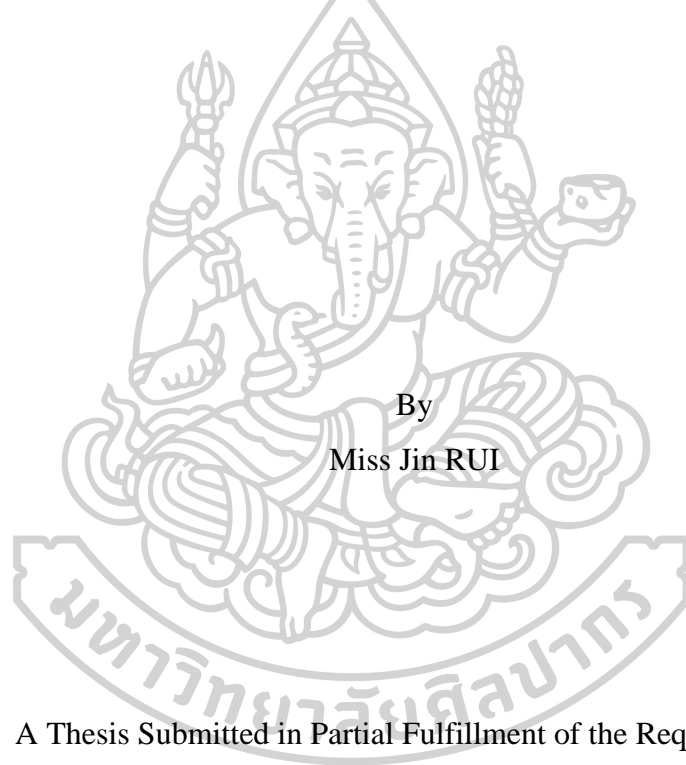




ANALYSIS AND DISCUSSION OF THE SUPERIORITY OF
DUAL-CHANNEL SUPPLY CHAIN MANAGEMENT



A Thesis Submitted in Partial Fulfillment of the Requirements
for Master of Engineering ENGINEERING MANAGEMENT
Department of INDUSTRIAL ENGINEERING AND MANAGEMENT

Silpakorn University

Academic Year 2023

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By
Miss Jin RUI

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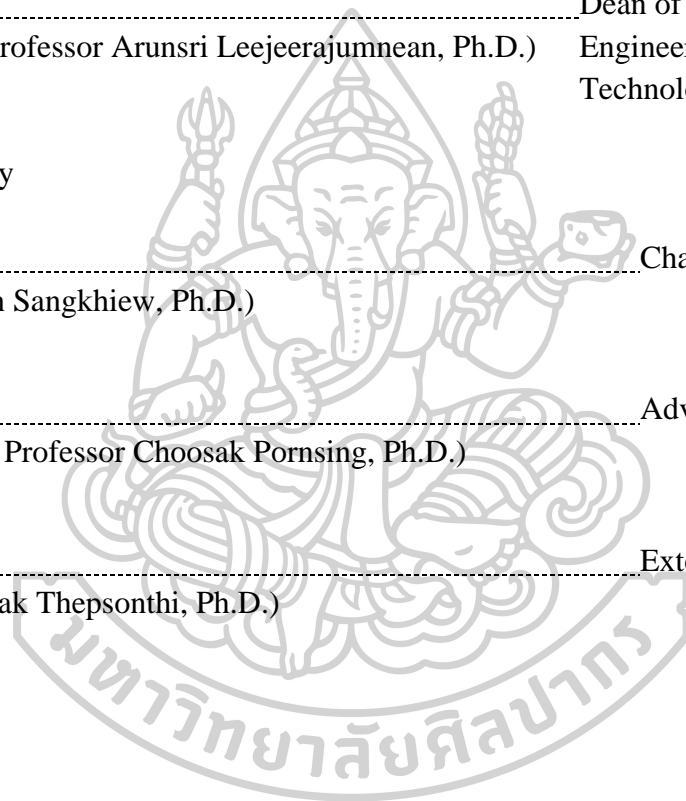
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Miss Jin RUI : ANALYSIS AND DISCUSSION OF THE SUPERIORITY OF DUAL-CHANNEL SUPPLY CHAIN MANAGEMENT Thesis advisor : Associate Professor Choosak Pornsing, Ph.D.

This study adopts a qualitative research methodology with the aim of exploring companies' successful implementation experiences and key elements in dual-channel supply chain management. Representative e-commerce platforms, retailers and manufacturers were selected for the study, including companies such as Jingdong, Tmall, Amazon and IKEA. Through in-depth interviews, key information was obtained from three anonymous practitioners (T1-T3), who demonstrated rich practical experience in dual-channel supply chain management.

The study first integrated the core concepts and theories of dual-channel supply chain management through literature analysis, which provided a theoretical foundation for the subsequent expert interviews. An expert interview form was adopted as the main data collection tool, and three experts with relevant backgrounds and professional experiences were purposively sampled and selected for in-depth interviews. The interview data were organised, summarised, analysed and classified to reveal the core concepts, advantages, challenges and future directions of dual-channel supply chain management.

The study found that these companies have built highly diverse dual-channel supply chain management systems by cleverly integrating online platforms and physical shops. Such systems not only provide a personalised and scenario-based shopping experience, but also enable a seamless shopping experience through a robust supply chain and logistics system that supports efficient product delivery. Through data-driven marketing strategies, these companies have improved customer satisfaction and loyalty, enhanced brand image and market competitiveness, and laid a solid foundation for long-term growth.

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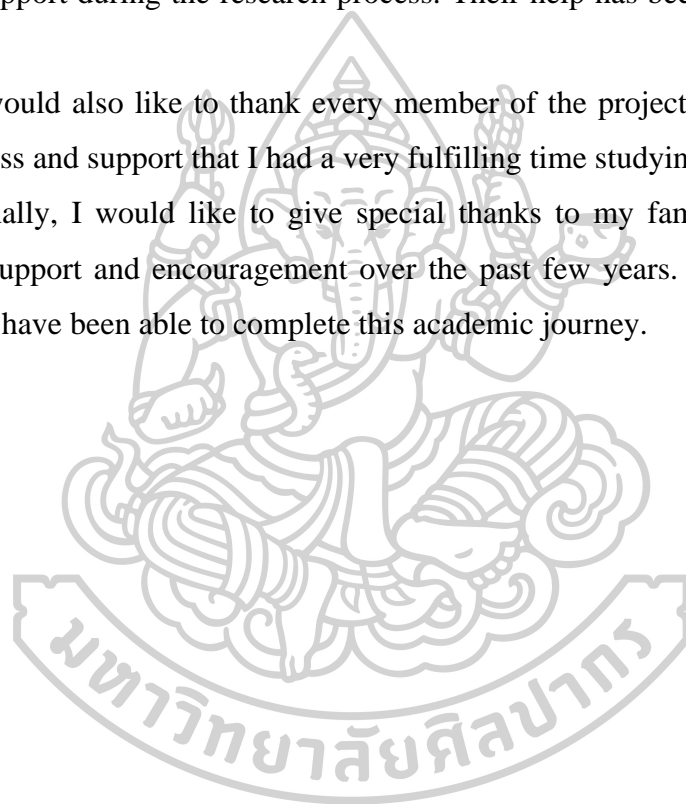
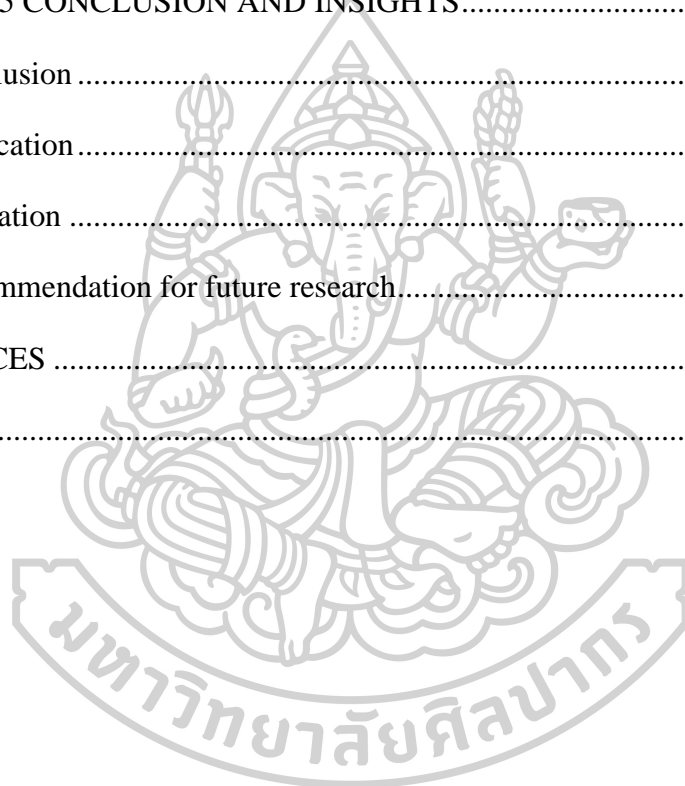


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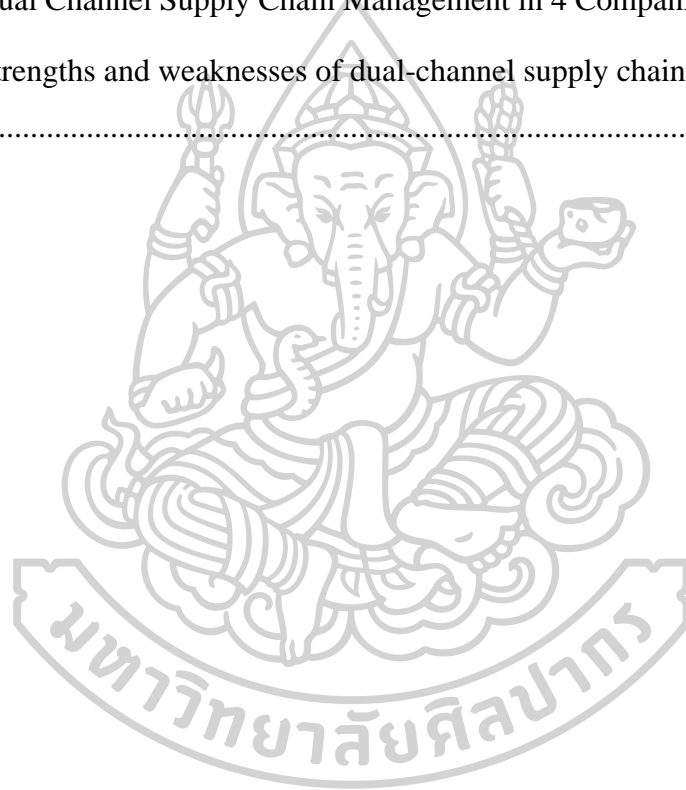
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CHAPTER 1

INTRODUCTION

1.1 Research Background

Dual-channel supply chain management refers to a supply chain systems to manage the production, distribution and sales of products or services through two channels, online and offline (Khanra & Chakraborty, 2020). With the development of Internet technology and the diversification of consumer demand, more and more enterprises are adopting the dual-channel supply chain management model (Cao et al., 2019). This model brings many advantages and has a positive impact on the competitiveness and market share of enterprises (Honarvar & Shiri, 2018).

The increasing popularity of Internet technology and the rise of e-commerce platforms have provided a new sales channel for enterprises (Banerjee & Ganguly, 2020). More and more companies are selling their products or services on e-commerce platforms, and promoting their brands and businesses through online channels (Lee & Kim, 2019). Such an operation mode saves enterprises' expenses on traditional channels, and at the same time enables them to expand their sales scale faster (Lu et al., 2020). Therefore, dual-channel supply chain management is gradually becoming one of the important strategies chosen by enterprises because of its more flexible and efficient characteristics (Ren & Wang, 2020).

When the society, consumers' demand for products and services is also changing (Wei & Gao, 2019). Previously, consumers could only buy goods or use services through physical stores (Xiong et al., 2020). But with the emergence of e-commerce platforms, consumers can shop online anytime and anywhere through devices such as cell phones or computers (Cheng et al., 2018). Companies need to better understand consumers' needs in order to provide them with a diverse buying experience (Fan et al., 2019)

Dual-channel supply chain management was created in the context of this diversified consumer demand (Almeida et al., 2020). Companies promote their brands and businesses through online channels, while also being able to maintain stable development of offline channels to best meet consumers' needs (Guo & Dong, 2019).

At the same time, in the current fiercely competitive market environment, companies must continuously transform and upgrade to maintain a competitive advantage (Han et al., 2018). The traditional sales model can no longer meet the needs of consumers (Wu & Li, 2018). If companies fail to cater to market changes and consumer needs in a timely manner, they are likely to be eliminated from the market (Bai et al., 2020). Therefore, many enterprises hope to improve their competitiveness by expanding sales channels and optimizing supply chain management (Huang & Chen, 2020). The dual-channel supply chain management model can help companies improve their performance and efficiency in several aspects so as to better meet market demand (Huang et al., 2020).

In the current economic environment, the integration of online and offline has become a major trend (Tian et al., 2020). Many companies have started to combine online sales and offline services to comply with the new market trends and improve their performance (Jia et al., 2019). With the development of e-commerce platforms, many companies have realized the importance of online and offline integration and achieved good synergy through dual-channel supply chain management model (Kanchana & Sudha, 2020). Of course, there are some contradictions and conflicts between online and offline channels, such as brand positioning, commodity prices and other issues (Kebriaei & Fatemi, 2018). Therefore, companies need to develop a scientific strategy to ensure the long-term development of the company when coordinating the relationship between online and offline channels (Almeida et al., 2020).

In conclusion, dual-channel supply chain management, as an emerging management model, has a very positive impact on the development and competitiveness of enterprises (Cai, Zhang & Liu, 2019). At present, dual-channel supply chain management has become a trend in many industries, and has been widely used and promoted (Wu & Li, 2018). Of course, when implementing dual-channel supply chain management, enterprises also need to pay attention to operational details and market development trends to better achieve their goals (Li et al., 2019).

1.2 Research Question

The study of the advantages of dual-channel supply chain management requires in-depth exploration of the following questions:

(1) What is the specific composition and implementation process of the dual-channel supply chain management model?

(2) What are the advantages of dual-channel supply chain management model compared with the traditional single-channel management model? For example, can it improve operational efficiency, reduce costs, increase sales scale, etc.?

(3) What is the impact of the dual-channel supply chain management model on consumers? Is it easier for consumers to get more choices and better shopping experience?

(4) Is the dual-channel supply chain management model able to adapt to future market development trends, such as the application of emerging technologies like artificial intelligence and the Internet of Things?

1.3 Objectives

(1) To gain an in-depth understanding of the components, implementation process and advantages of the dual-channel supply chain management model.

(2) To evaluate the differences between the dual-channel supply chain management model and the traditional single-channel management model, including its advantages and shortcomings.

(3) To explore the adaptability and application prospect of dual-channel supply chain management model under the future market development trend.

1.4 Benefits of the Study

Dual-channel supply chain management is a management model in which enterprises establish dual channels through online e-commerce channels on top of traditional offline retail channels to improve the coverage and market share of sales channels (Li et al., 2019). With the booming development of e-commerce market and the changing needs of consumers, more and more enterprises have started to adopt

dual-channel supply chain management mode (Rong et al., 2019). And the study of the advantages of dual-channel supply chain management has important guiding significance for the business management and marketing of enterprises (Wang & Chen, 2019).

First, studying the advantages of dual-channel supply chain management mode can provide better decision support for enterprises (Qi et al., 2019). Comparing the advantages of traditional single-channel management mode and dual-channel supply chain management mode in terms of management efficiency, cost control and expanding sales scale can help enterprises understand the characteristics and application scenarios of this management mode (Ma et al., 2019). According to the actual situation of different industries and enterprises, analyzing its applicability and actual application effect, and analyzing and predicting with relevant data, can provide scientific and objective guidance for enterprises' operation and management (Shao et al., 2018).

Secondly, the contribution of studying dual-channel supply chain management model is to promote theoretical research in academia (Qiu & Zhao, 2018). Through systematic analysis, comparative research and empirical research, the advantages and applicability of this management model are explored, providing a more comprehensive and scientific theoretical basis for academia (Ren & Wang, 2020). At the same time, the research can also promote the cooperation between academia and enterprises for continuous in-depth communication and joint development at the theoretical and practical levels (Sun et al., 2019).

Third, the study of dual-channel supply chain management mode can promote the economic benefits and competitiveness of enterprises (Liang et al., 2018). Dual-channel supply chain management mode has the advantages of expanding sales scale, increasing sales revenue and reducing commodity costs, which can help enterprises improve market share, reduce business risks and enhance their core competitiveness (Lu et al., 2020). In addition, studying the application prospect and development trend of dual-channel supply chain management mode can provide enterprises with advance forecast and reasonable strategic planning to seize the opportunity and improve market share and economic benefits (Yuan & Liu, 2019).

Finally, the study of dual-channel supply chain management mode can also play an important role in promoting the effective connection and integration of online and offline channels (Sun et al., 2019). By exploring the impact of the development of dual-channel supply chain management model on online and offline channels and proposing measures to coordinate the relationship between online and offline, it can promote enterprises to realize the synergy of channels, meet the diversified and personalized needs of consumers and improve user experience (Tian et al., 2020).

In conclusion, studying the advantages of dual-channel supply chain management is of great significance to both enterprises and academia (Wang & Zhong, 2020). It has played an active role in promoting the transformation and upgrading of enterprises, improving market competitiveness and promoting economic development (Liu et al., 2020).

1.5 Definition Terms

(1) Dual-channel supply chain management: Companies establish dual channels through online e-commerce channels on top of traditional offline retail channels in order to improve the coverage and market share of sales channels (Wei & Gao, 2019).

(2) Management efficiency: It refers to the performance of enterprises in terms of their ability to use resources, product and service quality, customer satisfaction and performance effectiveness (Chen et al., 2019).

(3) Cost control: Through the rational arrangement and control of commodity procurement, transportation, inventory and sales, it enables the enterprise to reduce the cost of commodity production and sales as much as possible while ensuring the quality of commodities (Wei & Gao, 2019).

(4) Expanding sales scale: By increasing sales channels, expanding sales network, and expanding market coverage, we can increase sales amount and sales volume, thus realizing an overall increase in revenue (Yang et al., 2018).

(5) Online and offline channel connection: After the enterprise realizes the "dual-channel" management mode, how to coordinate the relationship between online and offline channels, improve the linkage effect of the channels, and promote the sales performance and customer satisfaction (Jia et al.,2019).



CHAPTER 2

LITERATURE REVIEW

2.1 Dual-channel Supply Chain and Customer Satisfaction

Dual-channel supply chain has been widely used in business operations (Chen et al., 2020). It can cover both online and offline channels to provide a more convenient and diverse shopping experience, which in turn improves consumer satisfaction (Rong et al., 2019).

2.1.1 The relationship between dual-channel supply chain and consumer satisfaction

Many empirical studies have been conducted by researchers on the relationship between dual-channel supply chains and consumer satisfaction (Wang & Chen, 2019). Most of these studies have shown that consumer satisfaction can be significantly improved in dual-channel supply chains by improving the efficiency and quality of the entire supply chain (Deng & Liu, 2020). In addition, there are also studies that focus on the impact of specific links in the dual-channel supply chain on consumer satisfaction (Almeida et al., 2020). For example, some studies have shown that consumer satisfaction can be improved by establishing an efficient logistics and distribution system (Lee & Kim, 2019). Also, some studies have found that consumers' personalized needs are one of the key factors to improve consumer satisfaction (Cao et al., 2019).

2.1.2 How dual-channel supply chains can improve consumer satisfaction

(1) Providing diverse goods and services

In Dual-channel supply chains, companies can provide more diverse goods and services to meet different consumers' needs by covering both online and offline channels (Wang & Zhong, 2020). For example, providing a more convenient shopping experience through online channels, offline channels can provide more authentic product display and sales services (Amiri et al., 2019). Through multi-channel coverage, companies can better understand consumers' needs, target

differentiated product and service customization, and improve consumer satisfaction (Gan et al., 2018).

(2) Provide personalized services

In the dual-channel supply chain, consumers' personalized needs are increasingly prominent (Guan et al., 2020). Therefore, companies need to customize their services to meet consumers' individual needs and provide more personalized goods and services (Cheng et al., 2018). For example, by establishing consumer profiles to record consumers' shopping preferences and historical purchase records, customized goods and services can be provided to consumers. By providing personalized services, it can enhance consumers' trust and sense of belonging to the company and improve consumer satisfaction (Das & Chowdhury, 2018).

(3) Provide a good shopping experience

In the dual-channel supply chain, shopping experience is one of the most important factors affecting consumer satisfaction. In order to improve the shopping experience of consumers, enterprises can enhance it through various means (Fan et al., 2019). For example, using big data technology to analyze consumers' needs and behaviors to provide more personalized recommendation services; enhancing consumers' shopping experience by providing coupons and promotions; providing a wide range of goods and services with good quality, etc (Chen et al., 2019). By continuously improving the shopping experience, we can increase consumer loyalty and willingness to buy, which in turn increases consumer satisfaction (Das & Chowdhury, 2018).

(4) Efficient after-sales service

In the dual-channel supply chain, after-sales service is also one of the important factors affecting consumer satisfaction (Guo & Dong, 2019). Companies need to provide efficient and convenient after-sales service to solve the problems of consumer feedback in a timely manner (Yuan & Liu, 2019). For example, establish a perfect return and exchange process and after-sales service mechanism to provide consumers with convenient after-sales service (Sun et al., 2019); communicate and give feedback through social media and other channels to understand consumers'

feedback in time and improve the level of after-sales service (Honarvar & Shiri, 2018).

(5) Optimize logistics and distribution

In the dual-channel supply chain, logistics and distribution is one of the most important factors affecting consumer satisfaction (Li et al., 2019). Companies need to optimize logistics and distribution to improve the efficiency and quality of the entire supply chain and provide consumers with more convenient and fast logistics services. For example, establish an efficient logistics and distribution network to improve the timeliness and safety of logistics; minimize errors and mistakes in logistics and distribution, and optimize supply chain management (Huang et al., 2020). By optimizing logistics and distribution, we can improve consumers' trust in enterprise logistics and distribution and increase consumers' satisfaction (Jia et al., 2019).

2.2 Dual-channel Supply Chain and Sales & Profitability

Dual-channel supply chain is a widely used business model in which companies operate both online and offline sales channels to gain more sales opportunities (Ren & Wang, 2020). Along with the development of e-commerce and smart retailing, dual-channel supply chain has become an important tool for companies to increase sales and profitability (Huang & Chen, 2020).

2.2.1 The relationship between dual-channel supply chain and sales and profitability

In the study of the relationship between dual-channel supply chain and sales and profitability, researchers have conducted a lot of empirical studies (Lu et al., 2020). Through questionnaires, field observations, case studies, and experimental comparisons, they have explored how dual-channel supply chains affect firms' sales and profitability (Kebriaei & Fatemi, 2018). These studies found that dual-channel supply chains can significantly increase a firm's sales and profitability. Among these factors, factors such as increasing efficiency and providing personalized services are considered as one of the important means to increase sales and profitability (Gan et al., 2018).

2.2.2 How dual-channel supply chains increase sales and profitability

(1) Diversification of goods and services

Dual-channel supply chains can provide more diversified goods and services to attract more consumers by operating both online and offline sales channels (Khanra & Chakraborty, 2020). For example, using the online channel to provide a richer and more convenient shopping experience, and using the offline channel to provide authentic product display and sales services (Han et al., 2018). Through multi-channel coverage, companies can not only expand their sales range and sales, but also improve consumer satisfaction and thus profitability (Li et al., 2020).

(2) Provide personalized services

In a dual-channel supply chain, personalized service is one of the key factors in increasing sales and profitability (Li et al., 2019). Consumers are often more likely to buy because of the personalized service they receive, which increases sales and profitability. Companies can help consumers by building consumer profiles and data analysis to help them make accurate product matches, provide personalized recommendation services, or customize services to meet their specific needs. These services can improve consumer satisfaction with the company and increase loyalty, which in turn increases sales and profitability (Deng & Liu, 2020).

(3) Provide a good shopping experience

In a dual-channel supply chain, the shopping experience is one of the most important factors influencing consumers' purchases (Chen et al., 2019). Companies can attract more consumers and increase sales and profit margins by providing a great shopping experience (Liang et al., 2018). For example, by providing convenient and fast payment methods and logistics and delivery services, providing richer and more authoritative product information, and holding online and offline promotions and coupons (Liu, et al., 2020). All these can increase consumers' desire to buy and shopping satisfaction, which in turn increases sales and profitability (Kanchana & Sudha, 2020).

(4) Strengthen marketing promotion

In the dual-channel supply chain, reasonable marketing promotion can increase brand awareness and sales (Ma et al., 2019). Therefore, companies need to increase the marketing promotion of goods and services and plan effective marketing campaigns (Qi et al., 2019). Such as using social media platforms for advertising, issuing coupons and gift cards and other promotional activities to improve brand awareness and purchase conversion rate, accelerate inventory turnover, and organize targeted promotional activities can also easily reach sales targets and increase profit margins (Yuan & Liu, 2019).

2.3 Dual-channel Supply Chain and the Supply Chain Resource Optimization

Dual-channel supply chain is a business model that operates two sales channels, online and offline, at the same time, which achieves the optimal allocation of supply chain resources through the comprehensive use of existing resources, thereby improving the competitiveness and profitability of enterprises (Shao et al., 2018).

2.3.1 The concept of dual-channel supply chain resource optimization

Supply chain resource optimization refers to the coordination, integration and optimization of all links in the supply chain to maximize the use of existing logistics, information, capital and other resources, in order to reduce costs, improve efficiency, improve quality, strengthen services, and ultimately increase the competitiveness and profitability of enterprises (Chen et al., 2019; Ren & Wang, 2020). The dual-channel supply chain makes use of both online and offline sales channels to achieve optimal allocation of supply chain resources by making full use of the resources of each link, thus increasing sales and profitability (Rong et al., 2019).

2.3.2 The implementation of dual-channel supply chain resource optimization way

(1) Using O2O model to enhance the synergy between online and offline

O2O is the abbreviation of "Online to Offline", which refers to the integration of online and offline (Sun et al., 2019). The dual-channel supply chain can create a synchronized online and offline consumption experience through the

operation of O2O mode, and enhance the synergy of resource allocation between the two channels (Wu et al., 2018). For example, consumers can browse products on online platforms and then buy or experience them in offline physical stores; at the same time, offline physical stores can also accept orders and serve customers through online platforms. Dual-channel companies can use this to enhance communication and collaboration between the two channels, increasing sales and profitability (Li et al., 2019).

(2) Leveraging data and technology to improve efficiency and accuracy

By integrating sales data from online and offline channels, dual-channel supply chains can achieve accurate analysis and prediction of consumer demand, and combine information on logistics and inventory in the supply chain to achieve correlation, matching and optimization of multi-dimensional data through the use of data mining and intelligent algorithms, thereby improving the production and operation efficiency and accuracy of enterprises (Tan et al., 2020). For example, products purchased in offline stores can be delivered by online storage and logistics systems to improve operational efficiency and service levels (Yang et al., 2018).

(3) Strengthen supply chain cooperation and coordination

Dual-channel enterprises need to strengthen the cooperation and coordination between various parts of the supply chain to achieve the maximum utilization of resources (Tian et al., 2020). First, companies can establish long-term strategic partnerships with suppliers to stabilize supply and optimize procurement costs; second, by strengthening the management and coordination of warehousing and logistics systems, they can achieve seamless connections between online and offline channels to improve process efficiency and operational effectiveness (Yuan & Liu, 2019); finally, companies can strengthen communication and interaction with consumers to understand their needs and feedback in order to optimize product design, pricing and Finally, by strengthening communication and interaction with consumers, enterprises can understand consumer needs and feedback to optimize product design, pricing and service structure (Yang et al., 2018).

2.3.3 The impact of dual-channel supply chain resource optimization

(1) Cost reduction

Through the coordination and integration of resource optimization, the dual-channel supply chain effectively reduces the operating costs of enterprises based on the utilization of existing resources (Wei & Gao, 2019). For example, by promoting promotional activities on online platforms, sales can be increased and inventory backlogs can be reduced (He et al., 2020); by seamlessly connecting offline physical stores with logistics operations, the sales process can be optimized and logistics costs can be reduced, etc (Xiong et al., 2020).

(2) Improve efficiency

Optimized resource allocation in dual-channel supply chain can improve the efficiency of production, marketing and logistics of enterprises (Cai et al., 2019). For example, displaying more comprehensive and rich product information in the online platform can attract more consumers and realize faster order and payment; adopting intelligent storage and logistics system can realize fast product delivery, reduce in-transit time and loss while improving logistics efficiency (Yuan & Liu, 2019).

(3) Improve product quality and service level

The dual-channel supply chain can achieve improved product quality and service levels through resource optimization (Qiu & Zhao, 2018). For example, by using online channels to provide more convenient and fast shopping experience and order tracking services; at the same time, through the display and sales of offline physical stores, consumers can more intuitively understand the actual situation of the products and experience the products, thus enhancing consumer confidence and satisfaction in product quality and service (Yuan & Liu, 2019).

(4) Enhance competitiveness and profitability

Through resource optimization, dual-channel supply chain makes comprehensive use of existing logistics, information, capital and other resources to ensure that enterprises maintain a first-mover advantage in the competition. In addition, the dual-channel supply chain can attract more consumers, increase

consumer loyalty and retention, and thus increase sales and profit levels (Sun et al., 2019).

2.4 Problems and Challenges of Dual-channel Supply Chain

2.4.1 Problems and challenges of supply chain

(1) Supply chain risk

Supply chain risk refers to the problems in product quality, production efficiency, capital flow, logistics and distribution due to certain factors in the supply chain link, which affects the normal operation and profit level of the enterprise (Fan et al., 2019). For example, shortage of funds from suppliers, fluctuation of raw material purchase prices, and logistics and distribution timelines may all pose risks to the enterprise (Wei & Gao, 2019).

(2) Supply chain informatization

With the development of information technology, enterprises need to strengthen the application and management of supply chain informatization (Chen et al., 2020). For some traditional manufacturing enterprises, they lack information technology infrastructure and talents, and are unable to fully understand the operation status of the supply chain, which hinders information sharing and collaborative decision-making (Das & Chowdhury, 2018).

(3) Supply Chain Costs

Supply chain cost is an important issue faced by enterprises in the supply chain operation (Gan et al., 2018). Due to factors such as high production cost and fierce competition in manufacturing industry, as well as the consumption of logistics and distribution, inventory management, etc., enterprises are facing cost pressure in supply chain operation (Sun et al., 2019).

(4) Supply Chain Transparency

Transparency of supply chain refers to the sharing of information and collaborative decision making of enterprises for the whole supply chain link (Tan et al., 2020). In traditional manufacturing enterprises, the lack of effective communication between different departments and information silos lead to the lack

of information in the supply chain links, which affects the implementation of enterprise strategies (Wang & Zhong, 2020).

(5) Supply chain security

Supply chain security refers to the protection measures for information and products in the supply chain link of the enterprise (Shao et al., 2018). Theft against the existing assets, production formula and technical means of the enterprise can cause significant losses to the interests of the enterprise (Tian et al., 2020).

2.4.2 Methods to deal with problems and challenges of dual-channel supply chain

(1) Risk management

Dual-channel supply chain can reduce the impact of risk on the enterprise by establishing a risk management system, regulating timely feedback of information from all parts of the supply chain, quickly handling risk issues and taking timely measures (Gan et al., 2018). For example, risk can be reduced through diversified supplier selection and establishment of efficient logistics and distribution system (Ren & Wang, 2020).

(2) Information sharing and collaboration

Dual-channel supply chain can solve the problem of information sharing and collaborative decision-making by establishing a reasonable information sharing mechanism and IT infrastructure (Kebriaei & Fatemi, 2018). Companies can share information such as sales data and inventory status of offline physical stores through online platforms to keep track of market changes for better decision making (Cai et al., 2019).

(3) Cost Control

Dual-channel supply chain can effectively control enterprise costs by optimizing resource allocation, improving production efficiency and reducing logistics costs (Banerjee & Ganguly, 2020). For example, it conducts promotional activities through online platforms to attract more consumers and reduce inventory

backlog; it establishes decentralized storage systems and flowability systems to reduce inventory management costs and operational costs (Sun et al., 2019).

(4) Increased Transparency

Dual-channel supply chain solves the problem of enterprise information silos by improving transparency (Shao et al., 2018). With the help of the online platform, enterprises can learn the sales and inventory status of offline physical stores in real time, and make timely financial accounting and purchasing decisions (Yuan & Liu, 2019).

(5) Security Protection

The dual-channel supply chain protects enterprise information and product security by establishing detailed security protection measures and intelligent technology (Das & Chowdhury, 2018). For example, through the dual-channel sales model, items purchased at offline brick-and-mortar stores can be picked up directly, reducing the security risks in the transit chain and safeguarding consumers' shopping safety. At the same time, enterprises can adopt data encryption and other technical means to guarantee the security of transactions in online platforms (Banerjee & Ganguly, 2020).

2.4.3 Application cases of dual-channel supply chain

(1) Jingdong Convenience Store

Jingdong Convenience Store is a new retail channel with online platform as the core, integrating online ordering, offline store display and delivery, and promoting the concept of "openness and sharing", with different degrees of cooperation and optimization in logistics, storage and calculation (Almeida et al., 2020). Through the dual-channel model, Jingdong Convenience Store connects online and offline, creating a new retail experience, improving consumer satisfaction and loyalty, and bringing better profitability for the company (Chakravarty et al., 2019).

(2) Xiaomi Home

Xiaomi Home is an offline retail store founded by Xiaomi Technology, which retains the characteristics of traditional brick-and-mortar stores while taking full advantage of the Internet. In Xiaomi Home, consumers can see and

experience Xiaomi's products, while also placing orders, delivery and after-sales service through an online platform (Chen et al., 2019). This dual-channel model not only improves the consumer buying experience, but also promotes the development of the Xiaomi ecosystem, bringing more social interaction and user stickiness (Gan et al., 2018).

2.5 Related Works

(1) Dual-channel supply chain management mode has a significant effect on the improvement of enterprise sales efficiency

Through dual-channel operation, companies are able to put their products into both online and offline markets, expanding sales channels and increasing exposure and market share. This is confirmed by relevant literature. For example, according to Koohang et al. (2014), companies that utilize a dual-channel sales model are more likely to achieve good sales performance than companies with a single-channel model in different industries. In the field of marketing, the study by Huang et al. (2017) also showed that the dual-channel model provides more sales channels for companies to leverage their strengths in different markets and channels, which enhances market competitiveness (Wu et al., 2019).

(2) The dual-channel supply chain management model also helps companies to control costs

According to Phelps et al. (2018), by adopting the dual-channel model, enterprises can effectively reduce the costs of warehousing, transportation and logistics, and improve the overall efficiency (Chen et al., 2019). At the same time, the dual-channel model also provides companies with more sales data, which facilitates sales forecasting and inventory management. a study by Sodhi et al. (2012) found that in some cases, the implementation of the dual-channel model can significantly reduce the inventory and production costs of companies and improve the efficiency of resource utilization (Li et al., 2019).

(3) Dual-channel supply chain management model also plays an important role in the improvement of consumer satisfaction

With consumers' increasing demand for online purchases, the dual-channel model provides consumers with a richer and more convenient shopping channel. A study by Yang et al. (2019) found that companies adopting the dual-channel model can improve consumer satisfaction with goods and services, and better meet consumers' individual needs (Li et al., 2019). In addition, the provision of various services is also better, such as logistics, after-sales service, etc., which will also improve consumers' trust and loyalty to the company.

(4) Dual-channel supply chain management mode can enhance the competitiveness of enterprises

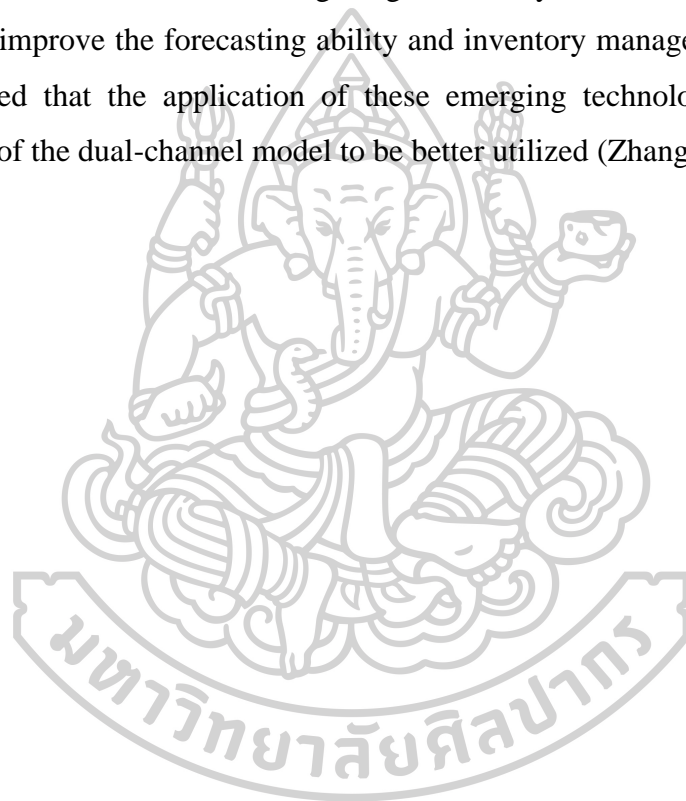
With the rise of e-commerce and online shopping, many traditional brick-and-mortar stores are facing severe competitive pressure (Chen et al., 2022). However, adopting a dual-channel model can make up for the shortcomings of offline brick-and-mortar storefronts, while also using online channels to expand market influence. According to Liao et al. (2015), in the traditional retail industry, companies that adopt a dual-channel model have a competitive advantage over companies with a single-channel model (Cao & Li, 2019).

(5) Dual-channel supply chain management model has become a hot issue for scholars

The dual-channel supply chain management model needs to coordinate the online and offline channels to achieve the best efficiency, which has also become a hot issue for scholars (Wang et al., 2020). Relevant literature shows that the integration of online and offline channels requires the integration of information, capital and inventory. In addition, companies should establish a cross-departmental cooperation mechanism to ensure that all departments work together to promote the operation of the dual-channel model. The study by Zhong et al. (2018) also shows that the successful implementation of dual-channel model needs to consider the coordination and balance of online and offline channels (Zhang et al., 2019).

(6) The future application prospect of dual-channel supply chain management model cannot be ignored either

With the continuous development of emerging technologies such as artificial intelligence, big data and the Internet of Things, the future application prospect of dual-channel supply chain management model cannot be ignored (Zhang et al., 2021). For example, artificial intelligence can be used to optimize online page design and recommendation algorithms to improve consumer satisfaction and conversion rates. In addition, through big data analysis of online and offline sales data, it can improve the forecasting ability and inventory management of enterprises. It is believed that the application of these emerging technologies will allow the advantages of the dual-channel model to be better utilized (Zhang et al., 2020).



CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Design

(1) Identify research questions: Identify research objectives and questions to clarify the purpose, scope and focus of the study. For example, how to understand the process and key elements of the company's advantage realization in dual-channel supply chain management.

(2) Define the research background and literature review: Research and analyze the relevant background and cutting-edge literature on dual-channel supply chain management, and uncover potential unexplored problems and limitations.

(3) Determine the research object and sample selection: Based on the setting of research objectives and research questions, select the relevant and representative dual-channel supply chain management practice enterprises as the research object, and realize the sample selection through appropriate methods.

(4) Data collection and processing: Qualitative research methods such as in-depth interviews, and observations are used to investigate the actual use of dual-channel supply chain management strategies, and the data are recorded and then text identification and classification are carried out to refine key information and indicators.

(5) Data analysis and result presentation: Using the method of step-by-step analysis, the collected data and information are classified, compared, summarized and interpreted, while focusing on the analysis of correlation and causality, extracting and presenting data features and change trends, showing the advantages achieved by different enterprises in dual-channel supply chain management, and giving corresponding conclusions and suggestions.

(6) Thesis writing and completion: According to the requirements of academic papers, write a complete and systematic research report, including the title of the article, background, purpose, methodology, data analysis and other corresponding parts.

3.2 Population and Sample

A qualitative research method was used to study the advantages of dual-channel supply chain management, and companies related to dual-channel supply chain management were selected as research subjects. In-depth interviews were conducted with 3 anonymous relevant practitioners (T1-T3) to obtain the required information.

When selecting companies related to dual-channel supply chain management as research subjects, companies with successful implementation of dual-channel supply chain management strategies can be selected for in-depth research. These companies may include e-commerce platforms, retailers, manufacturers, etc. They have certain influence in the market and can provide valuable cases and experiences for research and analysis.

The following are some examples of companies related to dual-channel supply chain management:

(1) Jingdong (JD.com): As one of the largest comprehensive e-commerce platforms in China, Jingdong has realized comprehensive dual-channel supply chain management through online and offline channels, including the integration of self-operated, partners and offline brick-and-mortar stores, and has relatively rich experience and cases.

(2) Tmall: Tmall is a B2C e-commerce platform under Alibaba Group, which provides consumers with a comprehensive shopping experience through the combination of online and offline channels, and has strong practical experience in dual-channel supply chain management.

(3) Amazon: As one of the world's largest e-commerce platforms, Amazon has achieved dual-channel supply chain management through online sales and the establishment of physical stores, and has accumulated rich experience in supply chain management.

(4) IKEA: IKEA is a home furnishing retailer that has achieved dual-channel supply chain management through online and offline channels. They have unique practical experience in product design, inventory management, and online/offline integration.

These companies have certain leading position and successful experience in implementing dual-channel supply chain management, and studying them can provide rich cases and experiences to further understand the advantages and operation modes of dual-channel supply chain management. At the same time, selecting enterprises of different industries and scales for comparative analysis can provide a more comprehensive and in-depth research perspective.

3.3 Research Tools and Data Collection

3.3.1 Expert interview form

This study first investigates the current research results related to dual-channel supply chain management based on literature analysis, and integrates the core concepts and theoretical categories of dual-channel supply chain management. Drawing on research results from relevant theories and literature, it provided a basis for formulating an interview outline.

In this study, an expert interview form will be used as a research tool to facilitate the collection of information on dual-channel supply chain management. The expert interview form is a tool for recording the process and content of expert interviews. Its main purpose is to systematically organize and summarize the results of expert interviews for subsequent analysis and research.

Secondly, the researcher will use purposive sampling method to select 3 experts with obvious differences in professional background, professional experience, position, etc. in the relevant field. This approach was chosen to ensure an in-depth understanding of dual-channel supply chain management practices and concepts from multiple perspectives.

By selecting experts with differences, researchers can obtain different viewpoints and insights, so as to get a more comprehensive understanding in the research. This diversity helps to reduce bias in research results, as experts from

different backgrounds may provide unique perspectives, thus increasing the credibility and reliability of the research. Therefore, the selection of three experts with distinct differences in professional background, professional experience and position was to ensure that the research can fully and accurately understand the relevant issues of dual-channel supply chain management, and provide practical recommendations and insights for the research. The application of this method will help deepen the understanding of dual-channel management and provide useful references and suggestions for decision-making in this field. Next, the researcher will collect literature related to dual-channel supply chain management to develop an interview outline and conduct interviews with qualified experts. The main purpose of this interview is two-fold: first, to understand the interviewees' understanding and views on dual-channel supply chain management through the interview; second, to provide suggestions and suggestions on dual-channel supply chain management for the research through the analysis of the interview results in accordance with.

Table 3.1 Table of information on persons interviewed

Interviewee	Gender	Age	Length of practice	Position	Interview time	Interview location
T1	Male	52	15	Supply Chain Manager	30-50 minutes	Meeting Room
T2	Female	47	12	Purchasing Supervisor	30-50 minutes	Meeting Room
T3	Female	39	10	Logistics Manager	30-50 minutes	Coffee Shop

In the study of dual-channel supply chain management, T1 (Supply chain Manager), T2 (Purchasing director) and T3 (Logistics Manager) were selected for interview because they represent the key functional areas in supply chain management and each has a wealth of practical experience in different companies and fields. This

choice ensures that researchers understand the complexities and challenges of dual-channel supply chain management from multiple perspectives and dimensions.

T1 (Supply Chain Manager) : 15 years of experience in supply chain management, familiar with industry standards and best practices, from a multinational manufacturing company, responsible for global supply chain coordination and optimization. His experience covers the whole process from raw material procurement to product distribution, and he has a deep understanding of how to balance cost, quality and delivery time on a global scale. T1 was selected for the interview because his global perspective can provide insights into how to implement dual-channel strategies in different market and cultural contexts.

T2 (Purchasing Director) : With 12 years of purchasing experience, he is the purchasing Director of a large retail group, focusing on reducing costs and ensuring supply chain stability through effective purchasing strategies. Her work involves negotiation with suppliers, contract management and analysis of market trends. T2 was selected for the interview because her purchasing experience in the retail sector can reveal the special requirements and challenges of purchasing decisions in a dual-channel model.

T3 (Logistics Manager) : With 10 years of logistics management experience, he is a logistics manager in an e-commerce company, responsible for managing the last mile distribution from the warehouse to the consumer. Skilled in logistics operations and cost control, capable of in-depth analysis of logistics challenges and solutions in dual-channel supply chains. Her experience focuses on improving logistics efficiency and customer satisfaction, which is critical to understanding logistics optimization in dual-channel supply chains. T3 was selected for the interview because her logistics management experience in the e-commerce sector can provide insights on how to meet dual-channel needs through technology and service innovation.

Through interviews with these three experts, researchers can gain professional insights from different industries and different functional areas, which will provide a solid foundation for the study of dual-channel supply chain management. Although the perspectives of these three experts are different, their

experience complements each other enough to support the need for theoretical research. Their expertise and hands-on experience will provide in-depth insights into research that will help uncover best practices and potential improvements in dual-channel supply chain management. Therefore, it is sufficient and necessary to select these three experts for interviews, and their insights will provide a comprehensive and in-depth analysis for the research.

Finally, the researcher will organize, summarize, analyze and classify the data obtained from the interviews to deeply explore the issues related to dual-channel supply chain management and explain and elaborate on the research questions. This process will help reveal the core concepts, advantages, challenges and future development directions of dual-channel supply chain management.

Table 3.2 Interview questions

Expert interview form		
Interview subject information	<input type="checkbox"/> Position: <input type="checkbox"/> Company/Institution: <input type="checkbox"/> Contact information: <input type="checkbox"/> Interview time:	
What do you understand by "Dual-channel Supply Chain Management"?	<input type="checkbox"/> a. Please describe the core concepts of dual-channel supply chain management. <input type="checkbox"/> b. What do you think of the importance of dual-channel supply chain management in modern supply chains?	
What are the advantages and challenges of dual-channel supply chain management?	<input type="checkbox"/> a. What do you think are the main advantages of dual-channel supply chain management? <input type="checkbox"/> b. What challenges or obstacles may be faced when implementing dual-channel supply chain management?	

Table 3.2 Interview questions (continued)

Expert interview form		
Practical applications and success stories:	<input type="checkbox"/> a. Do you know or participate in any cases of implementing dual-channel supply chain management in enterprises? <input type="checkbox"/> b. Can you share a successful implementation case or related experience?	
Industry Applicability and Impact:	<input type="checkbox"/> a. How appropriate do you think dual-channel supply chain management is in different industries and markets? <input type="checkbox"/> b. What impact does dual-channel management have on a company's position in the competitive market?	
Future developments and recommendations:	<input type="checkbox"/> a. What suggestions or prospects do you have for the future development of dual-channel supply chain management? <input type="checkbox"/> b. How to best deal with supply chain management challenges that may arise in the future?	
Other additional points:	<input type="checkbox"/> Do you have any other views or suggestions on dual-channel supply chain management or related topics?	

In the expert interview form, we recorded the expert's personal information, the date and location of the interview, and detailed interview records, including the expert's answers and opinions. We also extracted and summarized the key insights and viewpoints of experts, and marked and emphasized the important content. In addition, interview notes also record other important information and observations during the interview. The design of the expert interview form is concise and clear, making it easy to organize and analyze later. During the interview process,

we strictly protect the privacy and confidential information of the experts to ensure the authenticity and accuracy of the interview content. At the same time, we communicated with experts in advance and obtained consent before recording and using the interviews. Expert interview forms play a vital role in the smooth progress and data collection of our research and survey projects.

The IOC (content validity) was checked by 3 experts and scholars, including: 1 director of the Marketing and Business Administration PhD program at Siam University; 2 professionals in the Chinese e-commerce platform industry. IOC (content validity) is a method to ensure the validity and rationality of research tools by checking them with experts and scholars. In this study, three experts and scholars participated in the examination of the research tools, including the director of the Marketing Business Administration DBA program at Siam University and two professionals in the Chinese e-commerce platform industry. Inspection and evaluation by expert scholars can ensure that the research instrument's questions have high-quality content validity, thereby improving the reliability and validity of the research results. This inspection process helps ensure that the research instrument accurately reflects the purpose of the research and provides researchers with Meaningful data and information Therefore, conducting an IOC check before proceeding with data collection is a very important step that helps ensure the scientificity and credibility of the study. For each question in the research instrument, experts and scholars will evaluate and give corresponding scores. If the score of the questionnaire reaches or exceeds 3 points, it is considered to have passed the data collection standard, that is, the question is considered to be content valid. is effective and reasonable.

The following is an analysis of the IOC (Item Objective Congruence) form generated by three industry insiders after answering interview questions. Each expert's responses will be analyzed individually and assessed for consistency with the objectives of the interview questions.

Table 3.3 Interview transcripts

Expert 1:		
Question	Consistency with Objectives Rating (1-5)	Explanation/Comments
1a. Core concepts of dual-channel supply chain management.	4	This answer covers the core concepts of the topic, but more details could be provided.
1b. The importance of dual-channel supply chain management in modern supply chains.	5	Answers are clear and highlight the importance of the topic.
2a. The main advantages of dual-channel supply chain management.	4	Some advantages are provided, but could be elaborated further.
2b. Possible challenges or obstacles in implementing dual-channel supply chain management.	5	Answers are detailed and include possible challenges.
3a. Do you understand or participate in cases of implementing dual-channel supply chain management?	3	3a. Do you understand or participate in cases of implementing dual-channel supply chain management?
3b. Share successful implementation cases or related experiences.	2	No specific examples or experiences were provided.

Table 3.3 Interview transcripts (continued)

Expert 1:		
Question	Consistency with Objectives Rating (1-5)	Explanation/Comments
4a. The applicability of dual-channel supply chain management in different industries.	3	The answer section covers applicability but does not provide specific industries.
4b. The impact of dual-channel management on an enterprise's position in the competitive market.	4	Answers cover impacts in competitive markets, but more detail could be provided.
5a. Suggestions or prospects for the future development of dual-channel supply chain management.	4	Some suggestions are provided, but could be elaborated further.
5b. Recommendations for addressing supply chain management challenges that may arise in the future.	5	The answers are detailed and include suggestions for meeting the challenges.

Table 3.3 Interview transcripts (continued)

Expert 2:		
Question	Consistency with Objectives Rating (1-5)	Explanation/Comments
1a. Core concepts of dual-channel supply chain management.	5	Answers are clear and cover core concepts.
1b. The importance of dual-channel supply chain management in modern supply chains.	5	The responses emphasized the importance of the topic.
2a. The main advantages of dual-channel supply chain management.	5	Provides comprehensive advantages and consistent goals for the problem.
2b. Possible challenges or obstacles in implementing dual-channel supply chain management.	4	Some challenges are provided but could be spelled out in more detail.
3a. Do you understand or participate in cases of implementing dual-channel supply chain management?	4	Answers indicate some understanding, but no specific cases.
3b. Share successful implementation cases or related experiences.	3	Some experience is provided but could be explained in more detail.

Table 3.3 Interview transcripts (continued)

Expert 2:		
Question	Consistency with Objectives Rating (1-5)	Explanation/Comments
4a. The applicability of dual-channel supply chain management in different industries.	5	The answer is clear and applicability is emphasized
4b. The impact of dual-channel management on an enterprise's position in the competitive market.	4	Answers cover impacts in competitive markets, but more detail could be provided.
5a. Suggestions or prospects for the future development of dual-channel supply chain management.	5	Provides comprehensive advice and outlook with consistent goals for the problem.
5b. Recommendations for addressing supply chain management challenges that may arise in the future.	5	The answers are detailed and include suggestions for meeting the challenges.
6. Other supplementary views.	3	Some additional perspectives are provided, but could be elaborated in more detail.

Table 3.3 Interview transcripts (continued)

Expert 3:		
Question	Consistency with Objectives Rating (1-5)	Explanation/Comments
1a. Core concepts of dual-channel supply chain management.	5	Answers are clear and cover core concepts.
1b. The importance of dual-channel supply chain management in modern supply chains.	4	The response emphasizes the importance of the topic but could be elaborated in more detail.
2a. The main advantages of dual-channel supply chain management.	5	Provides comprehensive advantages and consistent goals for the problem.
2b. Possible challenges or obstacles in implementing dual-channel supply chain management.	4	Some challenges are provided but could be spelled out in more detail.
3a. Do you understand or participate in cases of implementing dual-channel supply chain management?	3	The answers indicated some understanding, but no specific examples.
3b. Share successful implementation cases or related experiences.	2	No specific examples or experiences were provided.
4a. The applicability of dual-channel supply chain management in different industries.	5	The answer is clear and applicability is emphasized.

Table 3.3 Interview transcripts (continued)

Expert 3:		
Question	Consistency with Objectives Rating (1-5)	Explanation/Comments
4b. The impact of dual-channel management on an enterprise's position in the competitive market.	4	Answers cover impacts in competitive markets, but more detail could be provided.
5a. Suggestions or prospects for the future development of dual-channel supply chain management.	4	Some suggestions are provided but could be further elaborated
5b. Recommendations for addressing supply chain management challenges that may arise in the future.	5	The answers are detailed and include suggestions for meeting the challenges.
6. Other supplementary views.	3	Some additional perspectives are provided, but could be elaborated in more detail.

In summary, the three experts' responses are generally consistent with the objectives, although some questions may require more detailed information. Overall, their responses provide valuable insights into the advantages, challenges, and future development of Dual-channel Supply Chain Management.

3.3.2 Document Analysis

We can collect and analyze the management system, operation reports and other documents of the company, so as to understand the implementation of dual-channel supply chain management strategies in the company, as well as the effects and results achieved.

3.3.3 Data analysis

For the data and information obtained from interviews, documents, etc., the qualitative analysis method can be used to organize, classify and analyze the data, and interpret and summarize them in the light of the actual situation to extract the key elements and indicators related to the advantages of dual-channel supply chain management.



3.4 Research Procedure

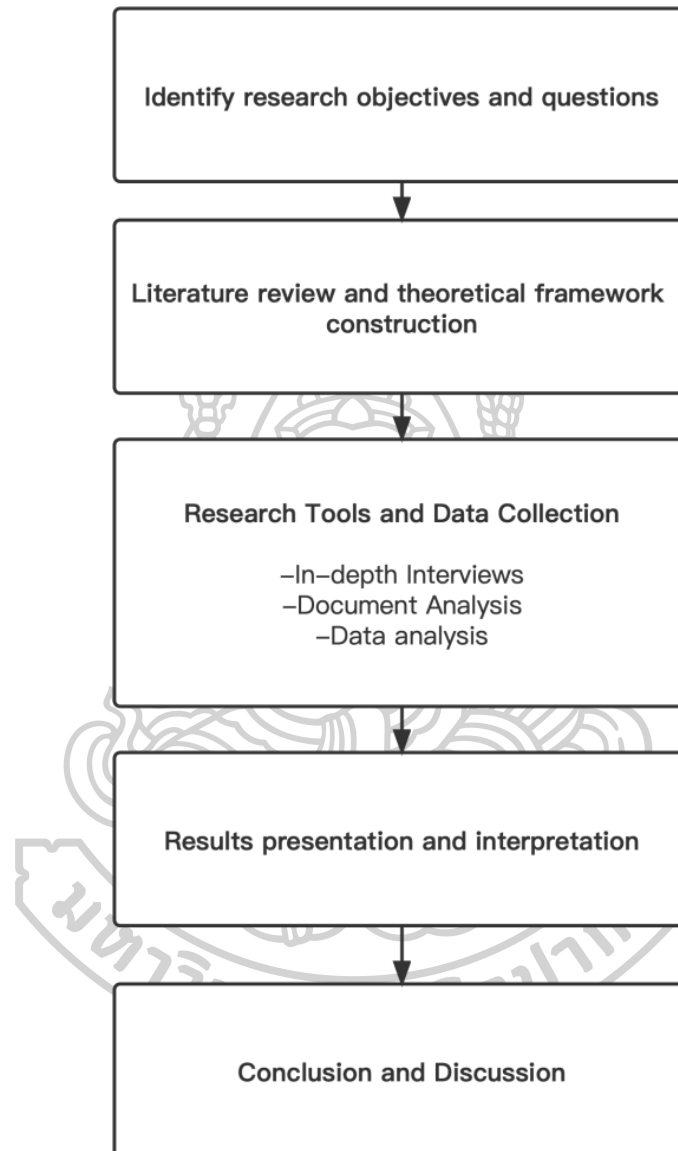


Figure 3.1 Research procedure

CHAPTER 4

FINDING AND DISCUSSION

4.1 Case Study

4.1.1 Jingdong (JD.com)

Jingdong (JD.com), as one of the largest comprehensive e-commerce platforms in China, has a wealth of experience and cases in realizing comprehensive dual-channel supply chain management through both online and offline channels, which includes the integration of self-operated, partners, and offline physical stores.

(1) Situation

Self-operated channel: Jingdong sells products directly through the self-operated model, controlling the quality of goods, inventory and distribution to provide consumers with a consistent shopping experience.

Partner channel: Jingdong establishes cooperative relationships with a number of partners to allow other retailers to sell their products on the Jingdong platform, expanding the platform's product range and brand coverage.

Integration of offline physical stores: Jingdong integrates its online and offline businesses through offline stores and Jingdong Convenience Stores to provide diversified shopping choices, as well as providing fast merchandise pick-up services through its offline stores.

(2) Advantages

Abundant commodity choices: Through cooperation with partners and the integration of online and offline channels, the Jingdong platform provides a wide range of commodities to meet the diversified shopping needs of consumers.

Excellent supply chain management: Jingdong realizes more flexible inventory control and distribution through dual-channel management, and is able to satisfy consumers' orders more quickly.

Consistent shopping experience: Whether consumers shop online or offline, they receive a consistent quality assurance and shopping experience, which enhances brand loyalty.

Expanding market share: By integrating online and offline channels, Jingdong is able to reach a wider consumer base, expanding market share and enhancing brand influence.

Convenient shopping methods: Consumers can choose different shopping methods such as online purchase and offline self-pickup according to their needs, which improves the convenience and flexibility of shopping.

(3) Profitability

In its performance report for 2022, Jingdong Group achieved impressive results. Full-year net revenue reached RMB104.62 billion, up 9.9% year-on-year, and net revenue for the fourth quarter was RMB295.4 billion, also up 9.9% year-on-year. Net service revenue showed even stronger growth in the fourth quarter, reaching RMB 57.8 billion, up a whopping 40.3% year-on-year. During the year, Jingdong managed to create 290,000 new jobs and achieved a 59% year-on-year increase in supply chain infrastructure asset size, reaching RMB 132.6 billion. Jingdong continued to maintain high-quality growth, with the number of users, active users, shopping frequency and average user-contributed revenue all maintaining momentum, while the number of Jingdong PLUS members reached 34 million, continuing to grow at a high rate. In addition, the number of third-party merchants has achieved more than 20% year-on-year growth for eight consecutive quarters, and the number of new merchants is up 34% year-on-year in 2022, further enriching the business. Jingdong Cloud has demonstrated strong strength in the field of digital infrastructure, becoming the first cloud vendor in China to provide multi-cloud, multi-activity and multi-core. In terms of Jingdong Logistics, the operation of more than 1,500 warehouses and the construction of more than 700 new warehouses, as well as the layout of nearly 90 overseas warehouses around the world, constitute important milestones in the global network weaving program.

To summarize, by implementing dual-channel management, Jingdong has effectively integrated online and offline resources, provided more diversified shopping choices, strengthened supply chain management and gained an edge in market competition.

4.1.2 Tmall

Tmall, the B2C e-commerce platform of Alibaba Group, provides consumers with a comprehensive shopping experience through the combination of online and offline channels, and has rich practical experience in dual-channel supply chain management.

(1) Situation

Online channel: Tmall, as an e-commerce platform, provides the convenience of online shopping, which allows consumers to browse and purchase all kinds of goods anytime and anywhere.

Offline channel integration: Tmall seamlessly integrates online and offline business through offline stores, experience centers and other forms to provide consumers with a consistent online and offline shopping experience.

O2O Mode: Tmall utilizes the Online to Offline (O2O) mode, closely integrating the two channels through online traffic generation and offline experience.

(2) Advantage

Diversified shopping options: Tmall platform brings together many brands and merchants, consumers can find a variety of different types of goods on one platform to meet different needs.

Powerful Supply Chain Advantage: As part of the Alibaba Group, Tmall can leverage Alibaba's supply chain and logistics resources to achieve more efficient inventory management and distribution.

Integration of online and offline experience: Through offline stores and physical displays, Tmall combines online shopping with offline experience to provide a comprehensive shopping experience.

Brand Recognition and Trust: Alibaba Group is a well-known brand and Tmall is trusted by consumers, which provides a stronger brand endorsement for the combination of online and offline channels.

Data-driven marketing: Tmall can provide personalized marketing strategies for brands and merchants through consumer data analysis to improve sales results.

(3) Profitability

The 2022 Tmall Double 11 event showed a slight slowdown in the growth rate of total transactions, with an online turnover of 557.1 billion yuan, an increase of 8.45% year-on-year. Among different categories, 358 brands in the fields of toys, pets, sports and outdoor, jewelry, etc. had excellent sales exceeding 100 million, showing the vitality of the diversified market. Consumers are less inclined to impulse spending and more focused on accurately selecting the most suitable products for them, a consumption concept that grew by about 30% year-on-year. Live streaming with goods became a highlight, with sales of live streaming with goods on the whole network amounting to 89.527 billion yuan, and transactions on platforms such as Point Amoy, Shutterbugs and Jitterbugs even amounting to 161.244 billion yuan. In the field of new retail, the transaction volume reached 19.574 billion yuan, household appliances, smart home and other products showed strong sales trend, reflecting consumers' favor for green and smart products. Unlike previous years, the positioning of e-commerce platforms has gradually evolved, shifting from a gathering place for commercial vitality to a platform for livelihood and industrial foundation. The Double 11 campaign demonstrated new trends in the e-commerce space, sparking consumer interest in selective shopping and innovative marketing, with credit given to the optimization of dual-channel supply chain management. Through flexible inventory allocation, data sharing and collaboration, order processing and delivery optimization, as well as the support of the new retail model, the dual-channel supply chain management improved the overall operational efficiency and enhanced the enterprise's responsiveness during the Double 11 period, which helped to achieve better performance in this campaign.

4.1.3 Amazon

Amazon, one of the world's largest e-commerce platforms, has realized dual-channel supply chain management through online sales and the establishment of physical stores, and has accumulated rich experience in supply chain management.

(1) Situation

Online sales channel: Amazon provides a wide selection of products through its online shopping platform, and consumers can browse and purchase all kinds of products on Amazon.com.

Physical stores: Amazon has also established physical stores such as physical bookstores and supermarkets in some areas, providing consumers with offline shopping opportunities.

(2) Advantages

Wide range of products: Amazon's online platform brings together all types of products from all over the world, allowing consumers to find what they need from a huge selection.

Efficient logistics system: Amazon has a strong logistics and distribution network, which enables fast and accurate delivery of goods and improves users' shopping satisfaction.

Cross-channel shopping experience: Consumers can browse products on the online platform and then choose to buy them online, or they can find products in physical stores and then order them online, realizing a seamless connection between online and offline shopping.

Data-driven personalized marketing: Amazon can provide personalized product recommendations and promotions based on consumers' shopping history and preferences to improve sales results.

Brand Influence: Amazon, as a globally recognized e-commerce brand, is recognized and trusted by the majority of consumers, providing brand endorsement for dual-channel management.

(3) Profitability

Amazon's FY2022 earnings report showed total net sales of \$514 billion, up 9% year-on-year, despite a relative slowdown in growth. This reflects the company's dual-channel strategy in product sales and service sales to meet diversified demand through online and service sales. North America remained the primary market, contributing \$315.9 billion in sales, but international sales fell 8% to \$118

billion. Notably, Amazon Cloud Services (AWS) sales soared to \$80.1 billion, up 29% year-over-year, demonstrating leadership in the cloud computing market.

Despite the increase in sales, operating costs also rose, especially technology and content costs which increased by 31%. However, the surprise was a 50% decrease in operating profit to just \$12.2 billion, with the impact of losses in the North American and International segments significant. This may be related to market competition and increased operating costs.

Despite the economic uncertainty in the short term, Amazon remains optimistic about the future and is committed to delivering the customer experience, innovation and improvements needed to continue to grow in the global retail and IT markets. Overall, this earnings report reveals Amazon's diverse business challenges and competitive pressures as a tech giant, while also emphasizing the importance of supply chain management and innovation to maintain its leadership in different areas.

4.1.4 IKEA

IKEA is a home furnishings retailer with dual-channel supply chain management through online and offline channels. They have unique practical experience in product design, inventory management, and online and offline integration.

(1) Situation

Online shopping platform: IKEA provides an online shopping platform where consumers can browse and purchase a wide range of IKEA home furnishings.

Physical stores: IKEA has physical stores around the world where consumers can visit to experience and purchase products.

Product design and R&D: IKEA focuses on product design and R&D, combining creativity with practicality to meet consumers' home decoration needs.

(2) Advantages

Unique product experience: IKEA provides consumers with a unique product experience through its physical stores and online platforms. Consumers can experience the furniture in person in physical stores or purchase it online.

Strong supply chain advantages: IKEA has extensive experience in furniture manufacturing and supply chain management, enabling efficient inventory management and logistics.

Product diversity and free combination: IKEA provides a diverse selection of products, while supporting consumers to freely combine and customize according to their own needs, enhancing the personalized shopping experience.

Online and offline integrated marketing: IKEA can conduct promotional activities through online and offline integration, for example, the promotional information advertised online can be reflected in the physical store, which enhances the marketing effect.

Brand credibility and awareness: IKEA, as an internationally recognized home furnishing brand, is widely recognized and trusted, providing brand support for dual-channel management

(3) Profitability

The FY2022 earnings report released by Swedish home furnishing giant IKEA highlights its strong link with supply chain management. In this report, IKEA faced multiple challenges such as the Russia-Ukraine war, supply chain disruptions, inflation and the new crown epidemic, which made the year a special period in its history.

The report disclosed that in the fiscal year from September 1, 2021 to August 31, 2022, IKEA achieved retail sales of 39.5 billion euros, an increase of 5.6% year-on-year. However, rising costs due to inflation and supply chain issues have exceeded €1 billion, forcing IKEA to adjust its pricing strategy. Despite the increase in retail sales, sales have declined, with online sales even slipping by 10%, and there have been issues with shortages in shelf availability.

Supply chain disruptions have negatively impacted costs and sales. In addition, supply shortages of goods from places such as Asia also limited sales growth, especially in items such as mugs and lamps. Inflation has forced IKEA to adjust product pricing, although efforts are still being made to keep prices low to meet consumer demand.

Jon Abrahamson-Lin, IKEA's chief executive officer, is cautiously optimistic about the future, anticipating a gradual easing of the supply chain crisis and cost inflation. He emphasized that despite lagging sales, IKEA still has strong growth potential in its home markets of Asia and Europe. This report also mentions IKEA's exit from the Russian and Belarusian markets in early 2022 due to the Russia-Ukraine war, affecting around 10,000 employees.

In conclusion, IKEA's performance report shows the key role that supply chain management plays in the various challenges and opportunities it faces. Effective supply chain operations are critical to controlling costs, supporting sales growth and adapting to an unstable global environment.

4.1.5 Information analysis

A comparison of the four companies for their dual-channel supply chain management situation reveals the following information:

Table 4.1 Dual Channel Supply Chain Management in 4 Companies

Company	Management
Jingdong (JD.com)	Realize dual-channel supply chain management through self-operated, partners and offline stores.
Tmall	Integrate online platforms with offline stores to realize dual-channel supply chain management through O2O model.
Amazon	Provide a wide selection of products and shopping experience through online sales and physical stores.
IKEA	The combination of online platforms and physical stores is known for unique product design and freedom of combination.

Table 4.2 Strengths and weaknesses of dual-channel supply chain management in 4 companies

Company	Advantages	Weaknesses
Jingdong (JD.com)	Rich product selection, efficient supply chain, consistent shopping experience, brand influence, convenient shopping.	Possible reduction of brick-and-mortar sales due to online shopping dependence, self-managed model requires high inventory management
Tmall	Diversified shopping options, flexible inventory management, cross-channel shopping experience, brand awareness and trust, data-driven marketing.	Dependent on partner's products and inventory, O2O model needs to maintain coordination between online and offline.
Amazon	Wide range of products, efficient logistics system, cross-channel shopping experience, brand influence, data-driven personalized marketing.	Fierce competition, may face regulatory pressure, and the variety of goods on the platform may also raise some quality issues.
IKEA	Unique product experience, strong supply chain advantage, product diversity and free combination, online and offline integrated marketing, brand credibility and awareness.	Supply chain management, inventory risk, increased costs, channel competition, difficulty in maintaining brand consistency, and market segmentation issues

The four companies' success in dual-channel supply chain management has the following aspects in common:

Diversified shopping choices: These companies provide consumers with a wide range of shopping choices, not only a wide variety of products on online platforms, but also physical stores, so that consumers can freely choose their shopping methods according to their shopping scenarios and needs. Whether they are looking

for online convenience or an in-person experience, consumers can find a way to shop that suits their individual preferences.

Seamless shopping experience: These companies strive to achieve a seamless shopping experience by integrating online and offline channels. Whether consumers start shopping online or offline, they can access consistent product information, pricing, promotions, etc. across channels, making the shopping experience more coherent and fluid. This seamless experience gives consumers a sense of consistency and convenience that enhances the interactive experience with the brand.

Strong Supply Chain Support: These companies have invested heavily in their supply chain and have established efficient supply chain and logistics systems to ensure the efficient operation of their products from production to consumers. Their strengths in the supply chain help to increase customer satisfaction and loyalty through proper inventory management, on-time delivery and reliable product quality.

Brand Recognition and Trust: Being well-known brands, these companies have established a favorable brand image and reputation in the market. This provides consumers with purchase security as they believe in the high quality and reliability of the products and services offered by these brands. This brand recognition and trust leads to consumers being more willing to choose goods from these brands, which in turn leads to increased sales.

Data-driven marketing: These companies are able to gain a deeper understanding of consumer needs and preferences with the help of big data analytics and consumer behavioral insights. Through data-driven marketing strategies, they can tailor personalized recommendations, promotions, and marketing campaigns to accurately meet consumers' shopping needs and increase purchase conversions and customer satisfaction.

Online-Offline Integration: These companies are committed to integrating online and offline channels so that consumers can seamlessly switch between multiple channels. Whether it's shopping online and then returning or exchanging at a physical store, or experiencing a product in a physical store and then ordering it online, consumers enjoy a consistent shopping experience. This integration

makes shopping more convenient and enhances the interaction between consumers and brands.

Flexible Inventory Management: Dual-channel supply chain management allows these companies to manage inventory more flexibly, adjusting to demand and sales across channels. This flexibility helps avoid backlogs or out-of-stocks, improves inventory management efficiency, and reduces capital utilization and waste.

Continuous Innovation: To meet changing consumer needs, these companies continue to innovate with new products, services and shopping experiences. Not only that, they also explore new marketing strategies to engage more consumers, thus remaining competitive and innovative in the market. This spirit of innovation helps these companies adapt to market changes and expand their business growth.

4.2 Innovative Models of Dual Channel Management

4.2.1 Digital Transformation

Digital transformation has an important role in dual channel supply chain management. With advanced technologies such as IoT, artificial intelligence and big data analytics, companies can gain multiple advantages. First, increased real-time data sharing and visibility makes information about each link in the supply chain more transparent, which supports more accurate decision making. Second, by utilizing intelligent forecasting of demand, companies can better anticipate changes in consumer demand, achieve finer inventory management, and avoid inventory backlogs or out-of-stocks. In addition, digital transformation facilitates the optimization of inventory management, enabling customized inventory allocation and improved inventory turnover through data analytics. Personalized marketing is also a benefit of digitalization, which enables personalized recommendations and marketing through the analysis of consumer behavior and preferences to increase sales. In addition, digital transformation makes the supply chain more agile, enabling it to respond more quickly to market changes and meet changing consumer demands. Finally, automated processes reduce the risk of human error, such as automated order

processing and inventory management, which help improve the accuracy of supply chain operations. In summary, digital transformation brings more efficiency, better visibility and more flexible responsiveness to dual-channel supply chain management, helping companies maintain a competitive edge in a highly competitive market.

4.2.2 Intelligent Forecasting and Planning

Intelligent forecasting and planning becomes an important strategy for dual-channel supply chain management. With data analysis and forward-looking models, enterprises can accurately forecast market demand and trends to optimize inventory control and avoid overstocking and out-of-stock problems, thus improving supply chain efficiency and flexibility. This approach not only reduces inventory costs and improves capital turnover, but also ensures continuous product availability. Second, intelligent forecasting and planning can also refine supply chain performance. By accurately forecasting market demand, companies can precisely adjust production plans and supply chain processes to avoid unnecessary production costs and prevent lost sales opportunities due to out-of-stocks. This efficient planning improves overall supply chain operational efficiency, reduces operating costs, and provides companies with greater resilience in the face of market fluctuations. In addition, intelligent forecasting and planning improves decision-making. By analyzing large amounts of market data and consumer behavior, companies can more accurately predict seasonal changes, trends and market fluctuations, providing a more precise basis for sales and marketing strategies. This not only enables companies to better meet consumer demand and improve customer satisfaction, but also gain a more significant advantage in competition. In short, intelligent forecasting and planning is an indispensable strategy in dual-channel supply chain management. With the help of data analytics and forecasting models, it optimizes inventory management and improves the efficiency and flexibility of the supply chain in order to adapt to the ever-changing market and the challenges of competition.

4.2.3 Multi-Channel Inventory Strategy

Different inventory strategies are used to respond to the demands of different channels, such as shared inventory and diverted inventory, to ensure product supply and channel balance.

Multi-channel inventory strategy plays an important role in dual-channel supply chain management. Enterprises can adopt flexible inventory strategies according to the demand characteristics of different channels to ensure the stability of product supply and the balanced development of channels. Shared inventory is a common strategy, which makes it possible to jointly utilize inventory between different channels by integrating and sharing inventory resources. This can reduce inventory backlogs, increase inventory turnover, and reduce inventory costs. For example, in some cases, online channels may not be selling as well as expected, but brick-and-mortar sales are better. By sharing inventory, excess online inventory can be used for brick-and-mortar sales, improving the efficiency of resource utilization. Triage inventory, on the other hand, is a strategy to manage inventory separately for different channels. The sales characteristics and seasonal changes of different channels may be different, so by sharing inventory, companies can deploy inventory according to the actual situation. This can ensure that during peak selling seasons or promotional activities, each channel can be supplied with enough products to avoid stock-out problems. With a multi-channel inventory strategy, companies can better balance the demand of different channels, avoiding wasted resources and unnecessary cost increases. This also enables enterprises to respond more flexibly to market fluctuations and changes in consumer demand, and improve the efficiency and competitiveness of the supply chain.

4.2.4 Flexible Logistics Network

Establish a flexible logistics network, including reasonably laid-out warehousing and distribution centers, to adapt to the needs of different channels and achieve rapid delivery and cost-effectiveness.

In dual-channel supply chain management, the establishment of a flexible logistics network is a crucial aspect. This includes the construction of warehousing and distribution centers in reasonable geographic locations to accommodate the needs of different channels and achieve efficient delivery and cost-effectiveness.

First of all, reasonably located warehousing centers can ensure a smoother flow of products between different channels. Arranging warehousing

centers in strategic locations based on sales data and market demand can reduce transportation time and costs. For example, setting up multiple warehousing centers in market areas that cover a wide range of areas can quickly respond to the needs of local consumers, achieve rapid delivery, and enhance customer satisfaction. Second, the construction of distribution centers should also consider the characteristics of different channels. For online channels, it is necessary to ensure that the distribution center can handle a large number of orders and deliver them in the shortest possible time. For brick-and-mortar channels, distribution centers can better manage inventory and provide timely replenishment support to individual stores to avoid out-of-stock problems.

A flexible logistics network can also respond to changes in seasonal demand. For example, holidays and promotions may cause a sharp increase in sales, at which time the logistics network can be adjusted to meet high demand in the short term without creating a supply bottleneck.

By establishing a flexible logistics network, companies can better respond to changes in demand from different channels, achieve rapid product delivery, enhance customer satisfaction, and realize higher efficiencies in logistics costs. The flexibility of this logistics network also helps to improve the responsiveness of the enterprise and adapt to market changes and competitive pressures.

4.2.5 Integrated Supplier Cooperation

Establishing close partnerships with suppliers enables co-innovation and collaborative planning to reduce costs, improve efficiency, and work together to address supply chain challenges.

Establishing a close partnership with suppliers can bring multiple benefits. First, both parties can participate in product design and development, leading to innovation. Suppliers can provide valuable input based on market demand and consumer feedback to help companies better customize their products and improve market competitiveness. Second, collaborative planning can optimize supply chain processes. By sharing sales data and demand forecast information with suppliers, both parties can more accurately predict market demand and adjust production and

inventory accordingly. This helps to avoid surplus and out-of-stock problems and improves the efficiency and flexibility of the supply chain. In addition, integrated supplier collaboration can reduce costs. Through common procurement, production and logistics planning, mass production and sourcing can be realized, resulting in lower raw material and production costs. In addition, suppliers may be able to offer partners more competitive prices and favorable terms. Most importantly, supply chain challenges are addressed jointly. When problems arise in the supply chain, both parties can work together to find solutions and ensure the stability and reliability of the supply chain. For example, under the impact of raw material shortages or unexpected events, supplier cooperation can help both parties better cope with risk.

To summarize, integrated supplier cooperation is one of the important means of innovative dual-channel supply chain management. Through co-innovation, collaborative planning, cost reduction and joint response to challenges, companies can achieve more efficient and flexible supply chain operations in a dual-channel environment, thereby enhancing competitiveness and satisfying consumer demand.

4.2.6 Culture of continuous improvement and innovation

Establishing a culture that encourages continuous improvement and innovation encourages teams to continually seek new solutions and adapt to market changes and consumer demands.

In dual-channel supply chain management, it is critical to establish a culture that encourages continuous improvement and innovation. Such a culture inspires creativity and energizes teams to continually seek new solutions to adapt to changing market conditions and evolving consumer needs.

A culture that encourages continuous improvement and innovation can be achieved in a number of ways. First, a company can set up an innovation reward and recognition mechanism to encourage employees to come up with new ideas and solutions and have their contributions recognized and rewarded. This can motivate employees and prompt them to proactively engage in the improvement and innovation process. Second, the company can provide training and development opportunities to help employees continuously upgrade their skills and knowledge so that they can better cope with market changes and challenges. Training can cover areas such as

supply chain management, digital technology, and data analytics to help teams master the tools and methods needed for innovation. In addition, companies can set up an innovation lab or team dedicated to exploring new supply chain management methods, technologies, and strategies. This team can collaborate with various departments to research and implement new innovative initiatives to continually advance supply chain management. Additionally, encouraging employees to offer suggestions for improvement and feedback is key to building an innovative culture. Companies can establish open communication channels so that employees can give their opinions and share their experiences at any time, and incorporate their feedback into the supply chain improvement process.

In summary, a culture that encourages continuous improvement and innovation is critical to the success of dual-channel supply chain management. By creating incentives, providing training opportunities, setting up innovation teams, and advocating open communication, companies can establish a positive climate for innovation and continue to promote the development of supply chain management in order to maintain a competitive edge in a highly competitive market.



CHAPTER 5

CONCLUSION AND INSIGHTS

5.1 Conclusion

(1) Diverse shopping choices

These four companies provide consumers with highly diverse shopping choices through smart operations of dual-channel supply chain management. By skillfully integrating online platforms and physical stores, they have created a shopping ecosystem full of diversity. This system includes not only online platforms covering a wide range of products, but also the presence of brick-and-mortar stores, enabling consumers to make flexible choices based on their personal preferences and scenario needs, and realizing a true sense of shopping autonomy.

(2) Seamless shopping experience

One of the core objectives of these companies is to realize a seamless dual-channel shopping experience, ensuring that consumers can enjoy consistent product information, pricing, and promotions regardless of whether they choose to shop online or offline. This seamless experience not only improves brand-consumer engagement, but also plays an important role in reinforcing brand loyalty.

(3) Strong Supply Chain Support

In order to ensure efficient product distribution, these four companies have invested huge resources in their supply chains, building strong and efficient supply chain and logistics systems. Through flexible inventory management, on-time delivery, and reliable product quality, they have greatly increased customer satisfaction and loyalty. These companies strive to ensure a hassle-free operation of their products from production to the final consumer.

(4) Brand Recognition and Trust

As well-known brands, these companies enjoy excellent brand image and reputation in the market, providing solid brand support for dual channel management. Consumers' high level of awareness and trust in these brands drives their preference for their products, which in turn boosts sales.

(5) Data-driven marketing

These four companies implemented data-driven marketing strategies by taking full advantage of big data analytics and in-depth consumer behavior insights. Through personalized recommendations and accurate promotions, they not only increased purchase conversion rates and customer satisfaction, but also strengthened their position in the competitive market.

(6) Online-Offline Integration

These companies are actively promoting the seamless integration of online and offline to build a highly interoperable shopping ecosystem. Whether it's shopping online and picking up in a physical store, or experiencing a product in a physical store and placing an order online, they provide consumers with a more convenient and flexible way to shop through the integration of dual-channels, which meets the diverse needs of different consumers.

(7) Flexible Inventory Management

Dual-channel supply chain management enables these companies to respond more flexibly to different channels and sales situations, and realize smarter and more efficient inventory management. By making timely inventory adjustments, they have skillfully avoided the problem of inventory backlogs or out-of-stocks, and significantly improved the overall efficiency of inventory management. This flexibility enables companies to better adapt to market fluctuations, enhances competitiveness, and lays a solid foundation for long-term growth.

5.2 Implication

(1) Deepening digital transformation

When it comes to deepening digital transformation, companies need to keep strengthening their use of the Internet of Things (IoT), artificial intelligence and big data. This strategy aims to improve real-time availability and visibility of the supply chain, more accurately predict market demand, optimize inventory management, and improve decision-making accuracy through digital means. By integrating advanced technologies, companies can be more responsive to market changes and ensure efficient supply chain operations. Digital transformation is more

than just adopting new technologies; it is a comprehensive business transformation to adapt to the demands of the digital age.

(2) Enhance Intelligent Forecasting and Planning

Developing an intelligent forecasting and planning strategy is critical to improving the overall efficiency of the supply chain. Through in-depth data analysis, companies can more accurately predict market demand and avoid over- or understocking issues. The goal of this strategy is to improve the overall efficiency of the business by continually optimizing supply chain processes to ensure the company remains competitive in the marketplace. Through intelligent planning, companies can respond more flexibly to market fluctuations and improve the accuracy of their production plans.

(3) Optimize multi-channel inventory strategy

At the level of multi-channel inventory strategy, companies need to develop a more refined inventory plan based on the demand characteristics of different channels. By fully utilizing strategies such as shared inventory and streaming inventory, companies can improve inventory turnover and reduce inventory costs. This requires not only accurate inventory management, but also close communication with each channel to adjust the inventory plan in a timely manner and ensure a balanced supply of products across different channels.

(4) Flexible adjustment of the logistics network

Flexible adjustment of the logistics network is a key part of ensuring that products can be delivered to consumers efficiently and quickly. Enterprises need to flexibly adjust the location of warehousing and distribution centers according to market demand and channel characteristics to better meet the needs of different channels. In this way, companies can improve product delivery efficiency, reduce operating costs and enhance the reliability of the overall supply chain. At the same time, establishing an intelligent logistics system is also a key step in improving delivery efficiency, optimizing the distribution process through real-time monitoring and intelligent route planning.

(5) Deepen supplier cooperation

In terms of supplier cooperation, companies should strengthen close cooperation with suppliers to realize co-innovation and collaborative planning. By sharing sales data and demand forecast information, companies can optimize supply chain processes, reduce costs and improve supply chain resilience. This strengthened supplier relationship helps to cope with market fluctuations and ensure supply chain stability. Through in-depth cooperation with suppliers, companies can better address challenges in the supply chain and realize efficient operations across the chain.

5.3 Limitation

(1) Sample Scope Limitations

This study focuses on four well-known companies (Jingdong, Tmall, Amazon, and IKEA), which is a relatively narrow sample and may not adequately represent the diversity of the industry as a whole. Other companies may have different dual-channel supply chain management practices that are not covered, so the generalization of the results is somewhat limited.

(2) Time constraints

The limited timeframe of the study may not adequately reflect the evolution of firms' dual-channel supply chain management strategies over time. Due to the constant changes in market and technology, the data obtained in a short period of time may not be able to capture the full picture of the changes in firms' strategies.

(3) Dependent Interview Method

The interview method was used to obtain data for this study, but the method is affected by interviewer subjectivity and recall bias, and there may be inaccuracies in the information. Future research could consider incorporating more quantitative data to improve the objectivity and credibility of the study.

(4) Industry Variability

Different industries may face different competitive market environments and supply chain challenges. This study does not make an in-depth comparison of different industries and may not reveal the differences in dual-channel supply chain management in specific industries.

(5) Theoretical framework limitation

The theoretical framework of this study may not fully cover all aspects of dual-channel supply chain management. Future research may consider introducing more theoretical perspectives to more fully understand and explain firms' dual-channel supply chain management practices.

5.4 Recommendation for future research

(1) Expanding the sample

Future research could expand the sample to cover more firms of different industries, sizes, and geographies to gain a more comprehensive understanding of the pervasiveness and industry differences in dual-channel supply chain management. This will help improve the generalizability of the findings and make the conclusions more widely applicable.

(2) Long-term tracking study

A long-term tracking study is conducted to observe the evolution of companies' development in dual-channel supply chain management. By collecting data over a longer timeframe, researchers can better understand how companies are adapting to market changes, adjusting their strategies, and continuously improving their supply chain management practices.

(3) Integrating quantitative and qualitative research

Combine quantitative and qualitative research methods to obtain more comprehensive and credible data. Quantitative research can provide trends and correlations of large-scale data, while qualitative research can dig deeper into an organization's internal decision-making processes, challenges, and successes.

(4) Cross-industry comparative research

Conduct cross-industry comparative research to analyze the similarities and differences in dual-channel supply chain management across different industries. This can help reveal the specific challenges faced by different industries, as well as the effective strategies adopted, and provide more targeted management recommendations for enterprises.

(5) In-depth digital technology research

In response to the theme of digital transformation, future research could delve deeper into specific digital technology applications, such as blockchain, artificial intelligence and the Internet of Things, and their specific impact on real-time supply chain availability, visibility and decision-making accuracy.

(6) Environmental Sustainability Research

Considering the growing environmental awareness, future research could delve deeper into companies' environmental practices in dual-channel supply chain management. By promoting green supply chains and sustainable development, companies can achieve more sustainable and responsible supply chain operations.

(7) Research on Customer Interaction Experiences

Further deepen research on customer interaction experiences, including personalized service, customized recommendations, and cross-channel shopping experiences. This can help reveal what customers expect from a dual-channel organization, leading to more targeted recommendations for improvement.

(8) Research on education and training

Conduct research on employee training and development, including training content, training methods and training effectiveness. By strengthening employees' supply chain management skills, organizations can better adapt to rapidly changing market and technological environments.

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