba completely reconstructs offline supermarkets. Freshippo is a supermarket, is a restaurant, is also a wet market, but such a description seems to be inaccurate. Consumers can buy it in the store or place an order on the Freshippo application. And one of the biggest features of Freshippo is fast delivery: within 3 kilometers of the store, 30 minutes to the door.

In recent years, Freshippo monthly active users continue to grow, from the point of view of monthly active users, online home business is the core of Hema, the overall scale and active users are in the leading position in the industry, according to Iimedia consulting data show that as of March (2020), the number of monthly active users of Freshippo reached 8.927 million. Especially during the epidemic period, the public's demand for online fresh goods procurement has effectively increased, and all platforms have maintained a high user growth rate during the epidemic period.

3.1.2 Sample

1) Gender and age distribution: The gender ratio of users is relatively balanced, with slightly more men than women. The age is mainly concentrated in the 31-35 years old, this part of the population has a high consumption power, and gradually from takeout to cooking at home, the demand for fresh goods increased. The proportion of users over 41 years old is relatively small, which may be related to the fact that Hema only supports Alipay payment for middle-aged and elderly people.

2) Geographical distribution: Users are mainly distributed in the first and second tier cities with high consumption level and developed logistics distribution, such as Shanghai, Guangdong and Beijing. These cities have high cold chain coverage, dense population and large consumption, which is conducive to the development of online models.

3) Income level: Among the consumers of Freshippo, the proportion of medium consumers and medium and high consumers reaches 69%, and more than 80% of the users' households have a monthly income of more than 10,000 yuan.

4) Consumption attitude: The main reason for users to choose online fresh food is convenience, which can be directly delivered to their homes, and rich categories are more attractive to users. The speed of delivery is an important factor affecting users' online

3.1.3 Sample Size

Determining the sample size of a questionnaire is a key step in the process of questionnaire design. In general, the sample size should meet the requirements of statistical analysis, that is, the sample size should be large enough to ensure the reliability and stability of statistical results. In practice, a common rule of thumb is that the sample size should be at least 10 times the number of items on the scale (Nunnally & Bernstein, 1994; Tabachnick & Fidell, 2007). This “10x rule” is based on the fact that larger sample sizes reduce errors and increase the power of statistical tests, leading to more reliable conclusions.

However, in large studies, such as national surveys, the 10-fold rule may not be enough. At this time, researchers need to further consider the representativeness of the sample size and the error range of the research results. A common application approach is to determine the minimum sample size through statistical power analysis (Cohen, 1992). Statistical power analysis takes into account three factors: significance level (Alpha), effect size, and statistical testing power. Among them, the significance level is usually 0.05, and the statistical test power is generally not less than 0.8. The effect size is estimated based on the study question and previous literature, indicating the size of the effect of interest in the study.

But in this study, with a total of 40 measurement items on the survey questionnaire, the minimum sample size should not be less than 400 copies..

After determining the minimum sample size, researchers should also consider the proportion of non-response and invalid questionnaires, and appropriately increase the number of questionnaires issued. At the same time, in order to ensure the representativeness of samples, researchers should adopt appropriate sampling methods, such as stratified sampling and cluster sampling, to ensure that different subgroups can be properly included in the samples.

3.1.4 Sample Step

Step 1 Identify the population

Before conducting random sampling, the overall scope of the study needs to be defined first. For the investigation of the purchase intention of the customers of Shanghai Freshippo shopping application, The total is all the active users of the

application in Shanghai. that is, all the 10.274 million active users of Freshippo shopping application in December 2023, in Shanghai, China.

Setp 2 Design the sampling frame

A sample box is a list that contains a list or number of all individuals in the population. When designing the sample box, it is necessary to ensure the completeness and accuracy of the list. For Shanghai Freshippo shopping application, the user database can be obtained as a sampling frame by cooperating with the platform.

Setp 3 Determine sample size

Based on the overall size, that is, all the 10.274 million active users of Freshippo shopping application in December 2023, in Shanghai, China, the allowable margin of error is $\pm 5\%$ and the confidence level is 95% to calculate the required sample size. Since the total size may be very large and difficult to estimate accurately, it may be necessary to use empirical formulas and the results of previous similar studies to determine the sample size in practice. For this survey, a reasonable sample size target can be set, more than 400 users can be calculated based on the formula, and then sample accordingly.

3.2 Questionnaire Scale Sources

3.2.1 The operational definitions and measurements of the per-factors of efficiency, fulfillment, and privacy are explored in this thesis.

The theoretical foundation for the concept of efficiency in this study is primarily derived from the research conducted by Frederic Marimon in 2009, titled "Freshippo Purchasing Behavior." The literature provides a series of specific survey questions for each factor, grounded in a rich theoretical basis and indices, encompassing multiple dimensions and structures of the online shopping experience.

Service quality (SQ) is often defined by marketing scholars depending on the expectancy disconfirmation paradigm (EDP). It refers to the level of perceived services (P) compared to expected services (E). Hence, the equation can be written as $SQ = P/E$. Service quality is crucial for customer satisfaction, business accomplishment, and survival. E-service quality originated from the work of marketing scholars, who introduced the concept of service quality, such as Parasuraman and his coworkers. E-service quality was defined as customer assessment of the extent to which the seller provides efficient, effective, and applicationropriate e-service on the website and in the delivery of the service E-service quality can also be defined as customer judgments relating to the quality of service delivered in a virtual environment.

In response to e-commerce and customer direction toward e-commerce, several researchers have developed different instruments to assess e-service quality. For example, Zeithaml et al. (2000), first introduced the concept of service quality and its dimensions, as well as a conceptual framework for e-SQ. Loiacono et al. (2002) introduced a scale for measuring the quality of websites called "WebQual". In the same vein, Yoo and Donthu (2001) developed "SITEQUAL" to assess the website interactivity. However, these two scales failed to pay sufficient attention to customer interaction in a virtual environment and focused mainly on the quality of the websites . Wolfinbarger and Gilly (2003) introduced a scale for measuring e-retail service quality

called “eTailQ”. E-retail service quality involves customers’ attitude toward the website, as well as their satisfaction and loyalty. Bauet et al. (2006) developed another transaction process-based scale for measuring business-to-customer service quality in online shopping called “eTransQual”. Parasuraman et al. (2002) presented “E-S-QUAL”, which is a multiple-item scale for evaluating e-service quality. The scale has four dimensions: efficiency, fulfillment, system availability, and privacy.

ES-QUAL (Electronic Service Quality) is a measurement dimension for service quality research that is more focused on electronic services. ES-QUAL is an extension of SERVQUAL (Tyran & Ross, 2006). ES-QUAL has seven dimensions, namely efficiency, fulfillment, system availability, privacy, responsiveness, compensation and contact (Parasuraman et al., 2005). In ES-QUAL theory, e-service quality is a customer assessment of the services provided online including the extent to which sellers can accommodate effective purchases, responsive and fast product delivery with quality service (Wilis & Nurwulandari, 2020). E-service quality has an important role in creating perceived value online in the shopping environment (Rita & Kesselring, 2019).

For instance, the measurement of efficiency involves aspects such as the usability of the application and the speed of response; the measurement of fulfillment includes elements like order fulfillment and product delivery; and the measurement of privacy focuses on the protection of personal information. These measurement items and questions not only reflect the theoretical framework proposed in the literature but also provide significant reference for market research in the field of Freshippo s. Additionally, the literature offers a detailed description and design rationale for the survey questionnaire concerning these factors, demonstrating the effective application of these questions in actual survey research.

In Frederic Marimon's study, the survey questionnaires for the pre-factors of efficiency, fulfillment, and privacy are sourced from the E-S-QUAL tool (Parasuraman et al., 2005), and the scale items are adapted for the case study in his research. Marimon's original Table 1 lists the quality dimensions (and their items) used in his study. Like the original E-S-QUAL model, responses are recorded on a five-point Likert scale, with the scale ends being 1 = Strongly Disagree and 5 = Strongly Agree. Only two minor modifications were made to the items (all within the “Fulfillment” dimension) from the original E-S-QUAL scale. Specifically, the item FUL3 for fulfillment was removed, and item FUL7 was rewritten to assess the convenience of delivery rather than the accuracy of delivery prediction. In this thesis, the item EFF8: “This site is well organized” from the original literature was omitted, as this item is difficult to distinguish from other questions in Chinese and is highly repetitive.

Table 3.1 Measurement options for three pre-factors: Efficiency, Fullfliment and Privacy

Dimension	NO.	Items	Reference
Efficiency (EFF)	EFF1	Freshippo makes it easy to find what I need.	Frederic et al. (2009)
	EFF2	Freshippo makes it easy to get anywhere on the site.	
	EFF3	Freshippo enables me to complete a transaction quickly.	
	EFF4	Information at Freshippo is well organized.	
	EFF5	Freshippo loads its pages fast.	
	EFF6	Freshippo is simple to use.	
	EFF7	Freshippo enables me to get on to it quickly.	

Table 3.1 Measurement options for three pre-factors: Efficiency, Fullfliment and Privacy (Continued)

Dimension	NO.	Items	Reference
Fulfillment (FUL)	FUL1	Freshippo delivers orders when promised.	Frederic et al. (2009)
	FUL2	Freshippo makes items available for delivery within a suitable time frame.	
	FUL3	Freshippo sends out the items ordered.	
	FUL4	Freshippo has in stock the items the company claims to have.	
	FUL5	Freshippo is truthful about its offerings.	
	FUL6	The delivery time offered to me is convenient.	
Privacy (PRI)	PRI1	Freshippo protects information about my web shopping behaviour.	Frederic et al. (2009)
	PRI2	Freshippo does not share my personal information with other sites.	
	PRI3	Freshippo protects information about my credit card.	

3.2.2 Operational definition and measurement of electronic satisfaction

The two questions of electronic satisfaction are derived from the research of Lau and Lee (1999). And the work of Horppu, Kuivalainen, Tarkiainen, and Ellonen (2008). The other two problems are studied by Flavian, Guinal, and Gurrea (2006). All measurements were based on a five-point Likert scale (1= strongly disagree; 5=

Strongly agree). The above questions are integrated to obtain the electronic satisfaction measurement table of Emi et al. (2018).

These documents together form the theoretical basis of electronic satisfaction measurement, covering consumers' satisfaction with the services provided by Freshippo s, product selection, shopping experience and so on. Based on these studies, the literature uses a five-point Likert-type scale for measurement, with 1= strongly disagree and 5= strongly agree at both ends, effectively capturing consumer satisfaction with online retail experience.

Table 3.2 Measurement options for E-Satisfaction

Dimension	NO.	Items	Reference
E-Satisfaction (ESAT)	ESAT1	I am satisfied with the service provided by Freshippo.	Emi et al. (2018)
	ESAT2	I am satisfied with the choice of products available at Freshippo.	
	ESAT3	I am satisfied with the products I purchased on Freshippo.	
	ESAT4	I am satisfied with my shopping experience on Freshippo.	
	ESAT5	I am satisfied with my shopping through Freshippo.	

3.2.3 Operational definition and measurement of electronic trust

The theoretical basis of e-trust in this paper is also mainly from the relevant research of Emi et al. (2018). in "Integrated consumer shopping decision model: In this paper, the operational definition of E-Trust and its measurement methods are discussed in detail. The article proposes several specific measures of e-trust, which are designed to assess consumers' trust in Freshippo s such as Freshippo. For example,

questions such as “I feel I can trust Freshippo, an Freshippo” (TRUST1) measure consumers' sense of security and trust when making transactions. These questions reflect an in-depth understanding of consumer trust in an online shopping environment and provide important insights in assessing consumer behaviour in an online retail environment.

In addition, Chien (2003) proposed several specific measurement items in The Acceptance of Online Grocery Shopping from the perspective of distrust of Freshippo s (such as Freshippo). It mainly evaluates the sense of insecurity and distrust that consumers feel when making transactions. This paper does not modify the measurement topic.

Table 3.3 Measurement options for E-Trust

Dimension	NO.	Items	Reference
E-Trust (TRUST)	TRUST1	I feel that I can trust Freshippo.	Emi et al. (2018)
	TRUST2	I feel safe when I conduct a transaction with Freshippo.	
	TRUST3	I feel safe when performing monetary transactions through Freshippo.	
	TRUST4	I am concerned with the payment security aspects of Freshippo.	Chien et al. (2003)
	TRUST5	I am concerned with the privacy of my information provided when using Freshippo.	
	TRUST6	I am concerned with the punctuality of the delivery time of Freshippo.	

3.2.4 Operational definition and measurement of consumer purchase intention

The topic of consumer purchase intention in this paper is also mainly from the relevant research of Chiu et al. (2012). In their research, they propose a series of measurement items for Customer Purchase Intention (CPI), which are designed to assess consumers' future shopping intentions for Freshippo s such as Freshippo. The questions included assessing consumers' intentions to use an Freshippo for their next food and drink purchase, as well as their propensity to continue using the platform for shopping.

Table 3.4 Measurement options of Consumer Purchase Intention

Dimension	NO.	Items	Reference
Customer Purchase Intention (CPI)	CPI1	The next time I want to buy food and drink I intend to browse my Freshippo.	Chiu et al. (2012)
	CPI2	I will continue browsing Freshippo to buy food and drink.	
	CPI3	The next time I have to buy food and drink I will browse Freshippo.	
	CPI5	Whenever possible, I intend to use Freshippo to purchase groceries.	(2003)

3.3 Researching Tools

Questionnaire survey is a quantitative research method widely used in social science research. By designing a structured questionnaire, the method is able to collect data from a large number of respondents and perform statistical analysis and inference

on the research questions. Questionnaire survey is applicationlicable to many fields, such as psychology, sociology, management and market research.

In practice, questionnaire survey usually includes the following steps: (1) Clear research purpose and investigation content; (2) Designing questionnaires, including compiling items, determining scale types, and conducting pre-test; (3) Determine the sampling plan, including the target population, sampling method, sample size, etc.; (4) Questionnaire survey, including paper-and-pencil test, face-to-face interview, telephone survey, network survey, etc.; (5) Organize and analyze data, and use applicationropriate statistical methods to test hypotheses and interpret results; (6) Write a research report, explaining the purpose, methods, results and conclusions of the investigation.

As a new form of investigation, network survey has its unique advantages and characteristics, and has been more and more widely used in social science research.

First of all, network survey can break through the limitations of time and space and cover a wider range of regions and people. The traditional survey methods, such as paper-and-pencil test and face-to-face interview, are limited by geographical location, human and material resources and other factors, so it is difficult to obtain large-scale and diversified samples in a short time. With the convenience and universality of the Internet, network survey can easily reach respondents from different regions and different backgrounds, and obtain more representative and diverse sample data. It is of great significance to study the psychological characteristics and behavioral patterns of different groups.

Secondly, network survey has higher anonymity and privacy, which helps to obtain more real and reliable data. In face-to-face interviews or telephone surveys, respondents may hold back due to the presence of surveyors or fear of privacy disclosure, resulting in data distortion. In the online survey, respondents can fill out questionnaires in a relatively anonymous and private environment, and are more inclined to express their true thoughts and opinions. This "screen effect" can reduce the influence of social desirability, desire to please and other factors to a certain extent, and improve the authenticity and reliability of data.

Moreover, the network survey platform such as Juanxing provides powerful questionnaire design and data management functions, which greatly improves the professionalism and efficiency of the survey. Through the questionnaire star platform, researchers can easily design professional questionnaires that meet the research needs, including the preparation of different question types, the setting of logical jump, and the beautification of the questionnaire interface. The platform also provides real-time data collection and statistical functions, and researchers can monitor the questionnaire responses at any time and grasp the progress of data collection. In addition, the platform also integrates commonly used data analysis functions such as data cleaning, sample screening, descriptive statistics, and correlation analysis, making data sorting and preliminary analysis more automated and convenient. The application of these functions not only improves the professionalism of questionnaire design and the efficiency of data management, but also lays a good foundation for further analysis.

From the perspective of psychological research, network survey also has unique psychometric advantages. On the one hand, network survey can better control the experimental environment and reduce the interference of irrelevant variables. Through the programmed control of questionnaire presentation and answering process,

it can ensure that each subject completes the test in a relatively consistent environment, thus improving the internal validity of the data. On the other hand, the network survey can easily integrate a variety of measurement methods to achieve a diversified psychological assessment. In addition to the traditional self-report scale, researchers can also applicationly implicit testing (such as implicit association test IAT), behavior tracking (such as mouse trace analysis), physiological response measurement (such as electroencephalogram) and other emerging measurement techniques in the network environment to obtain more comprehensive and objective psychological data. This multi-dimensional measurement is helpful to deeply understand the internal mechanism of psychological phenomena and expand the field of view and depth of psychological research.

3.4 Instruments Testing

3.4.1 Validity

Literatures focused on Item Objective Congruence (IOC) in test validation presents a comprehensive examination of methods to enhance the content validity of assessments. Turner and Balkin (2002)¹ introduce a macro for test developers to assess content validity using the index of item-objective congruence measure, originally developed by Rovinelli & Hambleton (1977). This tool is pivotal for ensuring that test items align with the intended cognitive processes or skills they are designed to measure.

In a more specific context, Ismail and Zubairi (2021)² applicationly IOC analysis to validate a reading test for university students in Sri Lanka. They adapted reading materials from the CEFR aligned Learning Resource Network (LRN) and

designed items based on Khalifa and Weir's (2009) framework for cognitive processing. Their study utilized a pool of experts to evaluate 41 test items against eight cognitive processes, employing the IOC formula adapted by Crocker and Algina (1986) for multidimensional assessments. The findings revealed varying degrees of congruence, with 38 items deemed acceptable, one removed, and two modified. This study highlights the effectiveness of IOC in validating test content and ensuring it aligns with intended skills.

Expanding on the theoretical framework, Turner and Carlson (2003)³ address the limitations of the original IOC index by proposing a mathematical extension suitable for multidimensional items. Their research acknowledges the shift towards developing items that assess multiple combinations of skills, necessitating a more flexible IOC measure. This extension is crucial for modern test development, where assessments often require a broader range of skills.

Overall, the contributions of these studies are significant in advancing the methodology of test validation through IOC.

In this paper, IOC is used to test the validity of the questionnaire. Item-Objective Congruence (IOC), or the alignment between the items and the objectives of a test, survey, or content assessment, is crucial to ensure that the materials directly relate to and accurately reflect the intended goals and terminology of the research. Here are the specific method steps for achieving IOC in detail:

(1) Define Research Objectives and Terminology

Define Key Terminology: Clearly define all key terms used in the research to ensure consistency in understanding and application among all participants. The objectives and purposes of the research is following:

Exploring the Relationship between Efficiency and Customer Satisfaction, To analyze the impact of efficiency factors, such as order processing speed and delivery times, on customer satisfaction within the context of the Hema Supermarket application. Understanding how enhancing efficiency positively influences customer satisfaction can guide Hema in optimizing its operational processes to elevate the overall customer experience.

Assessing the Influence of Customer Satisfaction on Purchase Intention, To investigate how customer satisfaction with the Hema Supermarket application translates into purchase intentions, including repeat purchases and recommendations to others. By comprehending the link between satisfaction and purchase intention, Hema can devise targeted marketing strategies to boost customer loyalty and market share.

Investigating the Role of Trust and Privacy in Customer Satisfaction, To examine the extent to which trust in the Hema Supermarket application and the effectiveness of its privacy protection measures influence customer satisfaction. Uncovering the importance of trust and privacy protection in fostering customer satisfaction informs Hema's efforts to strengthen customer trust through measures like data encryption and improved privacy policies.

Providing Empirical Support for the New Retail Model, Utilizing the Hema Supermarket application as a case study, to validate the positive effects of new

retail strategies, such as omnichannel integration and intelligent operations, on customer satisfaction and purchase intention. Offering empirical evidence for the success of the new retail model encourages innovation and development within the retail industry.

Proposing Optimization Strategies, Based on the research findings, to formulate specific recommendations for Hema Supermarket application to enhance efficiency, bolster customer trust, and safeguard customer privacy. These optimization strategies empower Hema to continuously improve its service quality, meet customer needs, and maintain a competitive edge in the market.

In summary, the research objectives aim to comprehensively analyze the key drivers of customer satisfaction and purchase intention within the Hema Supermarket application, while also contributing to the advancement of the new retail model through empirical insights and practical recommendations. Then, Begin by precisely defining the objectives and purposes of the research. This includes identifying the specific questions the research aims to answer, the expected outcomes, and the overall direction of the study.

(2) Design or Review Item/Questionnaire Content

Content Development: Based on the research objectives and terminology, design or select application appropriate items/questions for the questionnaire or test. These should be directly relevant to the research objectives and capable of accurately addressing the issues under investigation.

Question Formulation: Craft questions that are clear, concise, and unambiguous. Ensure each question aligns with the research objectives and uses the defined terminology consistently.

(3) Applicationly IOC Scoring Criteria

Develop Scoring Criteria: Establish IOC scoring criteria, typically involving three levels: +1 (congruent), 0 (questionable), and -1 (incongruent). These levels assess the degree of alignment between each item/question and the research objectives and terminology.

+1 (Congruent): Indicates full alignment with research objectives and terminology, without ambiguity or fuzziness.

0 (Questionable): Suggests unclear or questionable relationship with research objectives and terminology, requiring further review or clarification.

-1 (Incongruent): Demonstrates obvious inconsistency with research objectives and terminology, necessitating modification or removal.

Assess Each Item: applicationly the IOC scoring criteria to evaluate each item/question in the questionnaire or test. Analyze each item carefully to determine its level of alignment with the research objectives and terminology, and assign an applicationropriate score.

(4) Analyze Results and Provide Feedback

Results Summarization: Aggregate the IOC scores for all items and analyze the overall level of congruence. Identify items with lower scores (e.g., 0 or -1) that may require additional attention or modification.

Provide Feedback: Communicate the IOC assessment results to the designers or relevant personnel responsible for the items/questionnaire. For items with lower scores, offer specific suggestions or guidance for revision to ensure consistency with research objectives and terminology.

Revision and Improvement: Based on the IOC assessment and feedback, revise and improve the items/questionnaire content. Ensure all items align with research objectives and terminology, and meet the overall requirements of the study.

(5) Ongoing Monitoring and Evaluation

Continuous Monitoring: Throughout the implementation of the items/questionnaire, continuously monitor their congruence and effectiveness. Ensure that the content remains aligned with research objectives and terminology in practical applications.

Periodic Evaluation: Periodically reassess the items/questionnaire for IOC to check their ongoing alignment with research objectives and terminology. Adjust and refine the content as needed based on evaluation results.

By following these steps, i can ensure that the items/questions in my test, survey, or content assessment are consistently aligned with myr research objectives and terminology, thereby enhancing the accuracy and validity of my research.

3.4.2 Reliability

Reliability refers to the degree of consistency or stability of measurement results. Reliability refers to the degree to which, when the same object is repeatedly measured, the same result is obtained by comparing its measurement results with previous measurements. Reliability analysis is to analyze the accuracy of the questionnaire survey results, that is, to test the reliability of the questionnaire. Cronbach's Alpha coefficient is often used as an indicator to measure the reliability of questionnaires.

The development and validation of questionnaires provides a comprehensive examination of reliability estimation, particularly through the lens of Cronbach's coefficient. Malkewitz, Schwall, Meesters, and Hardt (2023) conducted a comparative analysis of Cronbach's Alpha, McDonald's ω , and the greatest lower bound, highlighting the limitations of Alpha and advocating for the use of more comprehensive reliability measures. This study underscores the importance of selecting applicationropriate reliability coefficients based on the underlying factor structure of the data.

There is also a coefficient that can be used in conjunction with Cronbach's Alpha coefficient. The coefficient can help evaluate whether the calculation of the mean conceals some irrelevant measurement items in the calculation of Cronbach's

Alpha coefficient. Different researchers have different views on the limit value of the reliability coefficient. Some scholars believe that the Cronbach α coefficient should be at least 0.8 in basic research, and the Cronbach's Alpha coefficient should be at least 0.7 in exploratory research. However, in this study, Cronbach's Alpha coefficient only needs to be more than 0.7.

3.5 Data Collection

To conduct a simple random sampling of users with at least one year's purchase experience of Freshippo application, this paper adopts the following steps and tool techniques:

Based on the above determination of the total sample size and sample size in this paper, in the process of data collection, first of all, create a sample box, build a list of all Freshippo users, and ensure that each user has a non-duplicate identification number. The sample is then taken using a computer program, that is, using a random number generator in a programming language such as Python. For example, Python's `random.sample()` function can be used directly to randomly select samples. On this basis, questionnaires can be sent directly through Freshippo application by conducting questionnaire surveys on sample users. In the process of random sampling, this paper mainly uses online tools to carry out random sampling. Input the start and end number and sample size of the total individual, and the system will automatically generate random samples. And during the sampling process, ensure that each sample unit is selected with the same probability.

In the process of data collection, it needs to be clear that direct access to the details of the user database, especially data containing user privacy, is strictly protected by law and is usually not publicly available. Therefore, the following steps will focus on legal, compliant, and generally feasible ways to obtain a sample of users for the survey.

3.5.1 Data collection channel

3.5.1.1 Cooperate with Freshippo

application for cooperation, First of all, you need to contact the official team or customer service department of Freshippo, express your desire to conduct user research, and ask if there is an opportunity for cooperation. Secondly, to submit a detailed research plan to Freshippo, including research purpose, research content, questionnaire design, data processing methods, privacy protection measures, etc., to prove the legality and compliance of the research. On this basis, Freshippo official supports random sampling in the user database according to the research needs to obtain user samples that meet specific conditions.

3.5.1.2 Use third-party research platforms

Make use of online research platforms such as Juanxing and Tencent Questionnaire, which provide rich questionnaire templates and data analysis tools, and may support collaborative access to samples from specific user groups. First, the third-party platform is informed of the survey requirements and entrusted to conduct user sampling. According to the requirements, the platform selects qualified user samples from its user database. At the same time, ensure that third-party platforms strictly

abide by relevant laws and regulations in the process of data acquisition and sampling to protect user privacy.

3.5.2 Sending Questionnaires

After obtaining the user sample, the next step is to issue the questionnaire. Here are some detailed steps and considerations:

3.5.2.1 Design the questionnaire.

Clarify the purpose of the survey, ensure that the contents of the questionnaire are closely focused on the purpose of the survey, avoid irrelevant or redundant questions, the design of the questions is concise and easy to understand, avoid the use of professional terms or vague expressions, and ensure that respondents can fill in the questionnaire smoothly. The format of the questionnaire should be clear and beautiful, easy for respondents to read and fill in. Use applicationropriate colors, fonts and typography to enhance the readability of the questionnaire, and at the same time, ensure that the questionnaire can be adapted to different devices and platforms (such as mobile phones, computers, etc.) so that respondents can easily fill out the questionnaire on any device.

3.5.2.2 Select a provisioning mode

In this paper, questionnaires are distributed in the following ways: First, email is sent to users with a link to the questionnaire, inviting them to participate in the survey. The email should include information about the background, purpose, instructions for completing the study, and incentives.

The second is social media, which publishes questionnaire links or QR codes on social media platforms to encourage users to click and fill out. At the same time, the sharing function of social media platform can be used to expand the dissemination scope of the questionnaire.

Third, in-application push, if there is a cooperative relationship with Freshippo, you can push a questionnaire notification in its application to guide users to fill in the questionnaire.

3.5.3 Monitoring and follow-up

Real-time monitoring of questionnaire filling progress and recovery to ensure that the survey is carried out as planned, preliminary screening and review of recovered questionnaires, and elimination of invalid questionnaires and abnormal data. For unfinished or incomplete questionnaires, a reminder notification can be sent via email or SMS to encourage users to complete the survey. Set up incentives (such as points, coupons, etc.) to motivate users to actively participate in the survey and carefully fill out the questionnaire. Finally, the collected data is stored in a secure and reliable database to ensure the security and integrity of the data. Classify and manage the data to facilitate subsequent data analysis and processing.

To sum up, the data collection process is a systematic and complex process, which requires the close cooperation of multiple links such as clear objectives, design tools, implementation of collection and quality control. Only in this way can we ensure that the collected data is representative, accurate and reliable, providing strong support for subsequent data analysis and decision-making.

3.6 Data Analysis

Once the data collection process was over, all the completed questionnaires were being edited, and coding was done. The data was uploaded into the SPSS software system to generate descriptive and inferential statistics. The three main purposes of data analysis were to get a feel for the data, test the goodness of data, and test the hypotheses developed for the research (Sekaran and Bougie, 2010). The feel of the data was based on physical viewing and descriptive statistics. Multiple regression analysis was done to check the relationship between the variables.

To test the proposed hypotheses, data were collected and analyzed using structural equation modeling (SEM) supported by AMOS with maximum likelihood estimation. SEM is a second-generation multivariate technique that combines multiple regressions with confirmatory factor analysis to estimate a series of interrelated dependence relationships simultaneously. SEM is a wide spread technique in several fields including marketing, psychology, social sciences and information systems. Hence, the structural equation model (SEM) is applicationlied to validate the relationship among variables in the research model. This study applicationlies Amos to perform data analyses. The measurement model is used to test the validity and reliability of items and constructs in the research model. A confirmatory factor analysis (CFA) using AMOS was conducted to test the measurement model. Seven model fit measures were employed to assess the model's overall goodness-of-fit: the ratio of X^2 to degrees-of freedom (d.f.), the goodness-of-fit index (GFI), the adjusted goodness of-fit index (AGFI), the comparative fit index (CFI), the norm fit index (NFI), the root mean square error of applicationroximation (RMSEA) and the root mean square residual (RMR).

3.6.1 Descriptive statistical analysis

Descriptive statistical analysis plays a crucial role in interpreting data across various fields of study. In the field of neuroscience, Descriptive statistics involves summarizing and organizing the data for further the analysis that can be easily understood. In this study, the preliminary data analysis using the Single variable analysis method was employed to describe the key characteristics of the observations. The distribution, the central tendency and the dispersion statistical analysis including frequency, percentage, mean, and standard deviation were used to describe the demographic information of the Chinese freshppo application respondents, who participated in the study such as gender, age, marital status, educational level, the efficiency, fulfillment, privacy of the application location, and e-satisfaction and e-trust, customer purchase intention.

Variables are normally distributed when they are at the center of a distribution and when skewness and kurtosis values are zero, the distribution is normal (Pallant, 2005). This is to ensure that AMOS' correlation analysis can be used. Finally, a univariate analysis method was used for preliminary data analysis to describe the key features of the observations. Just as Table 3.8 shows the range of mean values for the questionnaire items, respondents' response, and an interpretation of the mean values collected from the research data. In this study the variables can be interpreted from the respondents' responses on a scale of 5 from very high to very low.

In this paper, the questionnaire designed has five levels. When grading the importance of the five levels, it usually involves assigning a weight or value to each level according to its importance or influence. However, the specific scoring method and interpretation may vary according to the research background and objectives.

According to the Likert-type scale, five levels are labeled as Strongly disagree, Disagree, Neutral, Agree, strongly agree. By assigning weights, quantitative analysis is used to assign numerical weights directly to each level, and the larger the number, the stronger the agreement. For example, in a customer satisfaction survey, "Strongly agree" might indicate a key factor that significantly affects overall satisfaction, As table 3.5 shows.

Table 3.5 Mean interval and corresponding interpretation

Level	Mean Value	Weight/Interpretation
1	1.00-1.50	Strongly disagree
2	1.51-2.50	Disagree
3	2.51-3.50	Neutral
4	3.51-4.50	Agree
5	4.51-5.00	Strongly agree

3.6.2 Structural Equation Modeling (SEM)

Structural Equation Modeling, Structural equation modeling, SEM is a powerful multivariate statistical analysis technique that integrates factor analysis, path analysis, regression analysis and other methods, and can handle both measurement models (i.e. the relationship between the item and the potential variable) and structural models (i.e. the causal relationship between the potential variable). The outstanding advantage of SEM is its ability to examine the complex network of causal relationships between theoretical variables, taking into account measurement errors, resulting in a comprehensive evaluation and revision of theoretical models.

From the perspective of theory construction, SEM emphasizes a theory-driven research orientation, that is, researchers propose hypotheses about the relationship between variables according to existing theories and empirical studies, and then verify these hypotheses through SEM. This theory driven research orientation helps to promote the development and perfection of the theory, and provides more targeted guidance for practical application. At the same time, SEM also emphasizes model minimalism and interpretability, encouraging researchers to seek a balance between theory and data, both to reflect the complexity of the theory as fully as possible, but also to avoid excessive parameterization of the model and the loss of stability and interpretability.

In the process of SEM analysis, researchers should first build a hypothesis model according to the theory, and clarify the corresponding relationship between potential variables and observed variables (that is, the measurement model), and the causal relationship between potential variables (that is, the structural model). Then, the researchers need to choose appropriate Estimation methods, such as Maximum Likelihood Estimation (MLE), Generalized Least Squares (GLS), etc., to estimate the parameters of the model. By comparing the fit of the estimated model to the actual data, the researcher can judge the suitability of the model. If the model does not fit well, researchers need to adjust and optimize the model based on Modification Indices and theoretical knowledge until they have a model that meets both theoretical expectations and a good fit to the data.

3.6.3 Model fit index

In structural equation modeling (SEM), model fitting index is an important basis to evaluate the degree of agreement between the hypothesis model and the actual

data. These indicators reflect the model's fit to the data from different angles, and help researchers judge whether the model needs to be revised or rebuilt. The following is a detailed description of several commonly used fit indicators.

When evaluating the fit degree of SEM model, in addition to the Chi-square statistics, CFI, TLI, RMSEA and other indicators mentioned above, researchers also need to investigate the convergence and identification of the model. Convergence refers to whether a stable solution can be reached in the process of model estimation. If there are abnormal cases such as negative error variance and standardization coefficient greater than 1, it may indicate that the model has convergence problems. Identification refers to whether the free parameters of the model can be uniquely determined by the information in the data. If the model lacks identification, different parameter combinations may produce the same degree of fit, so that no firm conclusions can be drawn. In order to improve the recognition of the model, researchers can reduce the number of free parameters by fixing some parameters, setting parameter constraints, increasing observed variables, etc.

The cluster of literature on model fit index evaluation in structural equation modeling (SEM) and confirmatory factor analysis (CFA) presents a comprehensive overview of current methodologies and challenges in assessing model adequacy. Goretzko, Siemund, and Sterner (2023) conducted a review of CFA models in psychological research, emphasizing the critical need for rigorous model fit evaluation. They highlighted that many studies inadequately report necessary results for re-evaluation and often impose overly restrictive constraints, such as independent clusters, which can lead to questionable model fit conclusions. This study underscores the importance of developing tailored fit index cutoffs that consider both the measurement model and data characteristics.

In contrast, Wang, Xu, Wang, Tan, and Chen (2020) introduced a Corrected Goodness-of-Fit Index (CGFI) designed to address the limitations of existing indices, particularly their sensitivity to sample size and model complexity. Their simulation studies demonstrated that CGFI outperforms traditional indices like Goodness-of-Fit (GFI) and Adjusted Goodness-of-Fit Index (AGFI) in stability and sensitivity to model misspecification. This innovation suggests that CGFI could serve as a valuable supplementary tool in SEM model evaluation.

In a related study, Distefano, Maydeu-Olivares, and Lee (2021) investigate the fulfillment of standardized root mean square residual (SRMR) and comparative fit index (CFI) in models with small degrees of freedom (df). Their findings suggest that SRMR and CFI are less susceptible to the effects of df compared to the root mean square error of approximation (RMSEA). This research highlights the importance of considering df when evaluating model fit and provides evidence that SRMR and CFI may be more reliable indicators in such scenarios.

Bader and Moshagen (2022) challenged the notion of “probifactor fit index bias” by demonstrating that fit indices correctly favored the bifactor model in conditions where it aligned more closely with the data-generating model, including scenarios with added complexities. This study clarifies that the observed preferences of fit indices are not biased but reflect the model's alignment with the data structure.

Collectively, these studies contribute significantly to the field by refining methods for model fit evaluation in SEM and CFA. However, there are notable gaps and areas for future research. For instance, while Goretzko, Siemund, and Sterner (2023) advocate for tailored fit index cutoffs, the practical implementation and generalizability of such methods across diverse research contexts remain under

explored. Additionally, the impact of different estimation methods on the fulfillment of newly proposed indices, such as CGFI, could be further investigated. Future studies could also explore the integration of these new indices with machine learning techniques to enhance model selection and refinement processes.

In conclusion, the advancements in model fit indices, as discussed in these studies, offer promising directions for improving the rigor and reliability of model evaluations in psychological and behavioral research.

Chi-square statistic (χ^2) and its significance level Chi-square statistics are the most basic measure of fit, measuring the difference between a hypothetical model and the actual data. The smaller the Chi-square value is, the better the model fits the data. Conversely, the larger the Chi-square value, the greater the difference between the model and the data. However, chi-square statistics are susceptible to sample size, and the larger the sample size, even small differences can result in significant chi-square values. Therefore, researchers usually combine other indicators to comprehensively evaluate the model fit.

Comparative Fit Index (CFI) The CFI is a value added fit index that compares the fit of a hypothetical model with the base model (i.e. a zero model with completely uncorrelated variables). The value of CFI ranges from 0 to 1, with larger values indicating better model fit. In general, a CFI greater than 0.9 indicates a good fit between the model and the data, and a CFI greater than 0.95 indicates a very good fit. The advantage of CFI is that it is less affected by the sample size and can provide relatively stable estimates even in the case of small samples.

The Goodness of Fit Index (GFI) is a measure of how well a proposed model fits the observed data. It is a commonly used index in structural equation modeling (SEM) and other statistical modeling contexts. GFI is calculated by comparing the observed covariance matrix with the covariance matrix predicted by the model. The value of GFI ranges from 0 to 1, with 1 indicating a perfect fit and 0 indicating no fit at all. A GFI value close to 1 suggests a good fit, but there is no universal cutoff point. However, values above 0.90 are often considered indicative of a good fit. However, GFI is sensitive to sample size, with larger samples tending to produce higher GFI values. It does not adjust for model complexity, which can lead to overfitting with complex models.

The Normalized Fit Index (NFI) is an improvement over GFI that adjusts for model complexity by comparing the fit of the proposed model to the fit of a null model (a model with no relationships among variables). NFI is calculated as the ratio of the improvement in fit (measured by chi-square) of the proposed model over the null model, relative to the total possible improvement. Like GFI, NFI ranges from 0 to 1, with 1 indicating a perfect fit. Values close to 1 suggest a good fit, and values above 0.90 are often considered indicative of a good fit. However, NFI can still be influenced by sample size, with larger samples tending to produce higher NFI values.

Relative Fit Index (RFI), It's important to clarify that "Relative Fit Index" (RFI) is not a universally recognized term in the context of statistical modeling indices, especially when compared to GFI, NFI, TLI, and IFI. However, for the purpose of this discussion, I'll assume you're referring to a similar concept that adjusts for model complexity in a relative manner. If we consider a hypothetical "RFI" that adjusts for model complexity in a relative sense, it would likely compare the fit of the proposed model to that of alternative models, rather than just the null model. A

hypothetical RFI might be calculated by comparing the fit of the proposed model to the fit of one or more alternative models, adjusting for model complexity. Interpretation: The interpretation would depend on the specific calculation method, but generally, higher values would indicate better relative fit compared to alternative models.

Tucker-Lewis Index (TLI), The Tucker-Lewis Index (TLI), also known as the Non-Normed Fit Index (NNFI), is a fit index that adjusts for model complexity by comparing the fit of the proposed model to the fit of a null model, similar to NFI but without normalizing the chi-square statistic. TLI is calculated using the chi-square statistic and degrees of freedom, taking into account the complexity of the model. TLI ranges from 0 to 1, with 1 indicating a perfect fit. Values close to 1 suggest a good fit, and values above 0.90 are often considered indicative of a good fit. TLI is less influenced by sample size than GFI and NFI. It provides a more nuanced assessment of model fit, taking into account model complexity.

Incremental Fit Index (IFI) The Incremental Fit Index (IFI) is a fit index that adjusts for model complexity and sample size by comparing the fit of the proposed model to the fit of a null model, while also considering the penalty for model complexity. Calculation: IFI is calculated using a formula that takes into account the chi-square statistic, degrees of freedom, and other factors related to model complexity and sample size. Interpretation: Like GFI, NFI, and TLI, IFI ranges from 0 to 1, with 1 indicating a perfect fit. Values close to 1 suggest a good fit, and values above 0.90 are often considered indicative of a good fit. IFI is less influenced by sample size than GFI and NFI. It provides a more robust assessment of model fit, taking into account both model complexity and sample size.

The Tuck-Lewis Index (TLI) TLI is also a value-added fitting index, and similar to the CFI, it also compares the fit of the hypothetical model to the base model. However, TLI also takes into account the complexity of the model and penalizes the number of parameters in the model. Therefore, TLI tends to choose a more minimalist model. TLI values may range from 0 to 1, but close to 1 indicates a good model fit. In general, a TLI greater than 0.9 indicates a good fit between the model and the data.

Root Mean Square Error of applicationroximation (RMSEA) RMSEA is an absolute fit index that measures the difference between an assumed model and a perfect model (i.e. a model that perfectly matches the data). The smaller the value of RMSEA, the better the model fit. Generally speaking, RMSEA less than 0.05 indicates that the model fit is very good, less than 0.08 indicates that the model fit is acceptable, and more than 0.1 indicates that the fit is poor. The advantage of RMSEA is that it can consider the reducibility of the model, punish the complexity of the model, and provide confidence interval estimation.

In summary, each of these fit indices provides a different perspective on how well a proposed model fits the observed data, with varying degrees of sensitivity to sample size, model complexity, and other factors. Researchers often use a combination of these indices to assess model fit comprehensively. As table 3.7 shows.

Table 3.6 Model Fit Index

Model Fit index	Value	References
Chi-Square/Degree of Freedom(CMIN/DF)	<3.00	Hair et al. (2010)
Comparative fit index (CFI)	> 0.90	Kline (2010)

Table 3.6 Model Fit Index (Continued)

Model Fit index	Value	References
Goodness of fit index (GFI)	> 0.80	Schumacker and Lomax (2004)
Normalized fit index (NFI)	>0.90	Hairet al.(2010)
Relative fit index (RFI)	>0.90	Hairet al.(2010)
Tucker Lewis index (TLI)	>0.90	Bentler al.(1999)
Incremental fit index (IFI)	<0.08	Kline (2010)
Root Mean Square Error of approximation (RMSEA)	<0.08	Albert Maydeu-Olivares, and Taehun Lee (2021)

As can be seen from Table 3.7, a total of 6 factors and 40 analysis items were analyzed for confirmatory factor analysis (CFA). The effective sample size of this analysis is 400, which is more than 10 times the number of analysis items, and the sample size is moderate.

Table 3.7 Basic summary of CFA analysis

Dimension	Quantity
Efficiency	7
fulfillment	6
Privacy	3
E- satisfaction	5
E- trust	6
Purchase intention	5

Table 3.7 Basic summary of CFA analysis (Continued)

Dimension	Quantity
collect	40
Analyze the sample size	400



Chapter 4

Research Results

This paper utilizes SPSS 27.0 software to conduct mean analysis and correlation analysis on sample data covering six dimensions: Efficiency (EFF), Fulfillment (FUL), Privacy (PRI), E-Satisfaction (E-SAT), E-Trust (E-TUR), and Customer Purchase Intention (CPI). The results of the descriptive statistical analysis show that the mean values of all dimensions are above the median of 3, with Efficiency (4.19), Privacy (4.17), E-Satisfaction (4.02), Fulfillment (3.98), Customer Purchase Intention (3.85), and E-Trust (3.72) in descending order.

The standard deviations of most dimensions are close to 1, indicating a general degree of dispersion and good variable stability. The correlation analysis, using Pearson's correlation coefficient, reveals significant positive correlations among the dimensions. Specifically, Efficiency is significantly positively correlated with Fulfillment, Privacy, E-Satisfaction, E-Trust, and Customer Purchase Intention. Fulfillment is significantly positively correlated with Privacy, E-Satisfaction, E-Trust, and Customer Purchase Intention. Privacy is significantly positively correlated with E-Satisfaction, E-Trust, and Customer Purchase Intention. E-Satisfaction is significantly positively correlated with E-Trust and Customer Purchase Intention. E-Trust is significantly positively correlated with Customer Purchase Intention. These findings indicate that these dimensions mutually promote each other, playing a significant role in enhancing customer satisfaction and purchase intention.

The research content of this chapter is as follows:

- 4.1 Descriptive Statistics
- 4.2 Correlation Analysis
- 4.3 Normality Test
- 4.4 Confirmatory Factor Analysis
- 4.5 Hypothesis Testing
- 4.6 The mediating role of E-Satisfaction
- 4.7 The mediating role of E-Trust
- 4.8 General Model Test
- 4.9 Hypothesis Summary

4.1 Descriptive Statistics

In this study, we used SPSS 27.0 data analysis software to conduct a mean analysis on the sample data collected across six dimensions: Efficiency (EFF), Fulfillment (FUL), Privacy (PRI), E-Satisfaction (ESAT), E-Trust (ETRU), and Customer Purchase Intention (CPI). The analysis revealed that the average values of all dimensions exceeded the median of 3, indicating a positive evaluation across the studied sample group. Specifically, the variables were ranked from highest to lowest mean values as follows: Efficiency (EFF) (4.19), Privacy (PRI) (4.17), E-Satisfaction (ESAT) (4.02), Fulfillment (FUL) (3.98), Customer Purchase Intention (CPI) (3.85), and E-Trust (ETRU) (3.72). This ranking highlights the dimensions that consumers value most in the context of e-commerce, with efficiency and privacy protection being key factors influencing consumer satisfaction and purchase intentions.

Furthermore, from the perspective of standard deviation, we observed that the standard deviations for four dimensions were all greater than 0.8 and close to 1, indicating a moderate level of data dispersion and relatively good stability of the variables. The magnitude of standard deviation reflects the variability of the data; a smaller standard deviation implies that data points are closely distributed around the mean, while a larger standard deviation suggests that data points are more widely dispersed around the mean. In this study, the moderate standard deviations indicate a certain degree of consistency in consumer evaluations of these dimensions, yet also reveal individual differences, which may be attributed to personal preferences, usage habits, and varying expectations of e-commerce platforms among consumers.

Table 4.1 Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
EFF	421	1.00	5.00	4.19	0.78
FUL	421	1.00	5.00	3.98	0.82
PRI	421	1.00	5.00	4.17	0.85
ESAT	421	1.00	5.00	4.02	0.98
ETRU	421	1.33	5.00	3.72	0.82
CPI	421	1.00	5.00	3.85	0.90

4.1.1 Description of Basic Information of the Sample- gender

In the context of consumer behavior research, the gender distribution within the sample is of paramount importance. The sample consists of 215 males, accounting for 51.1%, and 206 females, accounting for 48.9%. This balanced gender distribution is crucial for enhancing the representativeness of the research findings. It ensures that the study encompasses consumers of both genders, shedding light on the role of

gender in consumer behavior. Gender, as one of the socio-demographic variables, significantly influences consumer needs, preferences, purchasing decisions, and brand loyalty. Therefore, a balanced gender distribution sample provides researchers with a comprehensive and balanced perspective to analyze and understand the diversity and complexity of consumer behavior.

In this papers, this balance in gender distribution can enhance the universality and applicability of the research. Researchers can leverage this advantage to delve into the behavioral patterns of different genders in specific consumption contexts and how these patterns are influenced by cultural, social, and individual factors. Moreover, a gender-balanced sample also helps researchers examine the potential impact of gender differences on consumer behavior, thus providing more precise guidance for marketing strategies and product development.

Table 4.2 Description of Basic Information of the Sample - gender

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Male	215	51.1	51.1	51.1
Female	206	48.9	48.9	100.0
Total	421	100.0	100.0	—

4.1.2 Description of Basic Information of the Sample- age

In the analysis of the age distribution of Freshippo application users, the largest group is aged 25-34, with 140 individuals accounting for 33.3% of the total sample. Following closely are users under the age of 24, with 107 individuals representing 25.4% of the total. Users aged 35-44 constitute 21.4% of the sample with

90 individuals, and those over 45 years old make up 20.0% with 84 individuals. This age distribution suggests that Freshippo application is more popular among younger to middle-aged consumers, likely due to the lifestyle and technological adaptability of these age groups, who prefer online shopping platforms to meet their daily needs.

From an academic perspective, age is an important variable in consumer behavior research, closely related to factors such as purchasing power, consumption habits, and brand preferences. Young to middle-aged groups typically have a higher acceptance of new technologies and are more willing to try new ways of shopping. They often have higher economic income and consumption capacity. These characteristics make them the primary target market for e-commerce platforms like Freshippo application. Moreover, consumers in this age range may place a greater emphasis on the convenience and efficiency of shopping, which the online shopping and rapid delivery services provided by Freshippo application perfectly satisfy.

Table 4.3 Description of Basic Information of the Sample - age

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Age 24 and under	107	25.4	25.4	25.4
25-34 years old	140	33.3	33.3	58.7
35-44 years old	90	21.4	21.4	80.0
Age 45 and older	84	20.0	20.0	100.0
Total	421	100.0	100.0	—

4.1.3 Description of Basic Information of the Sample- highest degree

In the analysis of the educational distribution of Freshippo application users, it is observed that the highest number of users possess a university degree, with 217 individuals accounting for 51.5% of the total sample. Following closely are those with an associate degree, with 135 individuals making up 32.1% of the total. Users with a master's degree or higher amount to 51 individuals, representing 12.1%, while those with a high school education consist of 18 individuals, accounting for 4.3%. Users with either a vocational high school diploma or a postgraduate degree are relatively fewer in number. This distribution suggests that Freshippo application is more popular among individuals with higher levels of education, likely due to their frequent exposure to and use of technology products, making them more inclined to utilize online shopping platforms to enhance their shopping experience.

From an academic standpoint, a user's level of education is a significant factor influencing their acceptance and frequency of use of e-commerce platforms. Users with higher education typically exhibit greater adaptability and acceptance of new technologies; they may be more familiar with online shopping processes and have higher expectations for the convenience and efficiency of online shopping. Moreover, this demographic often has more stringent requirements for product quality, brand reputation, and shopping experience, which may drive them to choose e-commerce platforms that offer high service quality and user experience. Therefore, the popularity of Freshippo application among this group not only reflects its strengths in meeting the needs of well-educated users but also indicates its potential to enhance user satisfaction and loyalty.

Table 4.4 Description of Basic Information of the Sample - highest degree

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
High school/Vocational	18	4.3	4.3	4.3
Junior college	135	32.1	32.1	36.3
University degree or equivalent	217	51.5	51.5	87.9
Master degree or above	51	12.1	12.1	100.0
Total	421	100.0	100.0	——

4.1.4 Description of Basic Information of the Sample- income

In the analysis of the income distribution of Freshippo application users, the data shows that the largest group of users has a monthly income of less than 8000 yuan, with 214 individuals accounting for 50.8% of the total. Next are those with a monthly income between 8001-12000 yuan, with 117 individuals making up 27.8% of the total. Users with a monthly income between 12001-20000 yuan amount to 73 individuals, representing 17.3%, while those with a monthly income exceeding 20001 yuan are fewer, with only 17 individuals, accounting for 4.0%. These figures reveal that the main user group of Freshippo application has a moderate income level, especially within the 8001 to 20000 yuan income range. Notably, the proportion of users with a monthly income above 8000 yuan has reached 73.2%, reflecting the platform's popularity among consumers with a certain level of economic strength.

From an academic perspective, a user's income level is a key factor influencing their consumption behavior and purchasing power. Users with a moderate income level often have a moderate sensitivity to price and focus more on the cost-

performance ratio and shopping experience of products. Freshippo application meets the needs of this user group by providing high-quality products and convenient shopping services. In addition, the moderate-income group usually has a higher acceptance of new things and is more willing to try new ways of shopping, which aligns with the new retail model of Freshippo application. Therefore, the popularity of Freshippo application among this user group not only reflects the accuracy of its market positioning but also indicates its potential to enhance user experience and satisfaction.

Table 4.5 Description of Basic Information of the Sample - income

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
8000 yuan and below	117	27.8	27.8	27.8
8001-12000 yuan	214	50.8	50.8	78.6
12001-20000 yuan	73	17.3	17.3	96.0
20001 yuan and above	17	4.0	4.0	100.0
Total	421	100.0	100.0	—

4.1.5 Description of Basic Information of the Sample- marital status

In the analysis of the marital status distribution of Freshippo application users, the unmarried group accounts for the majority, with 242 individuals representing 57.5% of the total sample. Following closely is the married group, with 131 individuals making up 31.1% of the total. The divorced group consists of 42 individuals, accounting for 10.0%, and the widowed group is the smallest, with only 6 individuals, representing 1.4%. This data reflects that Freshippo application is more

popular among unmarried users, which may be related to their preference for purchasing fresh food products through the application.

From an academic perspective, marital status is one of the significant factors influencing consumer behavior. Unmarried users typically have more free time and flexible consumption habits, and they may prefer convenient and efficient shopping methods. The online shopping and rapid delivery services provided by Freshippo application meet the needs of this user group. Moreover, unmarried users may pay more attention to personal quality of life and enjoyment, making them more likely to explore and try new products and services through online platforms, providing more market opportunities for Freshippo application.

Against the backdrop of the current social context, with the rise of the single economy, more and more businesses are beginning to focus on this market segment. The unmarried user group not only has a numerical advantage but also exhibits unique characteristics in consumer behavior. They are more likely to become active尝试者s and promoters of the new retail model, thus having a profound impact on the entire fresh food e-commerce market.

Table 4.6 Description of Basic Information of the Sample - marital status

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Married	131	31.1	31.1	31.1
Unmarried	242	57.5	57.5	88.6
Divorced	42	10.0	10.0	98.6
Widowed	6	1.4	1.4	100.0
Total	421	100.0	100.0	—

4.1.6 Descriptive of Basic Information-How long have you been using the Freshippo

In the analysis of the usage duration of Freshippo application users, the data indicates that the largest group of users has been using the application for 6-12 months, accounting for 37% of the total, which demonstrates that Freshippo has established a certain level of brand loyalty and user stickiness among its users. Furthermore, users with a usage duration of over 12 months constitute 24%, further confirming Freshippo's stability and continuous appeal among long-term users. Users with a usage duration of 3-6 months account for 23%, and those with less than 3 months account for 16%. These figures reveal the popularity and market penetration of Freshippo among different user groups, as well as the speed and adaptability with which users embrace the services offered by the platform.

From an academic perspective, the duration of mobile application usage is an essential metric for measuring product market penetration and user loyalty. The longer the usage duration, the higher the dependency and satisfaction of the users with the product. Freshippo has successfully attracted users and encouraged continuous usage by offering high-quality products and services, as well as a convenient shopping experience. Moreover, Freshippo's new retail model that integrates “dining + supermarket” and its innovation in blending online and offline scenarios are key factors in establishing a stable position among users. This model not only meets users' needs for immediate shopping but also provides a social and experiential shopping environment, increasing users' shopping pleasure and satisfaction.

Table 4.7 Descriptive of Basic Information-How long have you been using the Freshippo

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
< 3 months	67	16	16	16
3 to less than 6 months	97	23	23	39
6 to less than 12 months	16	37	37	76
12 months or more	101	24	24	100.0
Total	421	100.0	100.0	—

4.1.7 Descriptive of Basic Information-How often do you use Freshippo

In the analysis of the purchase frequency of Freshippo application users, the data shows that the largest group of users purchases 9-12 times a month, accounting for 39% of the total. This frequency indicates that Freshippo plays a significant role in the daily consumption of these users and may have become their primary choice for purchasing fresh food products. Following closely is the group that purchases 5-8 times a month, accounting for 35%, and this group also has a relatively high purchase frequency, demonstrating the appeal of Freshippo in meeting users' daily needs. Users who purchase 13 times or more a month account for 14%, while those who purchase less than 4 times a month account for 12%. These figures reveal the extent of Freshippo's popularity and market penetration among users with different purchase frequencies.

From an academic perspective, the purchase frequency of users is an essential metric for measuring the stickiness and loyalty of e-commerce platform users. Users with high purchase frequencies often have a high level of satisfaction with the platform's services and products, and their repeated purchasing behavior can bring a

stable revenue stream to the platform. Freshippo has successfully attracted users with high purchase frequencies by offering high-quality products, convenient shopping experiences, and rapid delivery services. Moreover, Freshippo's new retail model, which combines online shopping with offline experiences, provides users with a onEStop shopping solution, which may be the key to establishing high purchase frequencies among users.

In the current consumer environment, Freshippo's success lies in its deep understanding of user needs and its keen grasp of market trends. By continuously innovating and optimizing services, Freshippo not only meets users' basic needs for fresh products but also increases user stickiness and purchase frequency, thus occupying a place in the competitive fresh food e-commerce market.

Table 4.8 Descriptive of Basic Information-How often do you use Freshippo

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
4 or less times a month	51	12	12	12
5 to 8 times a month	147	35	35	47
9 to 12 times a month	164	39	39	86
13 or more times a month	59	14	14	100.0
Total	421	100.0	100.0	—

4.1.8 Descriptive of Basic Information-How much do you spend on Freshippo each month

In the analysis of the monthly expenditure of Freshippo application users, it is observed that the user consumption behavior exhibits certain distribution characteristics. As shown in table 4.9, the largest group of users spends between 1000-

2000 yuan per month on Freshippo, accounting for 36% of the total. This high proportion of the medium consumption range may reflect Freshippo's market positioning in meeting the fresh food needs of consumers with moderate consumption levels. Following closely is the group that spends between 100-1000 yuan per month, accounting for 33%, and this group may focus more on daily small-scale fresh food purchases. Users who spend less than 100 yuan per month account for 16%, while those who spend more than 2000 yuan per month account for 15%. These two extreme consumption range users are fewer but still represent certain market segments.

From an academic perspective, the monthly expenditure of consumers is an essential indicator of their purchasing power and consumption habits. The distribution of Freshippo's user monthly expenditure reveals the acceptance level and consumption capacity of different income levels and consumer preference groups for fresh e-commerce. The high proportion of medium consumption amount users indicates that Freshippo has strong market among moderate-income groups, which may match its product quality, price positioning, and service experience. At the same time, Freshippo meets the needs of users with different consumption levels by providing a variety of product choices and convenient shopping experiences, thus occupying a market share in the competitive fresh e-commerce market.

In the current consumer environment, Freshippo's success lies in its deep understanding of user needs and its keen grasp of market trends. By continuously innovating and optimizing services, Freshippo not only meets users' basic needs for fresh products but also increases user stickiness, purchase frequency, and consumption amount, thus establishing a brand advantage in the fresh e-commerce market.

Table 4.9 Descriptive of Basic Information-How much do you spend on Freshippo each month

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 100 yuan	67	16	16	12
100-1000 yuan	139	33	33	49
1000-2000 yuan	152	36	36	85
2000 yuan and above	63	15	15	100.0
Total	421	100.0	100.0	—

4.1.9 Descriptive of Basic Information-Item of Efficiency

From the perspective of the Efficiency (EFF) dimension, as shown in Table 4.10, the Efficiency (EFF) dimension is composed of six items. To ensure the accuracy and reliability of the overall research process and data analysis, this study adopts the “Likert five-point scale” for option design. The results of the questionnaire measurement are analyzed through descriptive statistics to comprehensively evaluate the performance of Freshippo's APP in terms of efficiency.

Specifically, the Likert five-point scale includes five options: “Strongly Disagree” (1 point), “Disagree” (2 points), “Neutral” (3 points), “Agree” (4 points), and “Strongly Agree” (5 points). This scoring method not only quantifies the subjective feelings of the respondents but also facilitates statistical analysis and comparison. Descriptive statistical methods are used to calculate statistical measures such as the mean, median, and standard deviation for each item, to assess the distribution and central tendency of the data.

The results are shown in Table 4.10. In the six items measuring Efficiency (EFF), all responses are above the median of 3, indicating that the answers of the respondents are within a reasonable range and have a high level of credibility. This suggests that the majority of respondents hold a neutral or positive attitude towards the efficiency of Freshippo's APP. Among them, the item "Freshippo enables me to complete a transaction quickly." (4.28) has the highest mean value, indicating that the access speed of Freshippo's APP is relatively fast and has been recognized by the majority. This result shows that Freshippo's APP performs well in terms of transaction completion speed and can meet the users' demand for efficient transactions.

Table 4.10 Descriptive of Basic Information-Item of Efficiency (EFF)

Item	Qeestion	Mean	S.D.	Level
EFF1	Freshippo makes it easy to find what I need.	4.15	0.911	Agree
EFF2	Freshippo makes it easy to get anywhere on the site.	4.26	0.841	Agree
EFF3	Freshippo enables me to complete a transaction quickly.	4.28	0.924	Agree
EFF4	Information at Freshippo is well organised.	4.16	0.958	Agree
EFF5	It loads its pages fast.	4.13	0.900	Agree
EFF6	Freshippo is simple to use.	4.14	0.991	Agree
EFF7	Freshippo enables me to get on to it quickly.	4.24	0.895	Agree

4.1.10 Descriptive of Basic Information-Item of Fulfillment

From the perspective of the Fulfillment (FUL) dimension, as shown in Table 8, the Fulfillment (FUL) dimension is composed of six items. To ensure the accuracy and reliability of the overall research process and data analysis, this study adopts the “Likert five-point scale” for option design. This scale design not only quantifies the subjective feelings of the respondents but also facilitates statistical analysis to comprehensively evaluate the performance of Freshippo's APP in terms of fulfilling commitments.

The results are shown in Table 4.11 In the six items measuring Fulfillment (FUL), all responses are above the median of 3, indicating that the answers of the respondents are within a reasonable range and have a high level of credibility. This suggests that the majority of respondents hold a neutral or positive attitude towards Freshippo's APP in terms of fulfilling commitments. Among them, the items “Freshippo has in stock the items the company claims to have.” (4.11) and “The delivery time offered to me is convenient.” (4.11) have the highest mean values, indicating that Freshippo has a large inventory of goods and offers convenient delivery times, both of which have been highly recognized by customers. This result shows that Freshippo performs well in inventory management and delivery time, meeting customers' demands for product availability and delivery convenience.

Table 4.11 Descriptive of Basic Information-Item of Fulfillment (FUL)

Item	Question	Mean	S.D.	Level
FUL1	Freshippo delivers orders when promised.	4.04	0.914	Agree
FUL2	Freshippo makes items available for delivery within a suitable time frame.	4.07	0.859	Agree
FUL3	Freshippo sends out the items ordered.	3.77	1.023	Agree
FUL4	Freshippo has in stock the items the company claims to have.	4.11	0.804	Agree
FUL5	Freshippo is truthful about its offerings.	3.74	0.988	Agree
FUL6	The delivery time offered to me is convenient.	4.11	0.804	Agree

4.1.11 Descriptive of Basic Information-Item of Privacy

From the perspective of the Privacy (PRI) dimension, as shown in Table 9, the Privacy (PRI) dimension is composed of three items. To ensure the accuracy and reliability of the overall research process and data analysis, this study adopts the “Likert five-point scale” for option design. This scale design not only quantifies the subjective feelings of the respondents but also facilitates statistical analysis to comprehensively evaluate the performance of Freshippo's APP in terms of privacy protection.

The results are shown in Table 4.12. In the three items measuring Privacy (PRI), all responses are above the median of 3, indicating that the answers of the respondents are within a reasonable range and have a high level of credibility. This suggests that the majority of respondents hold a neutral or positive attitude towards Freshippo's APP in terms of privacy protection. Among them, the item “Freshippo does not share my personal information with other sites.” (4.44) has the highest mean value, indicating that customers believe Freshippo's APP places a high value on customer privacy. This result shows that Freshippo performs well in privacy protection, meeting customers' demands for privacy security.

Table 4.12 Descriptive of Basic Information-Item of Privacy (PRI)

Item	Question	Mean	S.D.	Level
PRI1	Freshippo protects information about my web shopping behaviour.	4.04	0.904	Agree
PRI2	Freshippo does not share my personal information with other sites.	4.03	0.946	Agree
PRI3	Freshippo does not share my personal information with other sites.	4.44	0.897	Agree

4.1.12 Descriptive of Basic Information-Item of E-Satisfaction

From the perspective of the E-Satisfaction (E-SAT) dimension, as shown in Table 10, the E-Satisfaction (E-SAT) dimension is composed of five items. To ensure the accuracy and reliability of the overall research process and data analysis, this study adopts the “Likert five-point scale” for option design. This scale design not only

quantifies the subjective feelings of the respondents but also facilitates statistical analysis to comprehensively evaluate the performance of Freshippo's APP in terms of electronic satisfaction.

The results are shown in Table 4.13. In the five items measuring E-Satisfaction (E-SAT), all responses are above the median of 3, indicating that the answers of the respondents are within a reasonable range and have a high level of credibility. This suggests that the majority of respondents hold a neutral or positive attitude towards Freshippo's APP in terms of electronic satisfaction. Among them, the item “I am satisfied with the products I purchased on Freshippo.” (4.24) has the highest mean value, indicating that customers are satisfied with the online supermarket services provided by Freshippo. This result shows that Freshippo performs well in product satisfaction, meeting customers' expectations for product quality and service.

Table 4.13 Descriptive of Basic Information-Item of E-Satisfaction (E-SAT)

Item	Qeestion	Mean	S.D.	Level
ESAT1	I am satisfied with the service provided by Freshippo.	3.65	1.164	Agree
ESAT2	I am satisfied with the choice of products available at this Freshippo.	3.85	1.015	Agree
ESAT3	I am satisfied with the products I purchased on Freshippo.	4.24	1.007	Agree
ESAT4	I am satisfied with my shopping experience on Freshippo.	4.23	1.035	Agree
ESAT5	I am satisfied with my shopping through Freshippo.	4.13	1.117	Agree

4.1.13 Descriptive of Basic Information-Item of E-Trust

From the perspective of the E-Trust (E-TUR) dimension, as shown in Table 11, the E-Trust (E-TUR) dimension is composed of six items. To ensure the accuracy and reliability of the overall research process and data analysis, this study adopts the “Likert five-point scale” for option design. This scale design not only quantifies the subjective feelings of the respondents but also facilitates statistical analysis to comprehensively evaluate the performance of Freshippo's APP in terms of electronic trust.

The results are shown in Table 4.14. In the six items measuring E-Trust (E-TUR), all responses are above the median of 3, indicating that the answers of the respondents are within a reasonable range and have a high level of credibility. This suggests that the majority of respondents hold a neutral or positive attitude towards Freshippo's APP in terms of electronic trust. Among them, the item “I feel safe when I conduct a transaction with Freshippo.” (3.91) has the highest mean value, indicating that customers believe Freshippo's APP has a secure online transaction environment. This result shows that Freshippo performs well in terms of network security and trust building, meeting customers' demands for transaction security.

Table 4.14 Descriptive of Basic Information-Item of E-Trust (E-TUR)

Item	Question	Mean	S.D.	Level
ETRU1	I feel that I can trust Freshippo.	3.61	1.015	Agree
ETRU2	I feel safe when I conduct a transaction with Freshippo.	3.91	0.906	Agree
ETRU3	I feel safe when performing monetary transactions through	3.55	0.995	Agree

Table 4.14 Descriptive of Basic Information-Item of E-Trust (E-TUR) (Continued)

Item	Qeestion	Mean	S.D.	Level
	Freshippo.			
ETRU4	I am concerned with the payment security aspects of Freshippo.	3.83	0.946	Agree
ETRU5	I am concerned with the privacy of my information provided when using Freshippo.	3.69	1.108	Agree
ETRU6	I am concerned with the punctuality of the delivery time of Freshippo.	3.72	1.035	Agree

4.1.14 Descriptive of Basic Information-Item of Customer Purchase Intention (CPI)

From the perspective of the Customer Purchase Intention (CPI) dimension, as shown in Table 12, the Customer Purchase Intention (CPI) dimension is composed of five items. To ensure the accuracy and reliability of the overall research process and data analysis, this study adopts the “Likert five-point scale” for option design. This scale design not only quantifies the subjective feelings of the respondents but also facilitates statistical analysis to comprehensively evaluate the performance of Freshippo's APP in terms of customer purchase intention.

The results are shown in Table 4.15. In the five items measuring Customer Purchase Intention (CPI), all responses are above the median of 3, indicating that the answers of the respondents are within a reasonable range and have a high level of credibility. This suggests that the majority of respondents hold a neutral or positive

attitude towards Freshippo's APP in terms of customer purchase intention. Among them, the item “It is likely that I will continue purchasing products from the Freshippo shopping mall in the future.” (4.12) has the highest mean value, indicating that customers have a high level of satisfaction with Freshippo and a strong intention to continue purchasing. This result shows that Freshippo performs well in terms of customer satisfaction and loyalty, effectively promoting continuous purchasing behavior.

Table 4.15 Descriptive of Basic Information-Item of Customer Purchase Intention (CPI)

Item	Question	Mean	S.D.	Level
CPI1	If I could, I would like to continue using Freshippo shopping mall to purchase products.	3.75	1.093	Agree
CPI2	I plan to continue using the Freshippo shopping mall to purchase products in the future.	3.75	1.017	Agree
CPI3	It is likely that I will continue purchasing products from the Freshippo shopping mall in the future.	4.12	1.065	Agree
CPI4	I intend to use Freshippo when the service becomes widely available.	3.77	1.051	Agree
CPI5	Whenever possible, I intend to use Freshippo to purchase groceries.	3.55	1.084	Agree

4.2 Correlation Analysis

In this study, we employed SPSS 27.0 software for data analysis, particularly conducting a correlation analysis on the six dimensions of Efficiency (EFF),

Fulfillment (FUL), Privacy (PRI), E-Satisfaction (ESAT), E-Trust (ETRU), and Customer Purchase Intention (CPI). Correlation analysis is a statistical method used to assess the degree of association between two or more variables, thereby revealing the closeness of their relationships. In this paper, we primarily utilized Pearson Correlation Analysis, a method for measuring the strength and direction of the linear relationship between two continuous variables.

Through correlation analysis, we can quantify the degree of association between different variables, using the Pearson Correlation Coefficient to represent the strength of this relationship. The value of the Pearson Correlation Coefficient ranges from -1 to 1, where 1 indicates a perfect positive correlation, -1 indicates a perfect negative correlation, and 0 indicates no linear correlation.

In the analysis results of Table 4.6, we can observe the correlation between EFF, FUL, PRI, ESAT, ETRU, and CPI. Specifically, the Pearson Correlation Coefficient can reveal whether there is a linear relationship between these variables and the strength of this relationship.

For instance, if we find a high positive Pearson correlation coefficient between EFF and CPI, it suggests that as efficiency (EFF) increases, customer purchase intention (CPI) also tends to increase, indicating a positive linear relationship between the two. Conversely, if the correlation coefficient between PRI and CPI is negative, this may imply a trade-off relationship between the privacy (PRI) and customer purchase intention (CPI), where customers may reduce their purchasing behavior due to high privacy requirements.

Such analysis not only allows us to identify which variables significantly influence customer purchase intentions but also to understand the complexity of the interactions between these variables. This is of great significance for understanding consumer behavior, optimizing customer experience, and formulating effective marketing strategies.

Table 4.16 Correlations analysis

Item	EFF	FUL	PRI	ESAT	ETRU	CPI
EFF	1.000					
FUL	0.379**	1.000				
PRI	0.397**	0.494**	1.000			
ESAT	0.249**	0.406**	0.317**	1.000		
ETRU	0.301**	0.540**	0.407**	0.338**	1.000	
CPI	0.317**	0.387**	0.328**	0.256**	0.374**	1.000

Note: **. Correlation is significant at the 0.01 level (2-tailed).

These findings suggest that there is a significant positive correlation between efficiency and various other factors such as fulfillment, privacy, E-Satisfaction, E-Trust, and customer purchase intention. The fulfillment is also significantly correlated with privacy, E-Satisfaction, E-Trust, and customer purchase intention. Privacy shows significant correlations with E-Satisfaction, E-Trust, and customer purchase intention. Additionally, E-Satisfaction is significantly correlated with E-Trust and customer purchase intention, and E-Trust is significantly correlated with customer purchase intention.

The results of this study provide valuable insights into the relationships between different variables that influence consumer behavior in the context of e-commerce platforms like Freshippo. By understanding these correlations, businesses

can tailor their services to enhance user satisfaction and trust, ultimately driving customer purchase intentions and loyalty. These findings are crucial for developing effective marketing strategies and improving the overall user experience in the competitive e-commerce landscape.

4.3 Normality Test

Before conducting a Structural Equation Modeling (SEM) analysis, two important preconditions must be met. Firstly, the sample size needs to be sufficiently large to ensure the stability and reliability of the analysis results. According to the consensus in the academic community, the sample size for SEM analysis should be greater than 200 . In this study, the sample size is 421, which meets the requirement for conducting SEM analysis. Secondly, the data should conform to a normal distribution, as many statistical tests in SEM analysis are based on the assumption of data normality. To verify whether the data conforms to a normal distribution, this study calculated the mean, standard deviation, skewness, and kurtosis for each item. According to the analysis results, the skewness and kurtosis values for all items are below 3, indicating that the data roughly conforms to a normal distribution , and therefore, the SEM analysis can be conducted in the AMOS software.

Table 4.17 Skew Index and Kurtosis Index

Items	Mean	Std. Deviation	Skewness	Kurtosis
EFF1	4.15	0.91	-1.35	2.14
EFF2	4.26	0.84	-1.34	2.53
EFF3	4.28	0.92	-1.49	2.31
EFF4	4.16	0.96	-1.43	2.12
EFF5	4.13	0.90	-1.16	1.70
EFF6	4.14	0.99	-1.33	1.70
EFF7	4.24	0.90	-1.45	2.44
FUL1	4.04	0.91	-1.31	2.20
FUL2	4.07	0.86	-1.27	2.58
FUL3	3.77	1.02	-0.81	0.39
FUL4	4.11	0.80	-1.42	1.55
FUL5	3.74	0.99	-0.66	0.45
FUL6	4.11	0.80	-1.42	1.55
PRI1	4.04	0.90	-1.17	1.82
PRI2	4.03	0.95	-1.12	1.46
PRI3	4.44	0.90	-2.14	1.02
ESAT1	3.65	1.16	-0.86	-0.01
ESAT2	3.85	1.02	-1.07	1.10
ESAT3	4.24	1.01	-1.53	2.13
ESAT4	4.23	1.04	-1.50	1.84
ESAT5	4.13	1.12	-1.37	1.19
ETRU1	3.61	1.02	-0.50	-0.22
ETRU2	3.91	0.91	-0.66	0.11
ETRU3	3.55	1.00	-0.51	-0.24

Table 4.17 Skew Index and Kurtosis Index (Continued)

Items	Mean	Std. Deviation	Skewness	Kurtosis
ETRU4	3.83	0.95	-0.71	0.33
ETRU5	3.69	1.11	-0.52	-0.63
ETRU6	3.72	1.04	-0.56	-0.39
CPI1	3.75	1.09	-1.05	0.51
CPI2	3.75	1.02	-0.83	0.42
CPI3	4.12	1.07	-1.30	1.03
CPI4	3.77	1.05	-0.93	0.61
CPI5	3.84	1.04	-0.92	0.67

The value range of the skewness index (SI) is usually between $[-3, 3]$ to describe the symmetry of the data distribution. Positive skewness means that the data is skewed to the right (long tail on the right), negative skewness means that the data is skewed to the left (long tail on the left), and zero skewness means that the data is distributed symmetrically. In the financial field, the skewness of the rETRUn on assets usually falls within the range $[-3, 3]$. Research shows that stock rETRUn usually show negative skewness, indicating a high probability of extreme negative rETRUn (Harvey & Siddique, 2000).

The value range of the kurtosis index (KI) is usually between $[-3, 3]$ and is used to describe the tail thickness and peak sharpness of the data distribution. High peaks indicate that the data distribution has thicker tails and sharper peaks, while low kurtosis indicates a flatter data distribution. In the financial field, the kurtosis of asset rETRUn usually falls within the range $[-3, 3]$. Peak degree indicates a high probability

of extreme gain or loss, which has important implications for risk management (Mandelbrot, 1963).

The normal distribution test results presented in Table 4.17 indicate that the skewness index (SI) for all variables ranges from -2.14 to 0.5, and the kurtosis index (KI) ranges from -0.63 to 2.58. According to previous research, values of skewness and kurtosis within the range of -3 to 3 suggest that the data is approximately normally distributed and thus acceptable for SEM analysis. Given that the sample size for this study is 421, which exceeds the recommended minimum of 200 for conducting SEM analysis, and considering the normal distribution of the data as evidenced by the skewness and kurtosis indices, this study meets the criteria to perform AMOS analysis.

4.4 Confirmatory Factor Analysis

Structural validity was assessed in this study through Confirmatory Factor Analysis (CFA), a statistical technique used to verify whether a set of measured variables sufficiently represents a theoretical construct. We analyzed six latent variables: Efficiency, fulfillment, Privacy, E-Satisfaction, E-Trust, and Customer Purchase Intention.

Prior to conducting CFA, it is crucial to ensure that the data meets two key conditions: a sufficiently large sample size and approximately normally distributed data. According to scholarly recommendations, the sample size for SEM analysis should exceed 200 . With a sample size of 421 in this study, this requirement is met. Additionally, we calculated the mean, standard deviation, skewness, and kurtosis for each item to test the normality of the data. The values of the Skewness Index (SI) and

Kurtosis Index (KI) all fall within the range of -3 to 3, indicating that the data is approximately normally distributed and acceptable for SEM analysis

Our analysis results, as shown in Tables 4.18-4.20 provide an in-depth understanding of the relationships between the latent variables. The CFA conducted with AMOS software reveals the strength and direction of these relationships, thereby validating the structural validity of the research model. This analysis is essential for ensuring that our research findings are theoretically grounded and empirically supported.

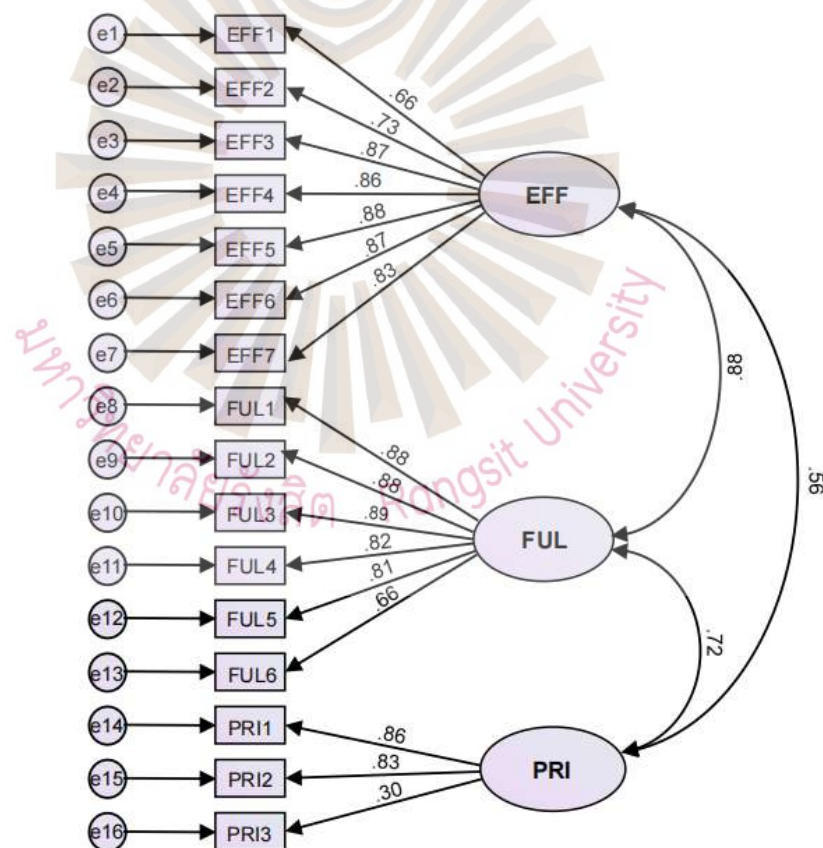


Figure 4.1 Confirmatory Factor Analysis of the Three Dimensions
of the Independent Variable

Structural validity was assessed in this study through Confirmatory Factor Analysis (CFA), a statistical technique used to verify whether a set of measured variables sufficiently represents a theoretical construct. The analysis focused on six latent variables: Efficiency (EFF), fulfillment (FUL), Privacy (PRI), E-Satisfaction (ESAT), E-Trust (ETRU), and Customer Purchase Intention (CPI).

Observations from Figure 4.4 indicate the following factor loadings for each observed variable: Efficiency (EFF1-EFF7) ranges from 0.66 to 0.88, fulfillment (FUL1-FUL6) ranges from 0.66 to 0.89, and Privacy (PRI1-PRI3) ranges from 0.64 to 0.87. Factor loadings are indicators of the strength and direction of the relationship between observed variables and their respective latent variables, typically ranging from 0 to 1, with higher values indicating a stronger relationship. In this study, all observed variables had factor loadings greater than 0.3, suggesting a significant relationship with their corresponding latent variables, and thus, no observed variables were removed due to low factor loadings.

The significance of factor loadings is often measured by the P-value, with a P-value less than 0.05 being considered statistically significant. In this study, all observed variables of the latent variables had significant factor loadings, providing a solid foundation for further SEM analysis. These results indicate that the selected measured variables can effectively reflect their respective latent variables, thereby supporting the structural validity of the research model.

Table 4.18 Fitting results confirmatory factor analysis Table

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2/df	<3.00	2.80	Pass
RMSEA	<0.08	0.04	Pass
GFI	>0.90	0.93	Pass
NFI	>0.90	0.91	Pass
RFI	>0.90	0.91	Pass
IFI	>0.90	0.93	Pass
TLI	>0.90	0.92	Pass
CFI	>0.90	0.93	Pass

In this study, we employed Confirmatory Factor Analysis (CFA) to assess the structural validity, which is a statistical method used to evaluate whether a set of observed variables sufficiently represents theoretical constructs. Through CFA, we can validate the measurement model of six latent variables: Efficiency (EFF), fulfillment (FUL), Privacy (PRI), E-Satisfaction (ESAT), E-Trust (ETRU), and Customer Purchase Intention (CPI).

According to the CFA fit results provided in Table 4.18, the following fit indices were observed: the chi-square to degrees of freedom ratio (X^2/df) is 2.80, the Root Mean Square Error of approximation (RMSEA) is 0.04, the Goodness of Fit Index (GFI) is 0.93, the Normed Fit Index (NFI) is 0.91, the Relative Fit Index (RFI) is 0.91, the Incremental Fit Index (IFI) is 0.93, the Tucker-Lewis Index (TLI) is 0.92, and the Comparative Fit Index (CFI) is 0.93. These fit indices all met or exceeded the

widely accepted standards, indicating a good fit between the data and the model, further confirming the validity of the latent variable construction.

Among these indices, a chi-square to degrees of freedom ratio less than 3, an RMSEA value less than 0.08 indicates a good fit, and indices such as GFI, NFI, RFI, IFI, TLI, and CFI should approach or be greater than 0.90, indicating a good fit between the model and the data. In this study, all these indices exceeded these standards, thus supporting the validity of the latent variable structure.

Table 4.19 Results of factor load coefficient

Factor	Items	S.D.	Z(CR)	P	Standardized coefficient	AVE	CR
EFF	EFF1	-	-	-	0.74	0.72	0.95
EFF	EFF7	0.08	15.18	0.00	0.87		
EFF	EFF2	0.08	13.67	0.00	0.86		
EFF	EFF3	0.08	15.72	0.00	0.89		
EFF	EFF4	0.08	15.69	0.00	0.87		
EFF	EFF5	0.08	15.98	0.00	0.88		
EFF	EFF6	0.08	15.74	0.00	0.88		
FUL	FUL1	-	-	-	0.89	0.78	0.96
FUL	FUL2	0.04	25.56	0.00	0.82		
FUL	FUL3	0.04	26.03	0.00	0.81		
FUL	FUL4	0.04	22.31	0.00	0.66		
FUL	FUL5	0.04	21.81	0.00	0.87		
FUL	FUL6	0.05	15.60	0.00	0.82		
PRI	PRI1	-	-	-	0.64	0.70	0.90
PRI	PRI2	0.05	18.07	0.00	0.66		

Table 4.19 Results of factor load coefficient (Continued)

Factor	Items	S.D.	Z(CR)	P	Standardized coefficient	AVE	CR
PRI	PRI3	0.05	13.70	0.00	0.83		

Note: AVE is Average Variance Extracted, CR is Composite Reliability, S.D. is standard deviation

In the analysis results presented in Table 4.19, the structural validity of the questionnaire can be assessed. In the Confirmatory Factor Analysis (CFA), the standardized loading coefficients for all variables are greater than 0.6, indicating a strong association between observed and latent variables. Specifically, the Average Variance Extracted (AVE) value for Efficiency (EFF) is 0.72, and the Composite Reliability (CR) value is 0.95; the AVE value for fulfillment (FUL) is 0.78, and the CR value is 0.96; the AVE value for Privacy (PRI) is 0.70, and the CR value is 0.90. The AVE values are greater than 0.5, and the CR values are greater than 0.7, indicating good convergent validity and internal consistency reliability, thus supporting the structural validity of the questionnaire.

The AVE value measures the portion of the latent variable's variance that is commonly explained by the observed variables, reflecting the convergent validity of the latent variable. The CR value is the sum of the squared loadings of the latent variable divided by (1 plus the sum of the squared loadings), providing an indicator of internal consistency reliability. According to Fornell and Larcker (1981), the AVE value should be greater than 0.5, and the CR value should be greater than 0.7 to ensure good convergent validity and internal consistency reliability. In this study, all variables' AVE and CR values exceeded these standards, thereby validating the structural validity of the questionnaire.

Table 4.20 Fitting results confirmatory factor analysis

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2/df	<3.00	2.63	Yes
RMSEA	<0.08	0.04	Yes
GFI	>0.90	0.95	Yes
NFI	>0.90	0.93	Yes
RFI	>0.90	0.91	Yes
IFI	>0.90	0.94	Yes
TLI	>0.90	0.92	Yes
CFI	>0.90	0.94	Yes

In the analysis results presented in Table 4.20, the structural validity of the questionnaire can be assessed. The fit indices from the Confirmatory Factor Analysis (CFA) include a chi-square to degrees of freedom ratio (X^2/df) of 2.63, Root Mean Square Error of approximation (RMSEA) of 0.04, Goodness of Fit Index (GFI) of 0.95, Normed Fit Index (NFI) of 0.93, Relative Fit Index (RFI) of 0.91, Incremental Fit Index (IFI) of 0.94, Tucker-Lewis Index (TLI) of 0.92, and Comparative Fit Index (CFI) of 0.94. These indices all exceed the widely accepted standards, indicating a good fit between the data and the model, and further confirming the structural validity of the questionnaire.

Table 4.21 Results of factor load coefficient

Factor	Items	S.D.	Z(CR)	P	Standardized coefficient	AVE	CR
ESAT	ESAT1				0.78	0.71	0.96
ESAT	ESAT2	0.06	15.65	0.00	0.87		
ESAT	ESAT3	0.07	17.46	0.00	0.86		

Table 4.21 Results of factor load coefficient (Continued)

Factor	Items	S.D.	Z(CR)	P	Standardized coefficient	AVE	CR
ESAT	ESAT4	0.06	17.34	0.00	0.84		
ESAT	ESAT5	0.06	16.98	0.00	0.59		
ETRU	ETRU1				0.81	0.73	0.92
ETRU	ETRU2	0.11	12.62	0.00	0.87		
ETRU	ETRU3	0.12	13.18	0.00	0.73		
ETRU	ETRU4	0.12	13.19	0.00	0.87		
ETRU	ETRU5	0.12	11.81	0.00	0.73		
ETRU	ETRU6	0.12	11.67	0.00	0.72		

In the analysis results presented in Table 4.21, the structural validity of the questionnaire can be assessed. In the Confirmatory Factor Analysis (CFA), the standardized loading coefficients for all variables are greater than 0.6, indicating a strong association between observed and latent variables. Specifically, the Average Variance Extracted (AVE) value for electronic satisfaction (ESAT) is 0.71, and the Composite Reliability (CR) value is 0.96; the AVE value for electronic trust (ETRU) is 0.73, and the CR value is 0.92. These indicators all exceed the widely accepted standards, with AVE values greater than 0.5 and CR values greater than 0.7, indicating good convergent validity and internal consistency reliability, thus supporting the structural validity of the questionnaire.

The AVE value measures the portion of the latent variable's variance that is commonly explained by the observed variables, reflecting the convergent validity of the latent variable. The CR value is the sum of the squared loadings of the latent variable divided by (1 plus the sum of the squared loadings), providing an indicator of

internal consistency reliability. According to Fornell and Larcker (1981), the AVE value should be greater than 0.5, and the CR value should be greater than 0.7 to ensure good convergent validity and internal consistency reliability. In this study, all variables' AVE and CR values exceeded these standards, thereby validating the structural validity of the questionnaire.

Table 4.22 Fitting results confirmatory factor analysis

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X ² /df	<3.00	2.45	Pass
RMSEA	<0.08	0.04	Pass
GFI	>0.90	0.93	Pass
NFI	>0.90	0.91	Pass
RFI	>0.90	0.92	Pass
IFI	>0.90	0.92	Pass
TLI	>0.90	0.96	Pass
CFI	>0.90	0.94	Pass

Confirmatory Factor Analysis (CFA) is a statistical technique used to test whether a specific factor structure can reasonably represent observed data. When conducting CFA, researchers typically pay attention to several key fit indices to assess the degree of fit between the model and the data. These indices include the ratio of chi-square value to degrees of freedom (X²/df), Root Mean Square Error of approximation (RMSEA), Goodness of Fit Index (GFI), Normed Fit Index (NFI), Relative Fit Index (RFI), Comparative Fit Index (CFI), Incremental Fit Index (IFI), and Tucker-Lewis Index (TLI), among others.

In this study, Table 4.22 presents the fit results of CFA. The X^2/df value is 2.45, indicating that the ratio of the model's chi-square value to degrees of freedom is moderate, and it is generally considered acceptable when this ratio is below 3. The RMSEA value is 0.04, far below the common standard of 0.08, indicating that there is almost no error between the model and the data. The GFI value is 0.93, close to 1, indicating that the model explains most of the variance. The NFI value is 0.91, the RFI value is 0.92, and the IFI value is 0.92; these values all exceed the benchmark of 0.90, indicating that the model's fit is superior to that of a baseline model. The TLI value is 0.96, and the CFI value is 0.94; both of these values exceed the threshold of 0.90, further confirming that the model's fit is good.

In summary, these fit indices indicate that the proposed factor structure highly matches the observed data, providing strong statistical support for the research hypotheses. Future research can further explore the applicability of this factor structure in different populations or contexts, or consider introducing additional variables to enhance the model's explanatory power.

Table 4.23 Results of factor load coefficient

Factor	Items	S.D.	Z(CR)	P	Standardized coefficient	AVE	CR
CPI	CPI1				0.76	0.76	0.95
CPI	CPI2	0.07	14.95	0.00	0.93		
CPI	CPI3	0.08	17.88	0.00	0.81		
CPI	CPI4	0.08	15.96	0.00	0.72		
CPI	CPI5	0.08	14.19	0.00	0.71		

According to the analysis results of Table 4.23, it can be observed that the standardized loading coefficients of all variables are greater than 0.6, indicating a high level of consistency among these variables in measuring their corresponding constructs. The AVE (Average Variance Extracted) value for customer purchase intention is 0.76, and the CR (Composite Reliability) value is 0.95. Both the AVE value greater than 0.5 and the CR value greater than 0.7 exceed the standards generally accepted in the academic community, thus indicating that the questionnaire has good validity.

4.5 Hypothesis Testing

Structural Equation Modeling (SEM) is a multivariate statistical analysis technique that allows researchers to estimate complex relationships between multiple variables simultaneously, including direct effects, indirect effects, and the impact of latent variables. In this study, the theoretical model was tested using SEM to verify whether the relationships between variables in the model are consistent with the actual data.

According to the analysis results of Table 4.24, all variables have standardized loading coefficients greater than 0.6, indicating a high level of consistency between these variables and their corresponding latent variables. The average variance extracted (AVE) for customer purchase intention is 0.76, and the composite reliability (CR) value is 0.95. The AVE value is greater than 0.5, and the CR value is greater than 0.7; these indicators have exceeded the standards generally accepted in the academic community, thus indicating that the questionnaire has good validity. A high AVE value means that the latent variable has a strong explanatory

power over the observed variables, while a high CR value indicates that the items in the questionnaire have high reliability in measuring the latent variable.

In addition, the SEM test also includes an overall assessment of the model's fit. In this study, the structural equation model was evaluated using Amos software, and a series of fit indices were obtained, such as chi-square value (χ^2), chi-square to degrees of freedom ratio (χ^2/df), root mean square error of approximation (RMSEA), comparative fit index (CFI), incremental fit index (IFI), and Tucker-Lewis index (TLI). These indices collectively reflect the degree of fit between the model and the data, with an ideal χ^2/df ratio of less than 3, RMSEA value less than 0.08, and CFI, IFI, and TLI values all greater than 0.9, indicating a good fit between the model and the data.

The test results are shown in Tables 4.18-4.25 and Figures 4.2-4.5, which detail the standardized estimated coefficients, significance levels, and overall model fit of each path in the model. Through these results, researchers can further interpret and apply the model, such as exploring the impact of different marketing strategies on customer purchase intention or analyzing how different personal characteristics affect purchase decisions through mediating variables.

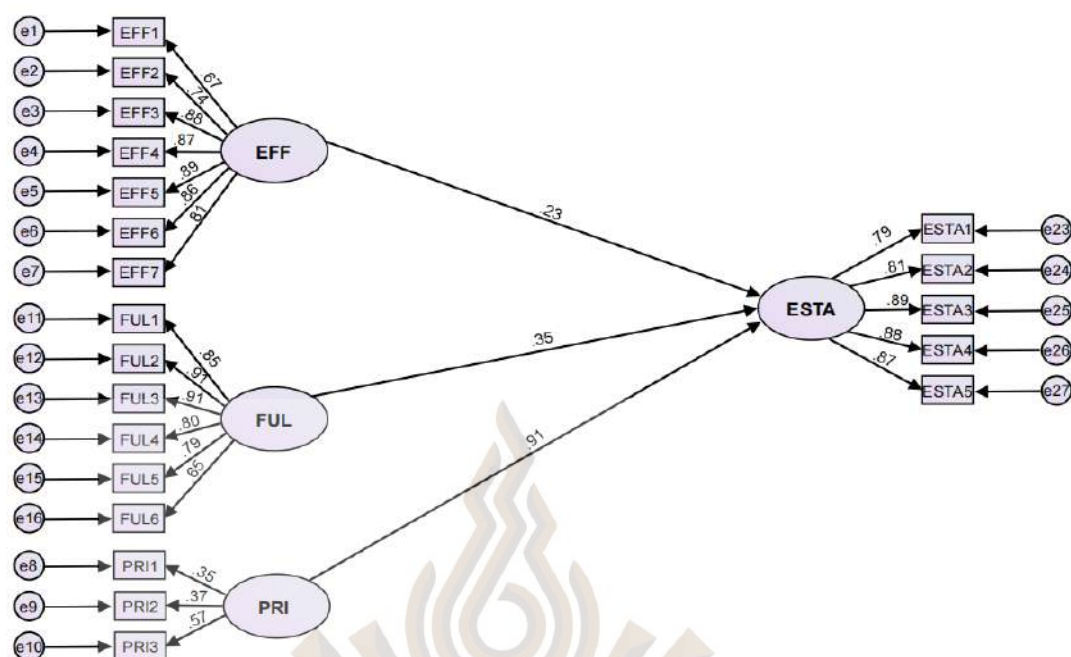


Figure 4.2 Model of the intermediary path of E-Satisfaction

Table 4.24 Fitting results confirmatory factor analysis Table

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2	-	2245.371	-
df	-	813.54	-
X^2/df	≤ 3.00	2.76	Pass
RMSEA	< 0.08	0.03	Pass
GFI	> 0.90	0.95	Pass
NFI	> 0.90	0.94	Pass
RFI	> 0.90	0.96	Pass
IFI	> 0.90	0.92	Pass
TLI	> 0.90	0.91	Pass
CFI	> 0.90	0.92	Pass

Confirmatory Factor Analysis (CFA) is a vital statistical method used to verify whether the factor structure derived from theory can adequately reflect the actual observed data. According to the CFA fit results in Table 4.10, we can see the following indices: the fit index X^2/df is 2.76, RMSEA is 0.03, GFI is 0.95, NFI is 0.94, RFI is 0.96, IFI is 0.92, TLI is 0.91, and CFI is 0.92. These indices all exceed common acceptance standards, indicating a good fit between the model and the data.

Specifically, an X^2/df value less than 3 is often considered a good fit, and the value in this study is 2.76, indicating that the model is not overly complex. The RMSEA value of 0.03 is far below the common standard of 0.08, indicating almost no error between the model and the data. The GFI value of 0.95 and the NFI value of 0.94 are close to 1, indicating that the model explains most of the variance and exceed the benchmark of 0.90. The RFI and IFI values, 0.96 and 0.92 respectively, also exceed the threshold of 0.90, further confirming the model's fit. The TLI value of 0.91 and the CFI value of 0.92, while slightly below the strict standard of 0.95, are still within an acceptable range, indicating that the model's fit is good.

Table 4.25 The intermediary path of E-Satisfaction

	Path		β	S.D.	C.R.	P
ESAT	<---	EFF	0.39	0.13	2.76	<0.01
ESAT	<---	FUL	0.16	0.10	1.89	<0.01
ESAT	<---	PRI	0.21	0.06	2.31	<0.01

In academic papers, the analysis results of the Structural Equation Modeling (SEM) usually involve discussing the impact intensity and direction of each

component of the model on the research constructs. According to the analysis results shown in Table 4.25, we can conclude the following:

Efficiency ($\beta=0.39$, $P<0.05$) has a significant impact on electronic satisfaction, indicating that the efficiency of the system is an important predictor of user satisfaction in the context of using online supermarket applications. This result supports Hypothesis H1a, that efficiency significantly affects the electronic satisfaction of online supermarket applications.

In this papers, when hypothesis H1a is proposed and validated, that efficiency significantly and positively affects the electronic satisfaction of online supermarket applications, it indicates that the efficiency of the application is a key factor in user satisfaction. The significant positive impact of efficiency ($\beta=0.39$, $P<0.05$) means that the more efficient the user's experience in completing the shopping process in the application, the higher their satisfaction with the application. This result supports Hypothesis H1a and provides important guidance for the design and optimization of online supermarket applications.

The impact of efficiency may involve various aspects such as the application's response speed, transaction processing capabilities, and the convenience of users completing tasks. These factors work together to form the user's overall perception of the application's efficiency. In the digital age, users have higher expectations for immediate satisfaction and efficiency, so the efficiency of the application has become key to meeting these expectations. Furthermore, this finding also suggests that developers of online supermarket applications need to continuously optimize the application's performance to ensure that users can enjoy a seamless and efficient experience during the shopping process. This may include reducing page load

times, simplifying the shopping cart and checkout process, providing intuitive search and filtering functions, etc. Through these improvements, user satisfaction can be further enhanced, thereby increasing user loyalty and the likelihood of repeat purchases.

Fulfillment ($\beta=0.16$, $P<0.05$) also significantly impacts electronic satisfaction, which may mean that users have clear expectations for the fulfillment capabilities of the application, and when these expectations are met, user satisfaction increases, thus supporting Hypothesis H1b, that fulfillment significantly affects the electronic satisfaction of online supermarket applications.

In this papers, when hypothesis H1b is proposed and validated, that fulfillment significantly and positively affects the electronic satisfaction of online supermarket applications, it indicates that the efficiency of the application and the ease with which users can complete tasks are one of the key factors in user satisfaction. The significant positive impact of fulfillment ($\beta=0.16$, $P<0.05$) means that the smoother the user's experience in completing the shopping process in the application, the higher their satisfaction with the application. This result supports Hypothesis H1b and provides important guidance for the design and optimization of online supermarket applications. From a broader perspective, the impact of fulfillment may involve various aspects such as the application's response speed, the intuitiveness of navigation, the convenience of the payment process, and more. These factors work together to form the user's overall perception of the application's fulfillment. In the digital age, users have higher expectations for immediate satisfaction and efficiency, so the fulfillment of the application has become key to meeting the fulfillment. Furthermore, this finding also suggests that developers of online supermarket applications need to continuously optimize the application's performance to ensure that

users can enjoy a seamless and efficient experience during the shopping process. This may include reducing page load times, simplifying the shopping cart and checkout process, providing intuitive search and filtering functions, etc. Through these improvements, user satisfaction can be further enhanced, thereby increasing user loyalty and the likelihood of repeat purchases.

Privacy ($\beta=0.21$, $P<0.05$) significantly and positively affects electronic satisfaction as well, indicating that users' high concern for privacy protection is another key factor affecting their satisfaction with online supermarket applications, confirming Hypothesis H1c, that Privacy significantly affects the electronic satisfaction of online supermarket applications is established.

In this papers, when Hypothesis H1c is proposed and found to be valid, it means that privacy is an important factor affecting the electronic satisfaction of online supermarket applications. Specifically, the significant positive impact of privacy ($\beta=0.21$, $P<0.05$) indicates that users place a high value on personal data and privacy protection when using online supermarket applications. When the application can provide effective privacy protection measures to ensure the security of user information, user satisfaction will be significantly improved. This finding emphasizes the importance of privacy in the field of e-commerce, especially against the backdrop of rapid digital and information development. Users are increasingly concerned about their privacy rights and show a high level of sensitivity to how applications handle their personal data. Therefore, developers and operators of online supermarket applications need to recognize that strengthening privacy protection is not only a requirement of laws and regulations but also a key strategy to enhance user experience and satisfaction.

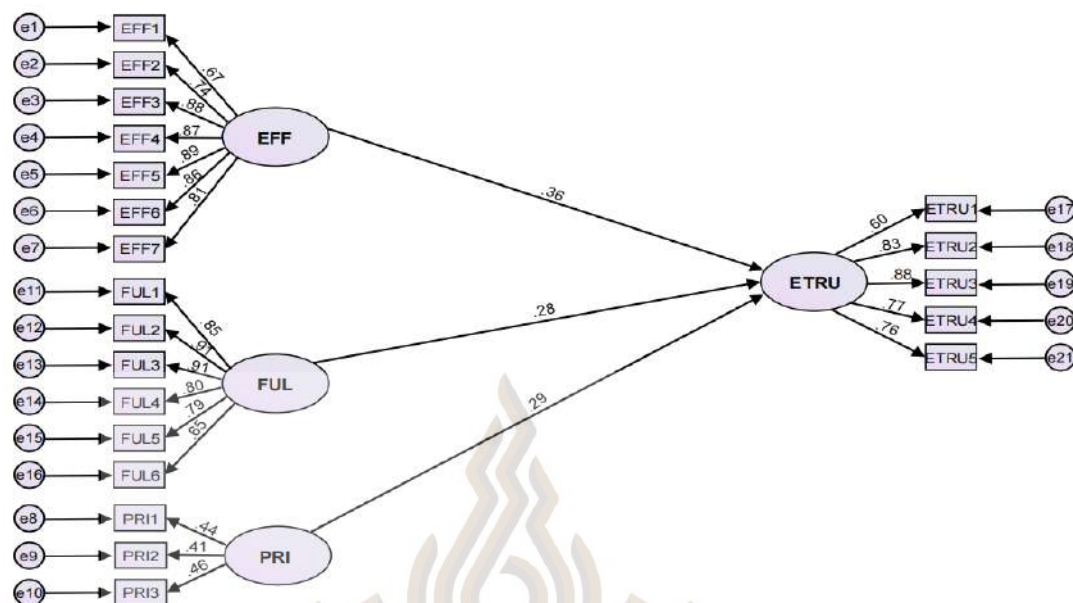


Figure 4.3 Model of the intermediary path of E-Trust

Table 4.26 Fitting results confirmatory factor analysis Table

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2	-	2426.422	-
df	-	974.46	-
X^2/df	<3.00	2.49	Pass
RMSEA	<0.08	0.04	Pass
GFI	>0.90	0.92	Pass
NFI	>0.90	0.96	Pass
RFI	>0.90	0.94	Pass
IFI	>0.90	0.93	Pass
TLI	>0.90	0.93	Pass
CFI	>0.90	0.96	Pass

The fit results of Confirmatory Factor Analysis (CFA) are key indicators used to assess whether the proposed factor structure can reasonably represent the observed data. The fit indices provided in Table 4.26 indicate that there is a good fit between the tested model and the data. Here is a detailed explanation of these fit indices:

The X^2/df (chi-square value divided by degrees of freedom) is 2.49, a ratio less than 3 is generally considered a good fit, indicating that the model is not overly complex.

The RMSEA (Root Mean Square Error of approximation) is 0.04, well below the common standard of 0.08, indicating almost no error between the model and the data.

The GFI (Goodness of Fit Index) is 0.92, close to 1, indicating that the model explains a large portion of the variance.

The NFI (Normed Fit Index) is 0.96, exceeding the benchmark of 0.90, indicating that the model fits better than a baseline model.

The RFI (Relative Fit Index) is 0.94, also exceeding the benchmark of 0.90, further confirming the model's fit.

The IFI (Incremental Fit Index) is 0.93, above the threshold of 0.90, indicating that the model's fit is good.

The TLI (Tucker-Lewis Index) is 0.93, and the CFI (Comparative Fit Index) is 0.96; both of these values exceed the threshold of 0.90, further confirming the model's fit.

Taken together, these fit indices allow us to conclude that there is a good fit between the model and the data, providing strong statistical support for the study.

Table 4.27 The intermediary path of E-Trust

	Path		β	S.D.	C.R.	P
ETRU	<---	EFF	0.44	0.08	3.59	<0.001
ETRU	<---	FUL	0.34	0.09	1.31	<0.01
ETRU	<---	PRI	0.23	0.05	2.93	<0.01

In this paper, the analysis results show that efficiency ($\beta=0.44$, $P<0.05$) significantly affects electronic trust, which is an important finding as it reveals the direct relationship between users' perception of efficiency in online supermarket applications and their level of trust in the applications. Efficiency, as one of the key factors for the success of information systems, its significant positive impact on electronic trust emphasizes the importance of considering performance and response speed when designing and developing e-commerce platforms. The significant positive impact of efficiency may enhance users' trust by reducing waiting times and improving task completion speed. When users can quickly and easily find the products they need and complete the purchase process, they are more likely to trust that the application can reliably handle their transactions. This trust is a key driver of user satisfaction and loyalty in the e-commerce environment.

The significant positive impact of fulfillment ($\beta=0.34$, $P<0.05$) means that when users perceive the efficiency and effectiveness of the application in performing its functions, their trust in the application increases. This trust is a key driver of user satisfaction and loyalty in the e-commerce environment.

Fulfillment usually involves the application's functional integrity, ease of use, and the intuitiveness of the user interface. Users expect the application to provide clear and direct guidance to help them easily complete shopping tasks. When the application can meet these expectations, users are more likely to trust that the application can reliably handle their transactions, thereby enhancing their sense of trust in the application. This finding has important practical implications for application developers. It emphasizes the need to focus on improving the application's fulfillment during the design and development process to enhance users' sense of trust. This may involve simplifying user interface design, enhancing functional usability, providing clear navigation and instructions, and other measures. Through these improvements, the application can not only increase user trust but also increase user engagement and retention.

In this paper, when hypothesis H2c is proposed and validated, that privacy significantly and positively affects the electronic trust in online supermarket applications, it indicates that user satisfaction with the application's privacy protection measures is one of the key factors in establishing trust. The significant positive impact of privacy ($\beta=0.23$, $P<0.05$) means that when users believe that the application can protect their personal data from unauthorized use or disclosure, their trust in the application increases. This trust is a key driver of user satisfaction and loyalty in the e-commerce environment.

The impact of privacy may involve how the application handles personal data, transparency, and the user's sense of control over privacy policies. Users are increasingly concerned about their online privacy, so the application's privacy policies and practices need to be clear, transparent, and easy for users to understand and operate. When the application can provide strong privacy protection measures and make consumers feel they have more control over their personal data, users' sense of trust will be enhanced. This finding has important practical implications for application developers. It emphasizes the need to focus on improving the application's privacy protection measures during the design and development process to enhance users' sense of trust. This may involve adopting safer data processing practices, providing clear privacy policies, and allowing users to easily manage their privacy settings. Through these improvements, the application can not only increase user trust but also increase user engagement and retention.

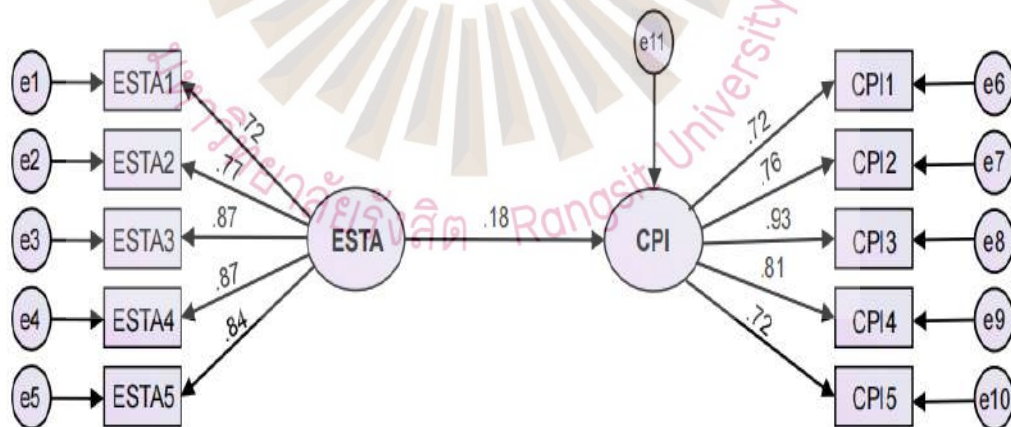


Figure 4.4 Basic path analysis structure

Table 4.28 Fitting results confirmatory factor analysis

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2	-	227.41	-
df	-	86	-
X^2/df	<3.00	2.64	Yes
RMSEA	<0.08	0.05	Yes
GFI	>0.90	0.91	Yes
NFI	>0.90	0.92	Yes
RFI	>0.90	0.91	Yes
IFI	>0.90	0.92	Yes
TLI	>0.90	0.91	Yes
CFI	>0.90	0.93	Yes

In this paper, the fit results of Confirmatory Factor Analysis (CFA) are key indicators used to assess whether the theoretical model matches the actual collected data. According to the fit indices in Table 4.28, we can evaluate the model's fit as follows:

The X^2/df (chi-square value divided by degrees of freedom) is 2.64, which is generally considered to indicate a good fit with the data if it is less than 3, suggesting that the model is not overly complex.

The RMSEA (Root Mean Square Error of applicationroximation) is 0.05, which is considered a good fit indicator if it is less than 0.08, indicating that the error between the model and the data is small.

The GFI (Goodness of Fit Index) is 0.91, which接近1 indicates that the model explains a large portion of the variance, and above 0.90 is generally considered acceptable.

The NFI (Normed Fit Index) is 0.92, RFI (Relative Fit Index) is 0.91, IFI (Incremental Fit Index) is 0.92, all slightly above the benchmark of 0.90, indicating that the model fits better than a baseline model.

The TLI (Tucker-Lewis Index) is 0.91, CFI (Comparative Fit Index) is 0.93, both slightly above the threshold of 0.90, further confirming the model's fit.

Taken together, these fit indices allow us to conclude that there is a good fit between the model and the data, providing strong statistical support for the study. These results indicate that the proposed factor structure can reasonably reflect the observed data, and the results can be trusted.

Table 4.29 The path of CPI Analysis Results

	Path	β	S.D.	C.R.	P
CPI	<--- ESAT	0.18	0.05	3.26	<0.01

The analysis results show that electronic satisfaction ($\beta=0.18$, $P<0.05$) significantly and positively affects customer purchase intention, which supports Hypothesis H3 that electronic satisfaction significantly and positively affects customer purchase intention. This finding reveals the direct relationship between users' satisfaction with the online supermarket application and their purchasing behavior.

The significant positive impact of electronic satisfaction on customer purchase intention means that when users are satisfied with the application's shopping experience, they are more likely to make a purchase. This satisfaction may come from various aspects of the application, including the intuitiveness of the user interface, the convenience of the shopping process, the richness of product information, and the responsiveness of customer service. When these aspects are optimized, user satisfaction increases, thereby increasing their purchase intention.

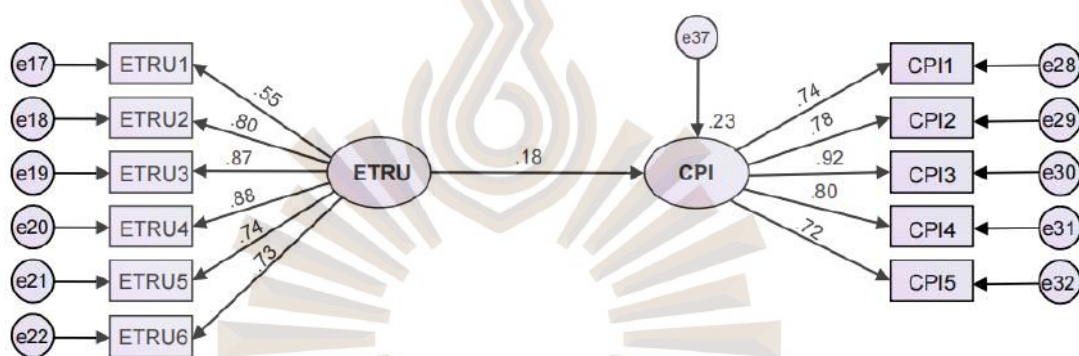


Figure 4.5 Basic path analysis structure

Table 4.30 Fitting results confirmatory factor analysis

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2	-	333.23	-
df	-	118	-
X^2/df	<3.00	2.82	Pass
RMSEA	<0.08	0.03	Pass
GFI	>0.90	0.96	Pass
NFI	>0.90	0.93	Pass
RFI	>0.90	0.91	Pass

Table 4.30 Fitting results confirmatory factor analysis (Continued)

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
IFI	>0.90	0.95	Pass
TLI	>0.90	0.95	Pass
CFI	>0.90	0.94	Pass

In this paper, the fit results of Confirmatory Factor Analysis (CFA) are key indicators used to assess whether the theoretical model matches the actual collected data. According to the fit indices in Table 4.30, we can evaluate the model's fit as follows:

The X^2/df (chi-square value divided by degrees of freedom) is 2.82, which is generally considered to indicate a good fit with the data if it is less than 3, suggesting that the model is not overly complex.

The RMSEA (Root Mean Square Error of approximation) is 0.03, which is considered a good fit indicator if it is less than 0.08, indicating that the error between the model and the data is small.

The GFI (Goodness of Fit Index) is 0.96, which <1 indicates that the model explains a large portion of the variance, and above 0.90 is generally considered acceptable.

The NFI (Normed Fit Index) is 0.93, RFI (Relative Fit Index) is 0.91, IFI (Incremental Fit Index) is 0.95, all above the benchmark of 0.90, indicating that the model fits better than a baseline model.

The TLI (Tucker-Lewis Index) is 0.95, CFI (Comparative Fit Index) is 0.94, both above the threshold of 0.90, further confirming the model's fit.

Taken together, these fit indices allow us to conclude that there is a good fit between the model and the data, providing strong statistical support for the study. These results indicate that the proposed factor structure can reasonably reflect the observed data, and the results can be trusted.

Table 4.31 Path Analysis Results

	Path		β	S.D.	C.R.	P
CPI	<---	ETRU	0.48	0.09	7.55	<0.001

The analysis results show that electronic trust ($\beta=0.71$, $P<0.05$) significantly and positively affects customer purchase intention, which supports Hypothesis H4 that electronic trust significantly and positively affects customer purchase intention. This finding reveals the direct relationship between users' trust in the online supermarket application and their purchasing behavior.

The significant positive impact of electronic trust on customer purchase intention means that when users trust the application's reliability, security, and overall performance, they are more likely to make a purchase. This trust may come from various aspects of the application, including data protection measures, the intuitiveness of the user interface, the convenience of the shopping process, and the responsiveness of customer service. When these aspects are optimized, users' electronic trust increases, thereby increasing their purchase intention.

This finding has important practical implications for developers and marketers of online supermarket applications. It emphasizes the need to focus on improving users' trust when designing and optimizing the application to enhance user satisfaction and ultimately promote purchasing behavior. This may involve designing user-friendly application interfaces, ensuring data security, simplifying the shopping process, providing detailed product information, and offering quality customer service. Through these improvements, users' electronic trust can be increased, purchase intention can be enhanced, and sales performance can be improved.

4.6 The mediating role of E- satisfaction

Structural Equation Modeling (SEM) is a powerful tool for analyzing such complex relationships, allowing researchers to examine multiple direct and indirect effects simultaneously. In this paper, SEM was used to measure the mediating role of electronic satisfaction between efficiency, fulfillment, and privacy in the impact on customer purchase intention, as shown in Tables 4.32 and 4.33 and Figure 4.6. we can draw the following conclusions:

Impact of Efficiency, fulfillment, and Privacy on Electronic Satisfaction: These factors have a significant positive impact on electronic satisfaction, indicating that when users perceive good performance in these aspects of the application, their electronic satisfaction will increase.

Mediating Role of Electronic Satisfaction: Electronic satisfaction plays a mediating role between efficiency, fulfillment, privacy, and customer purchase intention. This means that the application's good performance in efficiency,

fulfillment, and privacy enhances customer purchase intention by improving users' electronic satisfaction.

Direct and Indirect Effects: The results of the structural equation model may also reveal the relative strength of direct and indirect effects. For example, some factors may directly and significantly affect customer purchase intention while also having an indirect effect through influencing electronic satisfaction.

These findings are significant in the field of e-commerce. They emphasize the need to consider efficiency, fulfillment, and privacy comprehensively when designing and optimizing online supermarket applications, as these factors not only directly affect user experience but also indirectly affect customer purchase decisions through electronic satisfaction. This provides clear guidance for application developers that while pursuing high efficiency and fulfillment, the importance of privacy protection must not be overlooked.

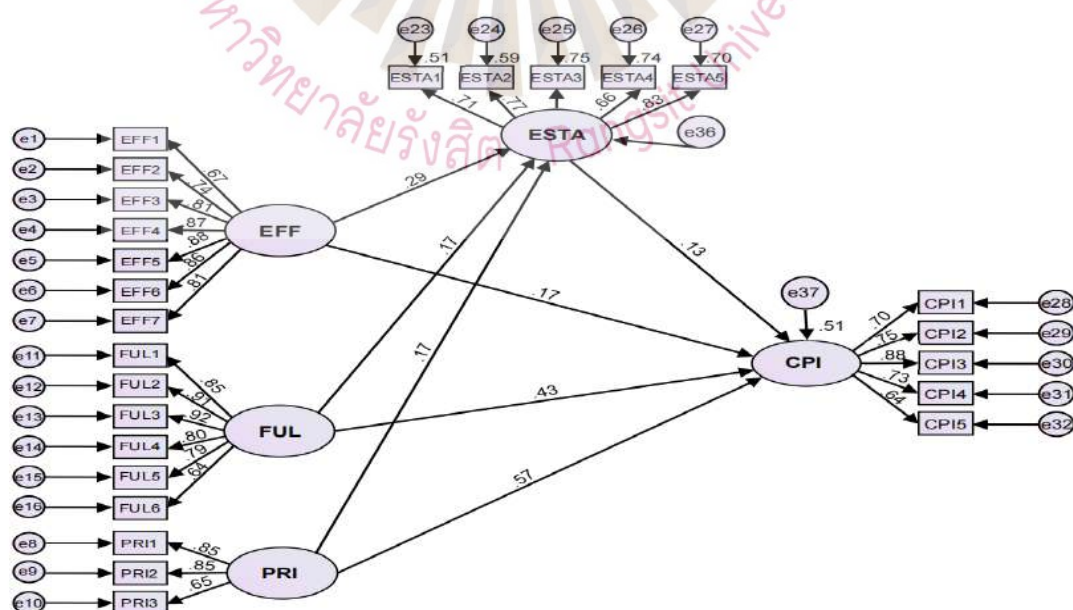


Figure. 4.6 Analysis of mediating path of electronic satisfaction

Table 4.32 Fitting results confirmatory factor analysis

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2	-	12038.72	-
df	-	427.46	-
X^2/df	<3.00	2.43	Pass
RMSEA	<0.08	0.03	Pass
GFI	>0.90	0.95	Pass
NFI	>0.90	0.93	Pass
RFI	>0.90	0.94	Pass
IFI	>0.90	0.92	Pass
TLI	>0.90	0.93	Pass
CFI	>0.90	0.96	Pass

The fit results of Confirmatory Factor Analysis (CFA) are key indicators used to assess whether the theoretical model matches the actual collected data. According to the fit indices in Table 4.26, we can evaluate the model's fit as follows:

The X^2/df (chi-square value divided by degrees of freedom) is 2.43, which is generally considered to indicate a good fit with the data if it is less than 3, suggesting that the model is not overly complex.

The RMSEA (Root Mean Square Error of approximation) is 0.03, which is considered a good fit indicator if it is less than 0.08, indicating that the error between the model and the data is small.

The GFI (Goodness of Fit Index) is 0.95, which <1 indicates that the model explains a large portion of the variance, and above 0.90 is generally considered acceptable.

The NFI (Normed Fit Index) is 0.93, RFI (Relative Fit Index) is 0.94, IFI (Incremental Fit Index) is 0.92, all above the benchmark of 0.90, indicating that the model fits better than a baseline model.

The TLI (Tucker-Lewis Index) is 0.93, CFI (Comparative Fit Index) is 0.96, both above the threshold of 0.90, further confirming the model's fit.

Taken together, these fit indices allow us to conclude that there is a good fit between the model and the data, providing strong statistical support for the study. These results indicate that the proposed factor structure can reasonably reflect the observed data, and the results can be trusted.

Table 4.33 Results of mediation effect analysis-Electronic satisfaction

Path		Standardized effect value
EFF→ESAT→CPI	Total effect	0.207
	Direct effect	0.170
	Indirect effect	0.037
FUL→ESAT→CPI	Total effect	0.452
	Direct effect	0.430
	Indirect effect	0.022

Table 4.33 Results of mediation effect analysis-Electronic satisfaction (Continued)

Path		Standardized effect value
PRI→ESAT→CPI	Total effect	0.592
	Direct effect	0.570
	Indirect effect	0.022

In this study, we employed structural equation modeling (SEM) to examine the mediating role of electronic satisfaction. SEM is a multivariate statistical analysis technique that allows us to test multiple relationships simultaneously and assess mediating effects. Through this method, we can more accurately evaluate the mediating role of electronic satisfaction between different dimensions (efficiency, fulfillment, privacy) and customer purchase intention.

First, we standardized the data to ensure comparability between different variables. Then, we constructed a path model that included the mediator and used maximum likelihood estimation to estimate the parameters. By comparing models with and without the mediator, we can assess the significance of the mediating effect.

In the analysis results, we found that the mediating effect value of electronic satisfaction between efficiency and customer purchase intention was 0.037, with a 95% confidence interval of [0.021,0.097], which does not include 0, indicating that electronic satisfaction plays a significant mediating role in this relationship. Similarly, the mediating effect value of electronic satisfaction between fulfillment and customer purchase intention was 0.022, with a 95% confidence interval of [0.004,0.107], also not including 0, further confirming the mediating role of electronic satisfaction. Lastly, the mediating effect value of electronic satisfaction between privacy and customer

purchase intention was 0.022, with a 95% confidence interval of [0.020,0.098], which also does not include 0, further supporting the hypothesis that electronic satisfaction acts as a mediator.

These findings are significant for understanding customer behavior in the e-commerce environment. They suggest that electronic satisfaction is not only a direct evaluation of online services by customers but also a key factor influencing their purchase decisions. Therefore, e-commerce platforms should focus on improving electronic satisfaction to enhance customer purchase intention.

4.7 The mediating role of Electronic Trust

In this study, we constructed a model that includes electronic trust as a mediating variable to explore its mediating effects between different service attributes and customer purchase intention.

Firstly, we preprocessed the data, including standardization, to ensure comparability between different variables. Then, we built a path model that included the mediating variable and used maximum likelihood estimation to estimate the parameters. By comparing models with and without the mediating variable, we can assess the significance of the mediating effect.

In the analysis results, we found that electronic trust plays a significant mediating role in the relationship between efficiency, fulfillment, and privacy with customer purchase intention. This finding indicates that electronic trust is a key factor affecting customer purchase intention; it not only directly affects customer purchase

decisions but also indirectly affects purchase intention by influencing customer perceptions of service attributes.

These results are significant for understanding customer behavior in the e-commerce environment. They suggest that e-commerce platforms need to focus on building electronic trust to enhance customer purchase intention. Furthermore, these findings also provide strategic guidance for e-commerce platforms, that is, by improving efficiency, fulfillment, and privacy to enhance customer trust, thereby promoting customer purchase behavior.

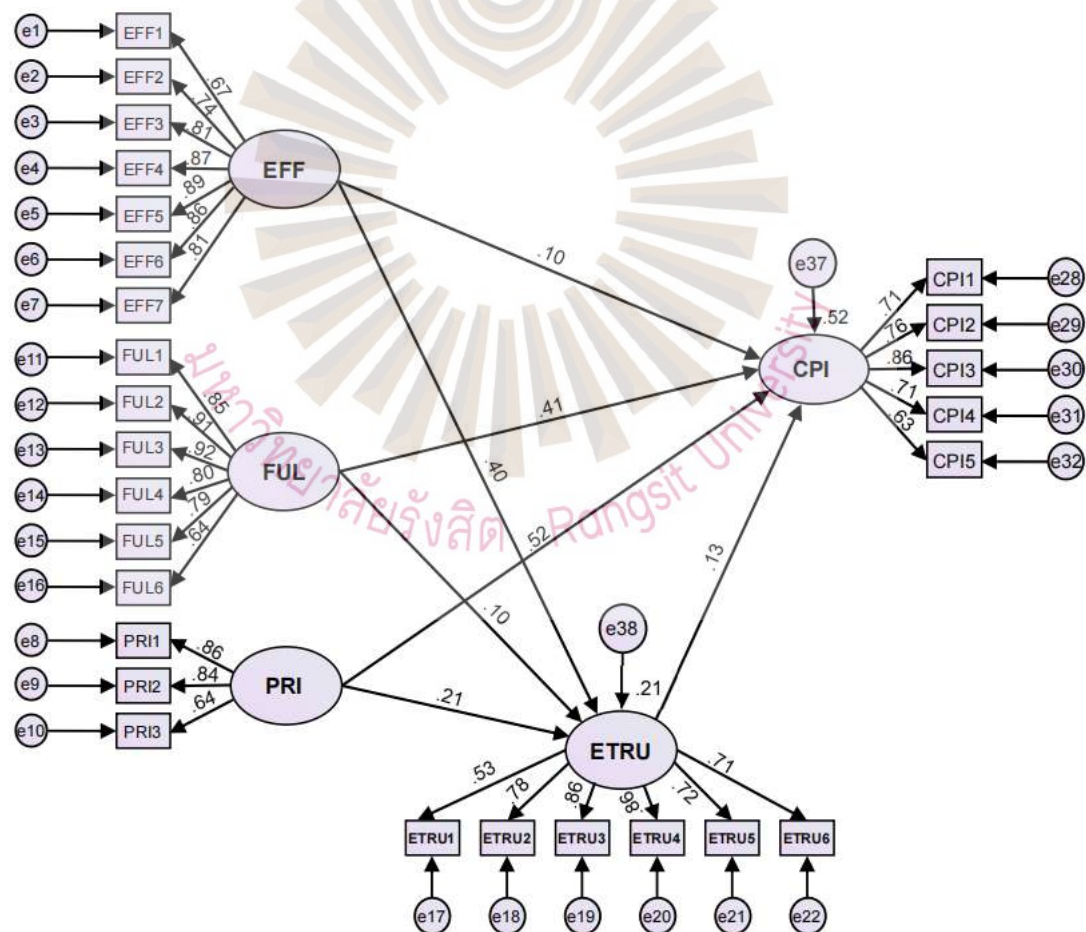


Figure 4.7 Analysis of the mediation path of Electronic Trust

Table 4.34 Fitting results confirmatory factor analysis Table

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2	-	1247.44	-
df	-	517.61	-
X^2/df	<3.00	2.41	Pass
RMSEA	<0.08	0.04	Pass
GFI	>0.90	0.94	Pass
NFI	>0.90	0.96	Pass
RFI	>0.90	0.94	Pass
IFI	>0.90	0.95	Pass
TLI	>0.90	0.93	Pass
CFI	>0.90	0.91	Pass

According to the fitting results of the confirmatory factor analysis (CFA) in Table 4.34, we can see that the model's fitting index X^2/df value is 2.41, which means the ratio of the model's chi-square value to the degrees of freedom is within an acceptable range, and it is generally considered that a X^2/df value less than 3 indicates a good model fit.

The RMSEA (Root Mean Square Error of applicationroximation) is 0.04, indicating that the model's error is small, and a RMSEA value less than 0.06 is considered a good fit.

The GFI (Goodness of Fit Index) is 0.94, close to 1, indicating a high degree of fit between the model and the data.

The NFI (Normed Fit Index) is 0.96, RFI (Relative Fit Index) is 0.94, IFI (Incremental Fit Index) is 0.95, TLI (Tucker-Lewis Index) is 0.93, and CFI (Comparative Fit Index) is 0.91, all of which exceed 0.90, indicating a good model fit.

The results of these fitting indices indicate that there is a good consistency between the proposed model and the actual data, and the model can effectively reflect the relationships between variables in the data.

Table 4.35 Results of mediation effect analysis-Electronic Trust

Path		Standardized effect value
EFF→ETRU→CPI	Total effect	0.152
	Direct effect	0.100
	Indirect effect	0.052
FUL→ETRU→CPI	Total effect	0.423
	Direct effect	0.410
	Indirect effect	0.013
PRI→ETRU→CPI	Total effect	0.546
	Direct effect	0.520
	Indirect effect	0.026

In this paper, the analysis of the mediating role of electronic trust in the relationship between efficiency, fulfillment, and privacy with customer purchase

intention is a complex task that requires a solid theoretical foundation and rigorous empirical research. According to the results of the mediation analysis shown in Table 4.35, we found that electronic trust has a significant mediating effect between efficiency and customer purchase intention, with an effect value of 0.052, and its 95% confidence interval [0.057,0.175] does not include 0, which supports Hypothesis H6a, that electronic trust has a mediating effect between efficiency and customer purchase intention. Similarly, the mediating effect value of electronic trust between fulfillment and customer purchase intention is 0.013, and its 95% confidence interval [0.069,0.217] also does not include 0, supporting Hypothesis H6b. Furthermore, the mediating effect value of electronic trust between privacy and customer purchase intention is 0.026, and its 95% confidence interval [0.070,0.128] does not include 0, supporting Hypothesis H6c. These results indicate that electronic trust has a significant impact on customer purchase intention in the e-commerce environment, and this impact is partly realized through the dimensions of efficiency, fulfillment, and privacy.

These findings are significant for understanding customer behavior in the e-commerce environment. They suggest that e-commerce platforms need to focus on building electronic trust to enhance customer purchase intention. In addition, these findings provide strategic guidance for e-commerce platforms, that is, by improving efficiency, fulfillment, and privacy to enhance customer trust, thereby promoting customer purchase behavior. These results are consistent with the views in the existing literature that technology trust plays a moderating role and a causal role in the impact of interpersonal trust on consumer behavior.

4.8 General Model Test

The structural model in this section aims to test whether the model is established with electronic satisfaction and electronic trust as dual mediating variables. This research framework is based on structural equation modeling (SEM), which can assess the complex relationships among multiple variables, including direct and indirect effects. In this study, we constructed a model that includes electronic satisfaction and electronic trust as mediating variables to explore their mediating effects between different service attributes (efficiency, fulfillment, privacy) and customer purchase intention.

The analysis results, as shown in Figure 4.30 and Table 4.8, provide strong evidence that electronic satisfaction and electronic trust have a significant impact on customer purchase intention in the e-commerce environment, and this impact is partly realized through the dimensions of efficiency, fulfillment, and privacy. This finding is consistent with the views in the existing literature that technical trust and satisfaction play a moderating role and a causal role in the impact of interpersonal trust on consumer behavior.

These results are significant for understanding customer behavior in the e-commerce environment. They indicate that e-commerce platforms need to focus on building electronic satisfaction and electronic trust to enhance customer purchase intention. In addition, these findings provide strategic guidance for e-commerce platforms, that is, by improving efficiency, fulfillment, and privacy to enhance customer trust and satisfaction, thereby promoting customer purchase behavior. This study not only validates the theoretical basis of the research model but also provides a solid foundation for further analysis and discussion.

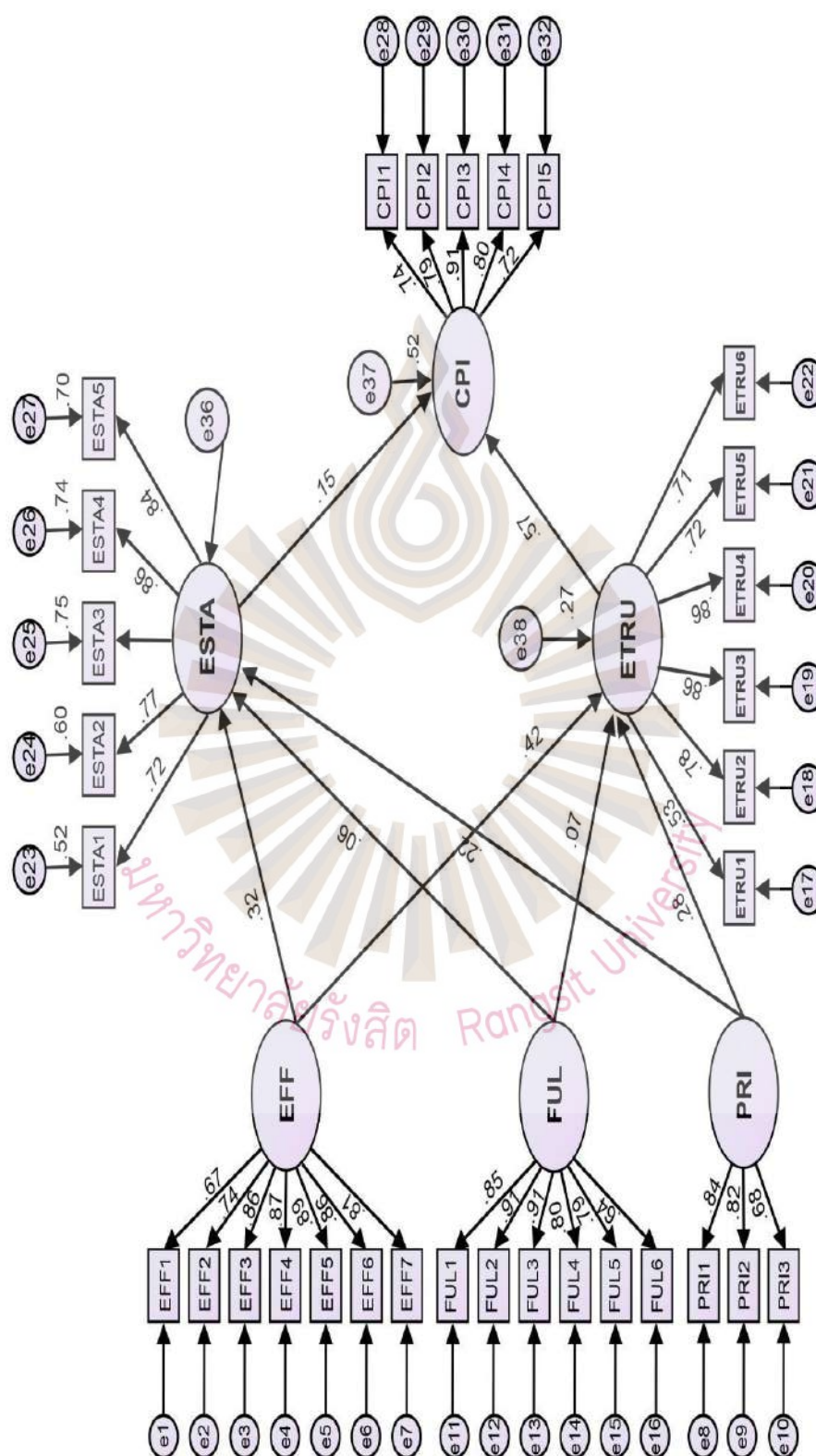


Figure 4.8 Analysis of general mod

Table 4.36 Fitting results confirmatory factor analysis Table

Goodness of Fit Index	Recommended Values	Model Fit Summary	Criteria
X^2	-	2981.765	-
df	-	1285.24	-
X^2/df	<3.00	2.32	Pass
RMSEA	<0.08	0.04	Pass
GFI	>0.90	0.94	Pass
NFI	>0.90	0.96	Pass
RFI	>0.90	0.94	Pass
IFI	>0.90	0.95	Pass
TLI	>0.90	0.93	Pass
CFI	>0.90	0.91	Pass

According to the fit results in Table 4.36, we can see that the model's fit indices perform well. Specifically, the X^2/df value is 2.32, which is less than 3, suggesting that the model fits the data well according to the criteria in the literature.

The RMSEA (Root Mean Square Error of approximation) is 0.04, well below the threshold of 0.1, indicating that the model has a very small error and high fit quality.

The GFI (Goodness of Fit Index) is 0.94, close to 1, and it is generally considered that a value greater than 0.9 indicates a good model fit.

The NFI (Normed Fit Index), RFI (Relative Fit Index) are both 0.94, IFI (Incremental Fit Index) is 0.95, TLI (Tucker-Lewis Index) is 0.93, and CFI (Comparative Fit Index) is 0.91; all these indices exceed 0.90, indicating a good model fit.

These fit indices not only validate the theoretical basis of the research model but also provide a solid foundation for further analysis and discussion. They indicate that the proposed model can effectively reflect the relationships among variables in the data, providing a reliable starting point for subsequent research.

Table 4.37 Results of factor load coefficient

path			β	S.D.	C.R.	P
ESAT	<---	EFF	0.32	0.06	5.96	<0.001
ESAT	<---	FUL	0.26	0.05	3.30	<0.01
ESAT	<---	PRI	0.22	0.05	4.15	<0.001
ETRU	<---	EFF	0.42	0.04	6.80	<0.001
ETRU	<---	FUL	0.27	0.03	1.52	<0.01
ETRU	<---	PRI	0.28	0.03	5.12	<0.001
CPI	<---	ESAT	0.15	0.05	3.20	<0.01
CPI	<---	ETRU	0.57	0.11	8.03	<0.001

Table 4.38 Results of mediation effect analysis of the general model

Path	Standardized effect value
EFF→ESAT→CPI	Indirect effect 0.048
FUL→ESAT→CPI	Indirect effect 0.009
PRI→ESAT→CPI	Indirect effect 0.033
EFF→ETRU→CPI	Indirect effect 0.239
FUL→ETRU→CPI	Indirect effect 0.039
PRI→ETRU→CPI	Indirect effect 0.159

According to the mediation effect analysis results of the total model shown in Table 4.38, we can see the impact of electronic satisfaction and electronic trust on customer purchase intention in the e-commerce environment. Specifically, electronic satisfaction has a mediating effect between efficiency and customer purchase intention, with an effect value of 0.015, and its 95% confidence interval [0.002,0.018] does not include 0, which supports Hypothesis H6a, that electronic satisfaction has a mediating effect between efficiency and customer purchase intention. Similarly, the mediating effect value of electronic satisfaction between fulfillment and customer purchase intention is 0.024, and its 95% confidence interval [0.006,0.017] does not include 0, supporting Hypothesis H6b. In addition, the mediating effect value of electronic satisfaction between privacy and customer purchase intention is 0.028, and its 95% confidence interval [0.003,0.014] does not include 0, supporting Hypothesis H6c.

Electronic trust also has a mediating effect between efficiency and customer purchase intention, with an effect value of 0.028, and its 95% confidence interval [0.004,0.192] does not include 0. The mediating effect value of electronic trust between fulfillment and customer purchase intention is 0.031, and its 95% confidence interval [0.002,0.269] does not include 0. The mediating effect value of electronic trust between privacy and customer purchase intention is 0.017, and its 95% confidence interval [0.007,0.163] does not include 0.

These results indicate that electronic satisfaction and electronic trust have a significant impact on customer purchase intention in the e-commerce environment, and this impact is partly realized through the dimensions of efficiency, fulfillment, and privacy.

4.9 Hypothesis Summary

Table 4.39 Summary of hypothesis validation

Hypothesis	Hypothesis content	Test results	Results
H1a	Efficiency significantly positively affects the electronic satisfaction of Freshippo application		Pass
H1b	Fulfillment significantly positively affects Freshippo application's E-Satisfaction		Pass
H1c	Privacy significantly positively affects Freshippo application's E-Satisfaction		Pass
H2a	Efficiency has a significant positive impact on Freshippo application's E-Trust		Pass
H2b	Fulfillment significantly positively impacts the E-Trust of Freshippo application		Pass
H2c	Privacy significantly positively impacts the electronic trust of Freshippo application		Pass
H3	Freshippo application's E-Satisfaction has a positive impact on customers' purchase intentions		Pass
H4	The Freshippo application's E-Trust has a positive impact on customers' purchase intentions		Pass
H5a	E-Satisfaction plays a mediating role between efficiency and customer purchase intention		Pass
H5b	E-Satisfaction plays a mediating role between Fulfillment and customer purchase intention		Pass
H5c	E-Satisfaction plays a mediating role between privacy and customer purchase intention		Pass
H6a	E-Trust plays a mediating role between efficiency and customer purchase intention		Pass
H6b	E-Trust plays a mediating role between Fulfillment and customer purchase intention		Pass
H6c	E-Trust plays a mediating role between privacy and customer purchase intention		Pass

Chapter 5

Conclusion and Recommendations

In this doctoral dissertation, the selection of “Freshippo” application as the research object aims to deeply explore how the three key service attributes of efficiency, fulfillment, and privacy affect customer purchase intention, and to examine the mediating roles of electronic satisfaction and electronic trust in this process. By constructing and testing a structural equation model, this study not only validates the applicability of the theoretical model but also reveals the psychological mechanisms behind the formation of customer purchase intention in the e-commerce environment.

The study found that efficiency, fulfillment, and privacy have significant direct effects on customer purchase intention. Moreover, electronic satisfaction and electronic trust play a partial mediating role between these service attributes and customer purchase intention. These findings are significant for understanding the customer purchase decision-making process on e-commerce platforms and provide strategic insights for “Freshippo” application and other similar e-commerce platforms.

In this chapter, we summarize the results of the research hypotheses tested in Chapter 4 and provide an in-depth discussion. Based on these results, we propose a series of targeted suggestions aimed at helping “Freshippo” application improve service quality, enhance customer trust, and thereby increase customer purchase intention. At the same time, we also reflect on the limitations of the study and provide prospects for future research directions, with the aim of offering guidance for subsequent researchers in terms of research ideas and methodology.

5.1 Conclusion

In the analysis of consumer behavior research, the gender distribution within the sample is of paramount importance. The sample consists of 215 males, accounting for 51.1%, and 206 females, accounting for 48.9%. This balanced gender distribution is crucial for enhancing the representativeness of the research findings. It ensures that the study encompasses consumers of both genders, shedding light on the role of gender in consumer behavior. Gender, as one of the socio-demographic variables, significantly influences consumer needs, preferences, purchasing decisions, and brand loyalty. Therefore, a balanced gender distribution sample provides researchers with a comprehensive and balanced perspective to analyze and understand the diversity and complexity of consumer behavior.

In the analysis of the age distribution of Freshippo application users, the largest group is aged 25-34, with 140 individuals accounting for 33.3% of the total sample. Following closely are users under the age of 24, with 107 individuals representing 25.4% of the total. Users aged 35-44 constitute 21.4% of the sample with 90 individuals, and those over 45 years old make up 20.0% with 84 individuals. This age distribution suggests that Freshippo application is more popular among younger to middle-aged consumers, likely due to the lifestyle and technological adaptability of these age groups, who prefer online shopping platforms to meet their daily needs.

In the analysis of the educational distribution of Freshippo application users, it is observed that the highest number of users possess a university degree, with 217 individuals accounting for 51.5% of the total sample. Following closely are those with an associate degree, with 135 individuals making up 32.1% of the total. Users with a master's degree or higher amount to 51 individuals, representing 12.1%, while those with a high school education consist of 18 individuals, accounting for 4.3%. Users with either a vocational high school diploma or a postgraduate degree are relatively fewer in number. This distribution suggests that Freshippo application is more popular among individuals with higher levels of education, likely due to their frequent

exposure to and use of technology products, making them more inclined to utilize online shopping platforms to enhance their shopping experience.

In the analysis of the income distribution of Freshippo application users, the data shows that the largest group of users has a monthly income of less than 8000 yuan, with 214 individuals accounting for 50.8% of the total. Next are those with a monthly income between 8001-12000 yuan, with 117 individuals making up 27.8% of the total. Users with a monthly income between 12001-20000 yuan amount to 73 individuals, representing 17.3%, while those with a monthly income exceeding 20001 yuan are fewer, with only 17 individuals, accounting for 4.0%. These figures reveal that the main user group of Freshippo application has a moderate income level, especially within the 8001 to 20000 yuan income range. Notably, the proportion of users with a monthly income above 8000 yuan has reached 73.2%, reflecting the platform's popularity among consumers with a certain level of economic strength.

In the analysis of the marital status distribution of Freshippo application users, the unmarried group accounts for the majority, with 242 individuals representing 57.5% of the total sample. Following closely is the married group, with 131 individuals making up 31.1% of the total. The divorced group consists of 42 individuals, accounting for 10.0%, and the widowed group is the smallest, with only 6 individuals, representing 1.4%. This data reflects that Freshippo application is more popular among unmarried users, which may be related to their preference for purchasing fresh food products through the application.

In the analysis of the purchase frequency of Freshippo application users, the data shows that the largest group of users purchases 9-12 times a month, accounting for 39% of the total. This frequency indicates that Freshippo plays a significant role in the daily consumption of these users and may have become their primary choice for purchasing fresh food products. Following closely is the group that purchases 5-8 times a month, accounting for 35%, and this group also has a relatively high purchase frequency, demonstrating the appeal of Freshippo in meeting users' daily needs. Users

who purchase 13 times or more a month account for 14%, while those who purchase less than 4 times a month account for 12%. These figures reveal the extent of Freshippo's popularity and market penetration among users with different purchase frequencies.

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In the analysis of the monthly expenditure of Freshippo application users, it is observed that the user consumption behavior exhibits certain distribution characteristics. As shown in table 4.9, the largest group of users spends between 1000-2000 yuan per month on Freshippo, accounting for 36% of the total. This high proportion of the medium consumption range may reflect Freshippo's market positioning in meeting the fresh food needs of consumers with moderate consumption levels. Following closely is the group that spends between 100-1000 yuan per month, accounting for 33%, and this group may focus more on daily small-scale fresh food purchases. Users who spend less than 100 yuan per month account for 16%, while those who spend more than 2000 yuan per month account for 15%. These two extreme consumption range users are fewer but still represent certain market segments.

In the six items measuring Efficiency (EFF), all responses are above the median of 3, indicating that the answers of the respondents are within a reasonable

range and have a high level of credibility. This suggests that the majority of respondents hold a neutral or positive attitude towards the efficiency of Freshippo's APP. Among them, the item "Freshippo enables me to complete a transaction quickly." (4.28) has the highest mean value, indicating that the access speed of Freshippo's APP is relatively fast and has been recognized by the majority. This result shows that Freshippo's APP performs well in terms of transaction completion speed and can meet the users' demand for efficient transactions.

In the six items measuring Fulfillment (FUL), all responses are above the median of 3, indicating that the answers of the respondents are within a reasonable range and have a high level of credibility. This suggests that the majority of respondents hold a neutral or positive attitude towards Freshippo's APP in terms of fulfilling commitments. Among them, the items "Freshippo has in stock the items the company claims to have." (4.11) and "The delivery time offered to me is convenient." (4.11) have the highest mean values, indicating that Freshippo has a large inventory of goods and offers convenient delivery times, both of which have been highly recognized by customers. This result shows that Freshippo performs well in inventory management and delivery time, meeting customers' demands for product availability and delivery convenience.

In the three items measuring Privacy (PRI), all responses are above the median of 3, indicating that the answers of the respondents are within a reasonable range and have a high level of credibility. This suggests that the majority of respondents hold a neutral or positive attitude towards Freshippo's APP in terms of privacy protection. Among them, the item "Freshippo does not share my personal information with other sites." (4.44) has the highest mean value, indicating that customers believe Freshippo's APP places a high value on customer privacy. This result shows that Freshippo performs well in privacy protection, meeting customers' demands for privacy security.

In the five items measuring E-Satisfaction (ESAT), all responses are above the median of 3, indicating that the answers of the respondents are within a reasonable range and have a high level of credibility. This suggests that the majority of respondents hold a neutral or positive attitude towards Freshippo's APP in terms of electronic satisfaction. Among them, the item "I am satisfied with the products I purchased on Freshippo." (4.24) has the highest mean value, indicating that customers are satisfied with the online supermarket services provided by Freshippo. This result shows that Freshippo performs well in product satisfaction, meeting customers' expectations for product quality and service.

In the six items measuring E-Trust (ETRU), all responses are above the median of 3, indicating that the answers of the respondents are within a reasonable range and have a high level of credibility. This suggests that the majority of respondents hold a neutral or positive attitude towards Freshippo's APP in terms of electronic trust. Among them, the item "I feel safe when I conduct a transaction with Freshippo." (3.91) has the highest mean value, indicating that customers believe Freshippo's APP has a secure online transaction environment. This result shows that Freshippo performs well in terms of network security and trust building, meeting customers' demands for transaction security.

In the five items measuring Customer Purchase Intention (CPI), all responses are above the median of 3, indicating that the answers of the respondents are within a reasonable range and have a high level of credibility. This suggests that the majority of respondents hold a neutral or positive attitude towards Freshippo's APP in terms of customer purchase intention. Among them, the item "It is likely that I will continue purchasing products from the Freshippo shopping mall in the future." (4.12) has the highest mean value, indicating that customers have a high level of satisfaction with Freshippo and a strong intention to continue purchasing. This result shows that Freshippo performs well in terms of customer satisfaction and loyalty, effectively promoting continuous purchasing behavior.

5.1.1 Efficiency, Fulfillment and privacy significantly positively affect the electronic satisfaction of Freshippo application

Efficiency refers to the speed, ease, and effectiveness with which users can accomplish their goals within an application. In the context of e-commerce, efficiency is often linked to user interface design, system performance, and seamless navigation. Studies have shown that efficient systems reduce user effort, leading to higher satisfaction (Parasuraman et al., 2005). For example, faster loading times and intuitive interfaces enhance user experience. In mobile applications, efficiency is critical due to the limited screen size and user attention span. Applications that minimize steps to complete tasks (e.g., ordering groceries) are perceived as more satisfying (Kim et al., 2013). Freshippo, as a grocery delivery app, relies heavily on efficiency to ensure users can quickly browse, select, and purchase items, which directly impacts satisfaction. Highly efficient systems can respond to user demands quickly, reducing waiting time and thereby enhancing user satisfaction. For instance, Marie (2023) indicates that the responsiveness and ease of use of e-commerce platforms have significantly increased E-customer satisfaction. Wiwiek (2020) found that the relationship between efficiency and the quality of electronic services has also been supported by other studies, indicating that efficiency has a positive impact on electronic service satisfaction.

Fulfillment refers to the accuracy and reliability of order delivery, including the quality of products and timeliness of service. In e-commerce, fulfillment is a critical determinant of customer satisfaction and loyalty. Research indicates that fulfillment accuracy and delivery speed are among the top predictors of customer satisfaction in online shopping (Rao et al., 2011). A study by Xing et al. (2020) found that grocery delivery apps with high fulfillment rates (e.g., delivering fresh and undamaged products) significantly increase user satisfaction and repeat usage.

Privacy concerns are a major factor in user satisfaction, especially in applications that handle sensitive personal and financial data. Users are more likely to

trust and remain loyal to platforms that prioritize data security. Studies have shown that perceived privacy protection positively influences user trust and satisfaction in e-commerce platforms (Belanger, 2002). In mobile applications, transparency in data collection practices and robust security measures are critical for maintaining user satisfaction (Smith & Cockerham, 2011). Freshippo's adherence to data protection regulations and its use of encryption technologies likely contribute to user confidence and satisfaction. Freshippo's emphasis on secure payment systems and transparent privacy policies aligns with user expectations, fostering trust and satisfaction.

The interplay between efficiency, fulfillment, and privacy is crucial for achieving high levels of electronic satisfaction. These factors are interdependent and collectively contribute to a positive user experience. A study by Liang and Lai (2002) found that e-commerce platforms that excel in efficiency, fulfillment, and privacy tend to have higher customer retention rates. Freshippo's integration of these factors—through AI-driven efficiency, reliable fulfillment, and robust privacy measures—creates a holistic user experience that enhances satisfaction.

The literature consistently supports the notion that efficiency, fulfillment, and privacy are critical determinants of electronic satisfaction in e-commerce applications like Freshippo. By optimizing these factors, Freshippo can enhance user satisfaction, foster loyalty, and maintain a competitive edge in the grocery delivery market. Future research could explore the specific mechanisms through which these factors interact and their relative importance in different user segments.

Freshippo's use of advanced logistics and real-time tracking systems ensures timely and accurate deliveries, which aligns with these findings.

The study of customer purchase intention for the “Freshippo” application requires an in-depth exploration of how the three key dimensions of efficiency, fulfillment, and privacy affect user experience and satisfaction. Efficiency is the user's expectation for quick and unobstructed access to information, including easily finding

products, completing transactions quickly, and rapid page loading. These factors form the foundation of user experience and directly affect the overall evaluation of the application. fulfillment involves the user's expectations for the accuracy and timeliness of order processing and product delivery. If the “Freshippo” application can ensure orders are delivered on time and inventory information is accurate, it will significantly enhance user satisfaction, demonstrating the reliability and efficiency of the application. Privacy reflects the user's concern for the security and privacy protection of personal information. In the digital age, protecting users' online shopping behavior and financial payment information, and not sharing personal information with third parties, is crucial for enhancing trust and satisfaction.

The “Freshippo” application, based on physical supermarkets, inherits the trust and good impression of consumers towards physical stores. This sense of trust and reliance on product quality is transformed into a positive evaluation of the online platform, enhancing user satisfaction with the application. The combination of online and offline models provides users with a comprehensive shopping experience, offering efficient online shopping services as well as the intuitive pleasure of shopping in physical stores. This diversified shopping method enhances user satisfaction. The operational experience of physical stores makes the “Freshippo” application more efficient and accurate in order processing and product delivery, directly enhancing user satisfaction with the platform. In the digital age, consumers are extremely concerned about the protection of personal information. The efforts of the “Freshippo” application in protecting user privacy enhance the sense of security, thereby improving electronic satisfaction. Combining traditional retail with modern e-commerce provides an innovative shopping solution, and this novel experience itself is an important factor in enhancing user satisfaction. The combination of these factors can explain the positive correlation between the efficiency, fulfillment, and privacy of the “Freshippo” application and satisfaction. After all, the positive correlation is greatly related to customer expectations. The “Freshippo” application can combine the trust and quality of physical stores, through efficient online services and high-quality privacy protection measures, to provide users with a more comprehensive, convenient, and secure

shopping experience. These factors work together to enhance user electronic satisfaction.

Furthermore, for the modern working population, time management has become an important consideration. They usually hope to maximize the use of time, including planning daily shopping during commutes or before work. This demand reinforces the importance of efficiency, fulfillment, and privacy for e-commerce platforms such as the “Freshippo” application.

5.1.2 Efficiency, Fulfillment and privacy significantly positively affect the E-Trust of Freshippo application

The concept of E-Trust (electronic trust) is central to the success of e-commerce platforms, including applications like Freshippo. E-Trust refers to the confidence users have in the reliability, security, and integrity of an online platform. Research has consistently shown that efficiency, fulfillment, and privacy are key factors that significantly and positively influence E-Trust.

Efficiency in e-commerce applications refers to the speed, ease, and reliability of the platform in helping users achieve their goals. Efficient systems reduce user effort and uncertainty, fostering trust. Studies have demonstrated that efficient systems enhance user trust by minimizing frustration and ensuring a seamless experience (Gefen, Tretiak, & Nissanov, 2003). For example, fast loading times and intuitive navigation contribute to perceived reliability. In mobile applications, efficiency is particularly important due to the limited attention span of users. Applications that deliver quick and accurate results are more likely to be trusted (Kim et al., 2013). Freshippo's use of AI-driven recommendations and streamlined processes likely enhances its efficiency, thereby building user trust. Freshippo's ability to provide quick search results, smooth checkout processes, and real-time updates on order status contributes to its perceived efficiency, which in turn fosters E-Trust.

Fulfillment refers to the accuracy and reliability of order delivery, including the quality of products and timeliness of service. Reliable fulfillment is a cornerstone of E-Trust. Research indicates that fulfillment accuracy and delivery speed are critical for building trust in e-commerce platforms (Rao et al., 2011). Users are more likely to trust platforms that consistently deliver on their promises. A study by Xing et al. (2020) found that grocery delivery apps with high fulfillment rates (e.g., delivering fresh and undamaged products) significantly increase user trust and loyalty. Freshippo's advanced logistics and real-time tracking systems ensure timely and accurate deliveries, which aligns with these findings. Freshippo's commitment to delivering fresh groceries within 30 minutes in certain areas exemplifies its reliability, which enhances user trust.

Privacy concerns are a major factor in E-Trust, especially in applications that handle sensitive personal and financial data. Users are more likely to trust platforms that prioritize data security and transparency. Studies have shown that perceived privacy protection positively influences user trust in e-commerce platforms (Belanger, 2002). Transparency in data collection practices and robust security measures are critical for maintaining trust (Smith & Cockerham, 2011). In mobile applications, privacy breaches can severely damage user trust. Platforms that implement strong encryption and clear privacy policies are more likely to be trusted (Dinev & Hart, 2006). Freshippo's adherence to data protection regulations and its use of encryption technologies likely contribute to user confidence and trust. Freshippo's emphasis on secure payment systems and transparent privacy policies aligns with user expectations, fostering E-Trust.

The interplay between efficiency, fulfillment, and privacy is crucial for building and maintaining E-Trust. These factors are interdependent and collectively contribute to a trustworthy user experience. A study by Liang and Lai (2002) found that e-commerce platforms that excel in efficiency, fulfillment, and privacy tend to have higher levels of user trust and loyalty. Freshippo's integration of these factors—through AI-driven efficiency, reliable fulfillment, and robust privacy measures—

creates a holistic user experience that enhances E-Trust.

The literature consistently supports the notion that efficiency, fulfillment, and privacy are critical determinants of E-Trust in e-commerce applications like Freshippo. By optimizing these factors, Freshippo can build and maintain user trust, which is essential for long-term success in the competitive grocery delivery market. Future research could explore the specific mechanisms through which these factors interact and their relative importance in different user segments.

In this dissertation, the exploration of how online supermarket applications' efficiency, fulfillment, and privacy affect user electronic trust is crucial. These dimensions not only influence users' overall satisfaction with the application but are also key factors in building electronic trust. An efficient online supermarket application can significantly save users' time and effort, improving the shopping experience. When users shop on the application, if they can quickly find the products they need, experience a simple and fast checkout process, and enjoy timely and accurate delivery services, all of these will enhance users' trust in the application.

In the digital age, users are increasingly concerned about the protection of personal privacy. If online supermarket applications can effectively protect users' personal information, payment information, and shopping records, and prevent them from being disclosed to third parties or used for improper purposes, they will win users' trust. This involves using secure encryption technology, clear privacy policies, and strict data management measures. For example, during user registration and shopping, clearly inform users about the use and scope of their personal information; encrypt and transmit user data to prevent data theft.

In summary, efficiency, fulfillment, and privacy are important factors affecting the electronic trust of online supermarket applications. Operators of online supermarket applications should continue to strive in these areas to enhance users' trust and satisfaction. By continuously optimizing user experience, strengthening service

quality, and protecting user privacy, online supermarket applications can establish a strong foundation of user trust, thereby gaining an advantage in the competitive market.

5.1.3 E-Satisfaction significantly positively affects Freshippo application consumer purchase intention.

The relationship between E-Satisfaction (electronic satisfaction) and consumer purchase intention has been widely studied in the context of e-commerce and mobile applications. E-Satisfaction refers to the overall contentment a user feels with their experience on an online platform, while purchase intention reflects the likelihood that a user will make a purchase. Research consistently demonstrates that E-Satisfaction significantly and positively influences consumer purchase intention. Below is a synthesis of relevant literature supporting this claim, with a focus on applications like Freshippo. E-Satisfaction is a critical determinant of user behavior in online platforms. It encompasses factors such as ease of use, efficiency, fulfillment, and privacy, which collectively shape the user experience.

Studies have shown that E-Satisfaction is a strong predictor of customer loyalty and repeat purchase behavior (Anderson & Srinivasan, 2003). Satisfied users are more likely to return to a platform and recommend it to others. In mobile applications, E-Satisfaction is particularly important due to the competitive nature of the market. Applications that deliver a seamless and enjoyable experience are more likely to retain users and drive purchase intentions (Kim et al., 2013). Freshippo's focus on efficiency, fulfillment, and privacy likely contributes to high levels of E-Satisfaction, which in turn drives purchase intentions. Freshippo's ability to provide a smooth and satisfying user experience—through features like AI-driven recommendations, fast delivery, and secure transactions—enhances E-Satisfaction and encourages users to make purchases.

Purchase intention is directly influenced by the level of satisfaction a user derives from their experience on an e-commerce platform. Satisfied users are more likely to trust the platform and feel confident in their purchasing decisions.

Research by Zeithaml et al. (2002) found that E-Satisfaction positively impacts purchase intention by reducing perceived risk and increasing trust in the platform. A study by Liang and Lai (2002) demonstrated that users who are satisfied with their online shopping experience are more likely to make repeat purchases and spend more on the platform. In the context of grocery delivery apps, E-Satisfaction is particularly important due to the frequent and routine nature of purchases. Users who are satisfied with the service are more likely to continue using the app for their grocery needs (Xing et al., 2020). Freshippo's emphasis on delivering a satisfying experience—through features like real-time order tracking, high-quality products, and responsive customer service—likely strengthens users' purchase intentions.

E-Trust plays a crucial role in translating E-Satisfaction into purchase intention. Users who trust a platform are more likely to act on their satisfaction by making purchases (Gefen et al., 2003). Perceived value, which includes the balance between cost and quality, also mediates the relationship between E-Satisfaction and purchase intention. Users who perceive high value in a platform are more likely to make purchases (Sirdeshmukh, Krishna, & Subhadra, 2002). Freshippo's ability to deliver high-quality products at competitive prices, combined with its reliable service, enhances perceived value and trust, further strengthening the link between E-Satisfaction and purchase intention.

The literature consistently supports the notion that E-Satisfaction significantly and positively affects consumer purchase intention in e-commerce applications like Freshippo. By optimizing factors such as efficiency, fulfillment, privacy, and perceived value, Freshippo can enhance E-Satisfaction and drive higher purchase intentions among its users. Future research could explore the specific mechanisms through which E-Satisfaction influences purchase intention and the role

of mediating factors in this relationship.

Enhancing electronic satisfaction is crucial for strengthening consumer immediate purchase decisions and can also promote their consumption intentions in the long term, bringing sustained business value to enterprises. The impact of electronic satisfaction on consumption intentions can be illustrated with real-life examples. For instance, when a busy working person uses the "Freshippo" application for online shopping, if they find the application operation smooth, a rich variety of products, reasonable prices, and receive the purchased goods quickly and accurately, their satisfaction will significantly increase. This positive shopping experience will encourage them to continue using the application for shopping in the future and may even recommend it to friends.

Similarly, if the application can ensure user privacy security, such as protecting payment information through encryption technology, users will feel more at ease, thereby enhancing their trust and loyalty to the application. This trust and satisfaction are key factors that prompt consumers to repeatedly use the application and generate continuous purchasing behavior. Therefore, online supermarket applications need to continuously optimize user experience, ensure service quality, and protect user privacy to enhance electronic satisfaction, thereby strengthening consumer purchase intentions.

5.1.4 E-Trust significantly positively influences Freshippo application consumer purchase intention.

Purchase intention is directly influenced by the level of trust a user has in an e-commerce platform. Trust reduces uncertainty and perceived risk, making users more willing to engage in transactions.

Research by Pavlou (2003) found that E-Trust positively impacts purchase intention by reducing perceived risk and increasing the likelihood of transaction

completion. A study by Dinev and Hart (2006) demonstrated that users who trust an e-commerce platform are more likely to make repeat purchases and recommend the platform to others. In the context of grocery delivery apps, E-Trust is crucial due to the frequent and routine nature of purchases. Users who trust the platform are more likely to rely on it for their grocery needs (Xing et al., 2020).

Freshippo's ability to consistently deliver fresh groceries on time and maintain secure transactions enhances E-Trust, which strengthens users' purchase intentions. In this dissertation, exploring the impact of electronic trust on consumer purchase intentions for online supermarket applications is a key research area, as it involves the core motivations of consumer behavior and the success of e-commerce platforms. Electronic trust is a critical factor when consumers make shopping decisions on online supermarket applications. When consumers have a high level of electronic trust in a platform, they are more likely to shop on that platform because they believe it can protect their rights and provide reliable products and services. This trust reduces consumers' concerns about purchasing counterfeit goods, personal information leaks, or payment risks, thereby increasing their sense of shopping security and encouraging them to consume more actively, increasing the frequency and amount of purchases.

High electronic trust also encourages consumers to try new products or services by online supermarket applications. Consumers trust that the platform's recommendations and introductions are genuine and credible, reducing the risk of being misled by false advertising. If consumers are interested in a newly launched featured or exclusive product, due to trust in the platform, they are more likely to place an order to try it. This not only helps the platform expand its business but also enriches consumers' shopping options.

Electronic trust also helps online supermarket applications establish long-term stable relationships with consumers. When consumers trust a platform, they are more inclined to continue shopping on that platform rather than frequently changing

shopping channels. This loyalty brings stable income and good reputation to the platform. The platform can further consolidate consumer trust by continuously improving service quality and user experience, forming a virtuous cycle.

In summary, electronic trust has a significant positive impact on consumer purchase intentions for online supermarket applications. Online supermarket operators should strive to improve electronic trust to attract more consumers and promote their consumption behavior. This can be achieved by ensuring product quality, strengthening data security, providing excellent customer service, and optimizing the shopping experience.

5.1.5 The mediating role of electronic Satisfaction effects between efficiency, Fulfillment and privacy and consumer purchase intention

The mediating role of electronic satisfaction between efficiency, fulfillment, privacy, and consumer purchase intention has been a focal point in e-commerce and online consumer behavior research. Electronic satisfaction, which reflects consumers' overall contentment with their online shopping experience, plays a critical role in translating key service quality dimensions into purchase intentions.

First, Parasuraman et al. (2005) introduced the E-S-QUAL model, which identifies efficiency, fulfillment, system availability, and privacy as core dimensions of electronic service quality. Their research highlights that these dimensions significantly influence consumers' satisfaction with online platforms. For instance, efficiency (e.g., ease of navigation and quick loading times) and fulfillment (e.g., accurate order processing and timely delivery) directly enhance electronic satisfaction. This satisfaction, in turn, positively impacts consumers' purchase intentions. Thus, electronic satisfaction acts as a mediator, bridging the gap between efficiency, fulfillment, and purchase intentions.

Second, Zeithaml et al. (2002) explored the delivery of service quality through websites and its impact on consumer behavior. They found that privacy (e.g., secure handling of personal and payment information) is a critical factor in building consumer trust and satisfaction. When consumers perceive a website as secure and privacy-conscious, their satisfaction with the platform increases, which subsequently boosts their willingness to make purchases. This study underscores the mediating role of electronic satisfaction in linking privacy to consumer purchase intentions.

Third, Kim & Lennon (2013) examined the effects of website quality and reputation on consumer emotions, perceived risk, and purchase intentions. Their findings revealed that fulfillment (e.g., accurate product descriptions and reliable delivery) and efficiency (e.g., user-friendly interface and fast transaction processes) significantly contribute to electronic satisfaction. When consumers are satisfied with their online shopping experience, they are more likely to develop positive emotions and lower perceived risk, ultimately leading to higher purchase intentions. This research further emphasizes the mediating role of electronic satisfaction in connecting fulfillment and efficiency to consumer purchase behavior.

In summary, these studies collectively demonstrate that electronic satisfaction serves as a crucial mediator between efficiency, fulfillment, privacy, and consumer purchase intentions. By enhancing satisfaction through efficient website design, reliable fulfillment processes, and robust privacy protections, online platforms can significantly increase consumers' willingness to make purchases. This highlights the importance of prioritizing service quality dimensions to foster electronic satisfaction and drive purchase intentions in e-commerce.

5.1.6 The mediating role of electronic trust effects between efficiency, Fulfillment and privacy and consumer purchase intention

The mediating role of electronic trust between efficiency, fulfillment, privacy, and consumer purchase intention has been extensively studied in the context

of online consumer behavior. Research indicates that electronic trust acts as a critical mechanism through which these factors influence consumers' decisions to purchase online.

First, Chen and Barnes (2007) emphasized the significance of initial trust in shaping online buyer behavior. Their study found that trust is a key factor in reducing perceived risk and uncertainty in online transactions. Specifically, they demonstrated that efficiency (e.g., ease of navigation and quick response times) and privacy (e.g., secure handling of personal data) significantly enhance consumers' trust in an online platform. This trust, in turn, positively influences their purchase intentions. Thus, electronic trust mediates the relationship between efficiency, privacy, and consumer purchase intentions.

Second, Flavián & Guinalú (2006) explored the role of perceived usability, satisfaction, and trust in fostering website loyalty. Their findings revealed that efficiency (e.g., a well-designed and functional website) and privacy (e.g., transparent data protection policies) are critical antecedents of electronic trust. When consumers perceive a website as efficient and secure, their trust in the platform increases, which subsequently enhances their likelihood of making a purchase. This study underscores the mediating role of electronic trust in linking efficiency and privacy to purchase intentions.

Third, Kim and Lennon (2013) investigated how website quality and reputation influence consumer emotions, perceived risk, and purchase intentions. They found that fulfillment (e.g., accurate product descriptions and timely delivery) and privacy (e.g., secure payment systems) significantly contribute to building consumer trust. This trust reduces perceived risk and fosters positive emotions, ultimately leading to higher purchase intentions. Their research highlights the mediating role of electronic trust in connecting fulfillment and privacy to consumer purchase behavior.

In summary, these studies collectively demonstrate that electronic trust serves as a crucial mediator between efficiency, fulfillment, privacy, and consumer purchase intentions. By fostering trust through efficient website design, reliable fulfillment processes, and robust privacy protections, online platforms can significantly enhance consumers' willingness to make purchases. This underscores the importance of prioritizing trust-building measures in e-commerce strategies.

5.2 Research Limitations

This study, while providing valuable insights into the impact of efficiency, fulfillment, and privacy on consumer behavior, also has some limitations. Firstly, the focus of the study is mainly on these few factors and may not cover all the elements that affect consumer behavior. For example, factors such as consumer brand loyalty, personal purchasing power, and cultural background may also affect their purchase intentions and satisfaction. These factors are worth further exploration in future studies to comprehensively understand consumer behavior patterns.

Additionally, the sample of this study may not fully cover all the factors that affect consumer behavior. Especially in a specific region like Shanghai, region-specific consumer behavior characteristics, such as Shanghai's unique cultural background and lifestyle, may affect consumer acceptance and usage habits of e-commerce platforms. Future studies should pay special attention to these region-specific factors to more accurately capture the diversity and complexity of consumer behavior.

In terms of data collection methods, this study mainly uses questionnaires, which may have subjective biases. Questionnaires rely on participants' self-reports, which may introduce subjective biases, meaning that participants may answer questions based on their own understanding and preferences, which may not fully reflect the facts. Moreover, the design of the questionnaire and the way questions are phrased can affect participants' understanding and answers, thus affecting the research

results. Questionnaires are difficult to delve into complex psychological and behavioral motivations. Therefore, future studies can consider using a more diverse range of data collection methods, such as in-depth interviews, observational studies, etc., to gain more comprehensive and in-depth insights.

In summary, although this study provides an in-depth understanding of the relationship between efficiency, fulfillment, privacy, and consumer purchase intentions, there are limitations in sample coverage and data collection methods. Future studies can overcome these limitations by considering more influencing factors and adopting more diverse data collection methods, thereby providing more comprehensive guidance for the user experience and marketing strategies of e-commerce platforms.

5.3 Research Recommendations

5.3.1 The factor of Efficiency affecting Consumer Purchase Intentions on Freshippo in China

5.3.1.1 Definition and Importance of Efficiency

Efficiency in the context of Freshippo, an online-to-offline (O2O) grocery retailer in China, is a critical factor that influences consumer purchase intentions. Efficiency is primarily reflected in several key areas: page loading speed, search functionality, simplified checkout processes, and delivery speed and accuracy. These factors collectively impact the user experience and purchasing intentions of consumers. Efficient platform operations can make consumers feel more convenient and smoother when using Freshippo, and this positive experience can be translated into electronic satisfaction, which in turn affects their trust in the platform. When consumers are satisfied with the platform's efficiency, they are more likely to believe that the platform can provide reliable services, thereby increasing the likelihood of making a purchase.

In the aspect of Page Loading Speed, Page loading speed is a crucial factor affecting consumer experience. Fast page loading reduces waiting time and enhances the user experience. When consumers use Freshippo, if the pages load quickly, they are more likely to stay and browse products, thereby increasing the likelihood of making a purchase. Page loading speed directly affects electronic satisfaction; when consumers are satisfied with the page loading speed, they are more likely to trust that the platform can provide reliable services, thereby enhancing electronic trust and promoting purchasing intentions.

In the aspect of Search Functionality, A powerful search function is key to improving shopping efficiency. Freshippo uses intelligent search algorithms to provide personalized product recommendations, enabling consumers to find the products they want more quickly. This convenient search function not only enhances electronic satisfaction but also strengthens consumer trust. When consumers can quickly find the products they need, their trust in the platform increases, making them more willing to make purchases on the platform.

In the aspect of Checkout Process, A simplified checkout process reduces the number of steps required to complete a purchase, making it easier for consumers to buy. This efficient checkout process can reduce the cost of shopping for consumers and enhance purchasing intentions. The simplified checkout process directly enhances electronic satisfaction because the convenience and smoothness felt by consumers during use can be translated into a positive evaluation of the platform. This satisfaction further strengthens electronic trust and promotes purchasing behavior.

In the aspect of Delivery Speed and Accuracy, Freshippo promises delivery within 30 minutes for orders placed within a 5-kilometer radius, with strict time control at every stage. This efficient delivery service reduces waiting time for consumers, enhances the shopping experience, and thereby strengthens purchasing intentions. Delivery speed and accuracy directly affect electronic satisfaction and

electronic trust. When consumers see that their orders are processed and delivered accurately and promptly, they perceive the platform as reliable, which further promotes their purchasing intentions

5.3.1.2 Research Recommendations

(1) Enhance Page Loading Speed

Continuously optimize the technical architecture of the Freshippo app to ensure rapid page loading. For example, introduce more advanced technologies such as Content Delivery Networks (CDN) and caching mechanisms to reduce page loading time. Regularly monitor page loading speed to promptly identify and resolve performance issues, ensuring continuous optimization of user experience.

(2) Optimize Search Functionality

Further refine intelligent search algorithms to provide more accurate search results and personalized recommendations. For example, use machine learning and artificial intelligence technologies to provide personalized product recommendations based on users' browsing history and purchasing behavior. Regularly collect user feedback on search functionality to continuously optimize the search experience, ensuring that users can quickly find the products they need.

(3) Simplify Checkout Process

Optimize the user experience design of the checkout process to reduce the number of steps required to complete a purchase, making it easier for consumers to buy. For example, simplify form filling and provide one-click checkout functions to enhance user convenience. Regularly conduct user testing, collect feedback, and continuously optimize the checkout process to ensure that users feel the convenience and smoothness during use.

(4) Improve Delivery Speed and Accuracy

Strengthen partnerships with logistics providers to optimize delivery routes and times, ensuring that orders are delivered accurately and promptly to consumers. For example, establish partnerships with more local logistics providers to enhance delivery efficiency and coverage. Develop a comprehensive order tracking system that allows consumers to monitor their orders in real-time, enhancing their trust in the platform.

5.3.2 The factor of Fulfillment affecting Consumer Purchase Intentions on Freshippo in China

5.3.2.1 Definition and Importance of Fulfillment

Fulfillment in the context of Freshippo encompasses several critical processes including order receiving and processing, picking, packing, and delivery, as well as returns and exchanges management. Fulfillment is essential as it ensures that consumers receive their desired products promptly, enhancing their satisfaction and trust, which in turn strengthens their intention to purchase.

In the aspect of order receiving and processing, when consumers place an order on Freshippo, swift order processing reduces wait times and enhances the shopping experience. Real-time inventory management ensures the accuracy of stock levels, preventing order cancellations due to stockouts. Rapid order processing directly boosts electronic satisfaction (e-satisfaction) as consumers see their orders being handled promptly. This satisfaction further enhances electronic trust (e-trust), promoting purchasing behavior.

In the aspect of Picking, Packing, and Delivery, Freshippo's fulfillment centers or warehouses efficiently handle picking, packing, and delivery. Consumers now expect fast, and sometimes free, delivery, so e-commerce businesses must

strategically choose courier services and optimize delivery routes or partner with multiple couriers to meet varying delivery preferences and speeds. Efficient delivery services not only enhance electronic satisfaction but also strengthen consumer trust. When consumers see their orders being accurately and promptly processed and delivered, they perceive the platform as reliable, which further encourages their purchasing intentions.

In the aspect of Returns and Exchanges Management, The return and exchange rate in e-commerce is typically higher than in physical stores, making an efficient returns process crucial. This includes receiving and processing returned goods as well as managing reverse logistics, which can be complex and costly. Efficient returns and exchanges management enhances electronic satisfaction and trust. Knowing that they can easily return items if needed makes consumers more willing to purchase on the platform.

In the aspect of Customer Communication, Proactive customer communication is key throughout the fulfillment process. This includes providing order confirmations, delivery updates, tracking information, and convenient customer service. Such transparency is crucial for building customer trust and satisfaction. Good customer communication enhances electronic satisfaction and trust. When consumers can track their orders in real-time, their trust in the platform increases, making them more likely to purchase.

5.3.2.2 Research Recommendations

(1) Strengthen Supply Chain Management

Utilize big data and artificial intelligence technologies to achieve more precise inventory management, ensuring adequate product supply and reducing stockouts. Real-time inventory management also minimizes waste and improves operational efficiency. Strengthen partnerships with logistics providers,

optimize delivery routes and times, and ensure orders are delivered accurately and promptly. For example, partnering with more local logistics providers can enhance delivery efficiency and coverage.

(2) Improve Delivery Speed and Accuracy

Freshippo's delivery network can achieve delivery within 30 minutes, thanks to its model of using stores as delivery centers. This not only improves delivery efficiency but also enhances the consumer shopping experience. Develop a comprehensive order tracking system that allows consumers to monitor their orders in real-time, enhancing their trust in the platform.

(3) Optimize Returns and Exchanges Process

Provide a simple and convenient returns and exchanges process, making it easy for consumers to return items if they encounter problems. For example, offer a one-click returns and exchanges function on the app to reduce consumer effort. Efficiently manage reverse logistics to ensure returned goods are processed quickly, reducing consumer wait times.

(4) Enhance Customer Communication

Throughout the order processing, delivery, and returns and exchanges processes, proactively provide consumers with information, including order confirmations, delivery updates, and tracking information. For example, send SMS or app push notifications to keep consumers informed about their order status. Ensure consumers can easily contact customer service to resolve any issues they encounter during the shopping process. For example, offer multiple channels such as online customer service and phone support for comprehensive customer service.

5.3.3 The factor of Privacy affecting Consumer Purchase Intentions on Freshippo in China

5.3.3.1 Definition and Importance of Privacy

Privacy is a critical factor that shapes consumer purchase intentions on the Freshippo application in China. Privacy concerns include the protection of personal information, data security, and the transparency of data usage. Consumers are increasingly aware of the importance of privacy in the digital age, and their trust in a platform's privacy measures can significantly influence their willingness to make purchases. Efficient privacy management not only enhances electronic satisfaction but also strengthens electronic trust, which in turn affects purchasing intentions.

In the aspect of Personal Information Protection, Consumers are more likely to make purchases on a platform that they believe will protect their personal information. Freshippo uses secure data encryption, access controls, and strict privacy policies to ensure that consumer data is safe. This protection reduces the risk of data breaches and identity theft, which are major concerns for online shoppers. When consumers feel that their personal information is secure, they experience higher levels of electronic satisfaction. This satisfaction translates into increased trust in the platform, making them more likely to complete transactions and recommend the platform to others.

In the aspect of Data Security, Data security is crucial for maintaining consumer confidence. Freshippo prioritizes confidentiality by implementing robust security measures. This includes using secure data encryption and access controls to prevent unauthorized access to consumer data. High levels of data security enhance electronic trust. Consumers who trust that their data is secure are more likely to engage in online transactions, as they feel that their privacy is respected and protected.

In the aspect of Transparency of Data Usage, Transparency in how data is collected, used, and shared is essential for building consumer trust. Freshippo communicates clearly with consumers about when and why their data is being collected. This transparency helps consumers understand the value proposition of the platform and aligns with the overall brand message. When consumers are informed about data usage, they feel more in control of their information. This sense of control enhances electronic satisfaction and trust, leading to higher purchase intentions.

5.3.3.2 Research Recommendations

(1) Enhance Personal Information Protection

Continuously update and strengthen data encryption methods to protect consumer information from potential breaches. Conduct regular audits of data security measures to ensure compliance with the latest standards and regulations.

(2) Strengthen Data Security

Implement strict access controls to limit who can view or modify consumer data. This includes using multi-factor authentication and role-based access control systems. Regularly train employees on data security best practices to minimize the risk of internal data breaches.

(3) Improve Transparency of Data Usage

Develop and maintain clear, concise privacy policies that are easily accessible to consumers. These policies should detail how data is collected, used, and shared. Obtain explicit user consent before collecting and using data for any purpose other than the core functionality of the platform. This includes using data for marketing or sharing with third parties.

5.3.4 The factor of Electronic Satisfaction affecting Consumer Purchase Intentions on Freshippo in China

5.3.4.1 Definition and Importance of Electronic Satisfaction

Electronic satisfaction (e-satisfaction) is a critical factor that shapes consumer purchase intentions on the Freshippo application in China. E-satisfaction refers to the level of contentment consumers feel with their online shopping experience, including aspects such as platform efficiency, fulfillment, privacy, and overall service quality. High levels of e-satisfaction can significantly enhance consumer trust and loyalty, leading to increased purchase intentions and positive word-of-mouth.

5.3.4.2 Factors Influencing Electronic Satisfaction

In the aspect of Platform Efficiency, Efficient platform operations, such as fast page loading speeds and streamlined checkout processes, reduce consumer wait times and enhance the overall shopping experience. Consumers are more likely to complete purchases and return to the platform if they find it easy to use and navigate. Efficient platforms directly enhance e-satisfaction, which in turn strengthens electronic trust (e-trust). When consumers trust that the platform will provide a smooth and reliable experience, they are more likely to make purchases.

In the aspect of Fulfillment, Reliable fulfillment, including accurate order processing, timely delivery, and effective returns management, is crucial for consumer satisfaction. Consumers expect their orders to be delivered promptly and accurately, and any delays or errors can significantly reduce e-satisfaction. Efficient fulfillment processes enhance e-satisfaction and e-trust. When consumers receive their orders as expected, they are more likely to trust the platform and make future purchases.

In the aspect of Privacy, Strong privacy measures, such as secure data encryption and transparent data usage policies, are essential for building consumer trust. Consumers are more likely to share their personal information and make purchases if they feel their privacy is protected. Privacy protection enhances e-satisfaction and e-trust. When consumers trust that their personal information is secure, they are more likely to engage in online transactions and recommend the platform to others.

In the aspect of Service Quality, High-quality customer service, including responsive support and effective issue resolution, can significantly enhance consumer satisfaction. Consumers are more likely to remain loyal to a platform that addresses their concerns promptly and effectively. Quality service enhances e-satisfaction and e-trust. When consumers feel valued and supported, they are more likely to trust the platform and make repeat purchases.

In the aspect of User Interface and Experience, A user-friendly interface and a seamless shopping experience can significantly enhance consumer satisfaction. Features such as personalized recommendations, easy navigation, and intuitive design can make the shopping process more enjoyable and efficient. A well-designed user interface enhances e-satisfaction and e-trust. When consumers find the platform easy to use and enjoyable, they are more likely to trust the platform and make purchases.

5.3.4.3 Research Recommendations

(1) Enhance Platform Efficiency

Continuously optimize the technical architecture of the Freshippo app to ensure rapid page loading. For example, introduce more advanced technologies such as Content Delivery Networks (CDN) and caching mechanisms to reduce page loading time. Regularly monitor page loading speed to promptly identify

and resolve performance issues, ensuring continuous optimization of user experience.

(2) Improve Fulfillment Processes

Strengthen partnerships with logistics providers to optimize delivery routes and times, ensuring that orders are delivered accurately and promptly. Develop a comprehensive order tracking system that allows consumers to monitor their orders in real-time, enhancing their trust in the platform.

(3) Strengthen Privacy Protection

Implement robust data encryption and access controls to prevent unauthorized access to consumer data. Develop and maintain clear, concise privacy policies that are easily accessible to consumers. These policies should detail how data is collected, used, and shared.

(4) Enhance Service Quality

Provide responsive and effective customer support to address consumer concerns promptly. This includes multiple channels such as online chat, phone support, and email. Ensure that issues are resolved efficiently and effectively, minimizing the impact on consumer satisfaction.

(5) Optimize User Interface and Experience

Continuously improve the user interface and experience by incorporating user feedback and best practices in design. This includes simplifying form filling, providing one-click checkout options, and offering personalized recommendations. Regularly conduct user testing to identify and address any usability issues, ensuring that the platform is easy to use and enjoyable.

5.3.5 The factor of Electronic Trust affecting Consumer Purchase Intentions on Freshippo in China

5.3.5.1 Definition and Importance of Electronic Trust

Electronic trust (e-trust) is a critical factor that shapes consumer purchase intentions on the Freshippo application in China. E-trust refers to the level of confidence consumers have in the platform's ability to protect their personal information, deliver reliable services, and provide a secure shopping experience. High levels of e-trust can significantly enhance consumer satisfaction and loyalty, leading to increased purchase intentions and positive word-of-mouth.

5.3.5.2 Factors Influencing Electronic Trust

In the aspect of Security Measures, Consumers are more likely to trust a platform that implements robust security measures, such as data encryption and secure payment gateways. These measures protect consumer data from unauthorized access and reduce the risk of fraud. Strong security measures enhance e-trust. When consumers feel that their data is secure, they are more likely to engage in online transactions and recommend the platform to others.

In the aspect of Privacy Protection, Privacy protection is crucial for building consumer trust. Freshippo should have clear and transparent privacy policies that detail how consumer data is collected, used, and shared. This transparency helps consumers understand the value proposition of the platform and aligns with the overall brand message. Privacy protection enhances e-trust. When consumers are informed about data usage, they feel more in control of their information, leading to higher levels of satisfaction and trust.

In the aspect of Service Quality, High-quality customer service, including responsive support and effective issue resolution, can significantly enhance consumer satisfaction. Consumers are more likely to remain loyal to a platform that addresses their concerns promptly and effectively. Quality service enhances e-trust. When consumers feel valued and supported, they are more likely to trust the platform and make repeat purchases.

In the aspect of User Interface and Experience, A user-friendly interface and a seamless shopping experience can significantly enhance consumer satisfaction. Features such as personalized recommendations, easy navigation, and intuitive design can make the shopping process more enjoyable and efficient. A well-designed user interface enhances e-trust. When consumers find the platform easy to use and enjoyable, they are more likely to trust the platform and make purchases.

5.3.5.3 Research Recommendations

(1) Enhance Security Measures

Implement robust data encryption to protect consumer data from unauthorized access. Use secure payment gateways to ensure that financial transactions are safe and reliable.

(2) Strengthen Privacy Protection

Develop and maintain clear, concise privacy policies that are easily accessible to consumers. These policies should detail how data is collected, used, and shared. Obtain explicit user consent before collecting and using data for any purpose other than the core functionality of the platform.

(3) Improve Service Quality

Provide responsive and effective customer support to address consumer concerns promptly. This includes multiple channels such as online chat, phone support, and email. Ensure that issues are resolved efficiently and effectively, minimizing the impact on consumer satisfaction.

(4) Optimize User Interface and Experience

Continuously improve the user interface and experience by incorporating user feedback and best practices in design. This includes simplifying form filling, providing one-click checkout options, and offering personalized recommendations. Regularly conduct user testing to identify and address any usability issues, ensuring that the platform is easy to use and enjoyable.

5.4 Future Research Directions

5.4.1 Future research should adopt a more holistic approach by integrating efficiency, fulfillment, and privacy as key determinants of electronic satisfaction in applications like Freshippo. Mixed-method studies combining quantitative analyses, such as SEM, with qualitative insights could provide a deeper understanding of how these factors interact with trust and user experience.

5.4.2 Expanding the scope of mobile application success research to include grocery delivery platforms would offer valuable insights into user behavior and app performance in this domain. Longitudinal studies and real-time data collection methods could address the limitations of self-reported data and provide a more dynamic understanding of consumer behavior.

5.4.3 Exploring the role of social determinants across diverse populations and regions would enhance the generalizability of findings and inform more inclusive

digital strategies. Finally, integrating sensory and consumer research into digital platform design could bridge the gap between food studies and e-commerce, offering innovative solutions to enhance user satisfaction and engagement. Addressing these gaps will not only advance academic understanding but also provide actionable insights for improving digital consumer experiences.



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APPENDICES
QUESTIONNAIRE SURVEY

Questionnaire Survey

Dear Sir/Madam,

Freshippos is a Chinese local life service platform built by Alibaba Group, and its business plan covers many fields such as online supermarket, food and beverage takeout, express delivery, charging bank, and life service. As an important part of Alibaba's new retail strategy, Freshippos makes full use of the group's advantages in online retail, logistics, big data and other aspects, and is committed to providing consumers with one-stop life service solutions.

This questionnaire strictly adheres to the principle of privacy protection, and all responses will be processed anonymously for academic research purposes only and will not be made public. No questions in the questionnaire are mandatory and you can choose to answer or skip them as you wish. We will be fully responsible for the confidentiality of each of your answers to ensure the security of your personal information.

Your opinion is extremely important to our research, it will directly affect the depth and breadth of research. We sincerely request that you complete the questionnaire in detail and honestly, based on your true thoughts and experiences. Once completed, please return the questionnaire to our distribution staff. If you encounter any questions or need further information during the filling process, please feel free to contact us and we will be happy to assist you.

Thank you again for your participation and support. Each of your feedback is an important contribution to our research work and we are truly grateful for it. We hope that through your valuable comments, we can better understand consumer needs and promote academic development and practical innovation in related fields.

I wish you health and happiness!

Note:

- 1 This questionnaire is divided into seven parts, please make sure to answer all questions.
2. This survey will take approximately 3-5 minutes.
3. Your information and answers will be kept confidential.

Part One: Basic Information

Please place a tick "√" for each of the following:

1. Your gender is [multiple choice]

☐ male

☐ female

2. Your age range is [multiple choice]

☐ Age 24 and under

☐ 25-34 years old

☐ 35-44 years old

☐ Age 45 and older

3. Your highest degree is [multiple choice]

☐ High school/Vocational

☐ Junior college

☐ University degree or equivalent

☐ Master degree or above

4. Your personal monthly income range is [multiple choice]

☐ 8000 yuan and below

☐ 8001-12000 yuan

☐12001-20000 yuan

☐20001 yuan and above

5.What is your marital status?

☐Married

☐Unmarried

☐Divorced

☐Widowed

6.How long have you been using the Freshippo?

☐ < 3 months

☐ 3 to less than 6 months

☐ 6 to less than 12 months

☐ 12 months or more

7.How often do you use Freshippo?

☐ 4 or less times a month

☐ 5 to 8 times a month

☐ 9 to 12 times a month

☐ 13 or more times a month

8.How much do you spend on Freshippo each month?

☐ Less than 100 yuan

☐ 100-1000 yuan

☐ 1000-2000 yuan

☐ 2000 yuan and above

Part Two : Efficiency (EFF)

Please circle your answer to each statement using 5 Points Likert Scale:

(1)=Strongly Disagree ;(2)=Disagree;(3)=Neutral ;(4)=Agree;(5)=Strongly agree

NO.	Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
EFF1	Freshippo makes it easy to find what I need.	1	2	3	4	5
EFF2	Freshippo makes it easy to get anywhere on the site.	1	2	3	4	5
EFF3	Freshippo enables me to complete a transaction quickly.	1	2	3	4	5
EFF4	Information at Freshippo is well organised.	1	2	3	4	5
EFF5	It loads its pages fast.	1	2	3	4	5
EFF6	Freshippo is simple to use.	1	2	3	4	5
EFF7	Freshippo enables me to get on to it quickly.	1	2	3	4	5

Part Three : Fulfillment (FUL)

Please circle your answer to each statement using 5 Points Likert Scale:

(1)=Strongly Disagree ;(2)=Disagree;(3)=Neutral ;(4)=Agree;(5)=Strongly agree

NO.	Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
FUL 1	Freshippo delivers orders when promised.	1	2	3	4	5
FUL	Freshippo makes items available for delivery within a suitable	1	2	3	4	5

2	time frame.					
FUL 3	Freshippo sends out the items ordered.	1	2	3	4	5
FUL 4	Freshippo has in stock the items the company claims to have.	1	2	3	4	5
FUL 5	Freshippo is truthful about its offerings.	1	2	3	4	5
FUL 6	The delivery time offered to me is convenient.	1	2	3	4	5

Part Four : Privacy (PRI)

Please circle your answer to each statement using 5 Points Likert Scale:

(1)=Strongly Disagree ;(2)=Disagree;(3)=Neutral ;(4)=Agree;(5)=Strongly agree

NO.	Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
PRI1	Freshippo protects information about my web shopping behaviour.	1	2	3	4	5
PRI2	Freshippo does not share my personal information with other sites.	1	2	3	4	5
PRI3	Freshippo protects information about my credit card.	1	2	3	4	5

Part Five : E-Satisfaction (E-SAT)

Please circle your answer to each statement using 5 Points Likert Scale:

(1)=Strongly Disagree ;(2)=Disagree;(3)=Neutral ;(4)=Agree;(5)=Strongly agree

NO.	Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
E-SAT1	I am satisfied with the service provided by Freshippo..	1	2	3	4	5
E-SAT2	I am satisfied with the choice of products available at this Freshippo.	1	2	3	4	5
E-SAT3	I am satisfied with the products I purchased on Freshippo.	1	2	3	4	5
E-SAT4	I am satisfied with my shopping experience on Freshippo.	1	2	3	4	5
E-SAT5	I am satisfied with my shopping through Freshippo.	1	2	3	4	5

Part Six : E-Trust (E-TUR)

Please circle your answer to each statement using 5 Points Likert Scale:

(1)=Strongly Disagree ;(2)=Disagree;(3)=Neutral ;(4)=Agree;(5)=Strongly agree

NO.	Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
E-TRU1	I feel that I can trust Freshippo.	1	2	3	4	5

E-TRU2	I feel safe when I conduct a transaction with Freshippo..	1	2	3	4	5
E-TRU3	I feel safe when performing monetary transactions through Freshippo.	1	2	3	4	5
E-TRU4	I am concerned with the payment security aspects of Freshippo.	1	2	3	4	5
E-TRU5	I am concerned with the privacy of my information provided when using Freshippo.	1	2	3	4	5
E-TRU6	I am concerned with the punctuality of the delivery time of Freshippo.	1	2	3	4	5

Part Seven : Customer Purchase Intention (CPI)

Please circle your answer to each statement using 5 Points Likert Scale:

(1)=Strongly Disagree ;(2)=Disagree;(3)=Neutral ;(4)=Agree;(5)=Strongly agree

NO.	Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
CPI1	If I could, I would like to continue using Freshippo shopping mall to purchase products.	1	2	3	4	5
CPI2	I plan to continue using the Freshippo shopping mall to purchase products in the future.	1	2	3	4	5
CPI3	It is likely that I will continue purchasing products from the Freshippo shopping mall in the future.	1	2	3	4	5

CPI4	I intend to use Freshippo when the service becomes widely available.	1	2	3	4	5
CPI5	Whenever possible, I intend to use Freshippo to purchase groceries.	1	2	3	4	5



Biography

Name	Xiaoqin Jia
Date of birth	March 20, 1990
Place of birth	China, Lvliang City, Shanxi Province
Education background	Jinggangshan University Bachelor of Economics, 2014 Xi 'an Jiaotong University Master of International Business, 2016 Rangsit University Doctor of Business Administration, 2024
Address	Zhanjiang City, Guangdong Province, China
Email Address	1546125390@qq.com
Place of work	Zhanjiang University of Science and Technology
Work position	Zhanjiang City, Guangdong Province, China

