



Lecture 15

E-commerce Logistics

电子商务物流

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Learning object

- 1 | Familiar with the characteristics and models of e-commerce logistics.
- 2 | Understand the development overview of SF Express (顺丰速运), its logistics services, and core advantages.
- 3 | Understand the background and positioning of Cainiao Network (菜鸟网络) Technology Co., Ltd.

Overview of E-commerce Logistics



The Concept of E-commerce Logistics

Definition

Logistics is the physical movement of items from the place of supply to the place of receipt. According to actual needs, basic functions such as transportation, warehousing, loading and unloading, packaging, circulation processing, distribution, and information processing are organically combined.

物流是物品从供应地向接受地的实体流动过程，根据实际需要，将运输、储存、装卸搬运、包装、流通加工、配送、信息处理等基本功能实施有机结合。

- 研究对象：一切具有经济意义的物质实体。
- 物流：“物”的物理性运动。
- 物流是一种经济活动。

The Functions of E-commerce Logistics



- Storage/warehousing 储存
- Transportation 运输
- Circulation processing 流通加工
- Packaging 包装
- Loading, unloading and handling 装卸搬运
- Distribution/delivery 配送
- Information management 信息管理

Characteristics of E-commerce Logistics

1 Globalization (全球化)

The emergence of e-commerce has accelerated global economic integration, leading to the internationalization of logistics enterprises. It involves sourcing necessary resources from multiple countries, processing them, and exporting to various nations.

2 Networked (网络化)

E-commerce logistics relies on the internet and information technology, enabling functions such as online ordering, real-time tracking of logistics information, and digitalization of logistics networks.

3 Information Technology (信息化)

Logistics informatization is manifested in the database and codification of logistics information collection, electronic and computer-based processing of logistics information, standardization and real-time transmission of logistics information, and digitization of logistics information storage.

4 Automation (自动化)

The foundation of automation is information technology, and its external manifestation is unmanned operation, leading to labor-saving effects. Automation can enhance logistics operation capabilities, reduce errors in logistics operations, and increase labor productivity.

5 Intelligence (智能化)

The intelligence of logistics is a higher-level application of logistics automation and informatization. It refers to the ability of the logistics system to make logical judgments and autonomously solve certain issues within the logistics process.

6 Flexibility (灵活性)

E-commerce logistics can adjust delivery strategies flexibly based on changes in order volume and geographical distribution, avoiding excessive inventory accumulation.

The components of an E-commerce logistics system



E-commerce Logistics Information System

This e-commerce logistic information system utilizes modern technologies like computers, networks, databases, barcodes, etc. to collect, store, transmit, process and display logistic information, in order to issue instructions and control operations in real-time for the logistics system. It helps with order placement, procuring, inventory management, shipping and distribution, while at the same time furthering the effectiveness of the logistics system by networking communication hubs, connections and channels.



The E-commerce logistics operation system

The e-commerce logistics operation system, built upon the foundation of e-commerce networks, utilizes various advanced technologies such as automated warehouses, drones, robots, etc. to ensure smooth processes of transportation, storage, handling, packaging, and distribution. It also achieves network connectivity among production points, logistics points, transportation routes, and means of transport, aiming to enhance the efficiency of logistics activities. Unlike traditional logistics operation systems that heavily rely on manual labor, e-commerce logistics relies on intelligent control systems with a higher degree of information technology integration.

E-commerce Logistics Models

Self-built Logistics (自建物流)

Self-built logistics refers to enterprises managing their own logistics operations by establishing wholly-owned or majority-owned logistics subsidiaries to handle their logistics and distribution activities. In other words, the enterprise establishes its own logistics system.

- One category includes financially strong and large-scale e-commerce enterprises (such as JD.com). These companies have sufficient funds to establish their own logistics systems, aiming to provide higher-quality logistics services.
- The second category consists of traditional large manufacturing or wholesale enterprises that are transitioning into e-commerce (such as Haier). These companies have already established sizable marketing networks and logistics distribution systems through their long-standing traditional business operations. When entering the e-commerce space, they only need to make improvements and enhancements to meet the logistics and distribution requirements of the e-commerce model.

Self-built logistics is beneficial for companies to monitor the logistics operations, reduce transaction costs, enhance brand value, and provide personalized and high-quality logistics distribution services to customers. However, its drawback is that in order to directly organize and manage logistics, companies need to invest a significant amount of capital and employ logistics personnel. This increases the financial burden on the company and weakens its ability to withstand market risks.

E-commerce Logistics Models

Third-party logistics (3PL, 第三方物流)

3PL is a logistics model where specialized third-party companies, distinct from the "first party" shipper and the "second party" receiver, undertake various logistics activities for businesses.

In this arrangement, third-party logistics providers enter into contracts or agreements to handle specific or entire logistics functions on behalf of adjacent organizations within the supply chain. They offer tailored and comprehensive logistics solutions for specific enterprises, facilitating the swift movement of goods or services to the market.

Operating on the principles of information sharing and complementary strengths, third-party logistics aims to reduce logistics costs and enhance economic benefits.

Unlike traditional buyers and sellers, third-party logistics providers do not own goods or engage in direct transactions. Instead, they offer contract-bound, alliance-based, standardized, personalized, and technologically-driven logistics agency services for their clients.

In China, third-party logistics enterprises typically possess certain scale of logistics facilities (warehouses, platforms, vehicles, etc.) and expertise in wholesale, storage, transportation, or other logistics business operations.

E-commerce Logistics Models

Third-party logistics

Using the third-party logistics model is crucial for enhancing operational efficiency within a company.

- Firstly, since resources of any enterprise are limited, delegating logistics and related tasks to logistics companies allows the company to concentrate its resources on developing its core business.
- Secondly, third-party logistics companies specialize in logistics operations and possess extensive experience, which contributes to enhancing the logistics capabilities of the enterprise.
- Lastly, establishing in-house logistics requires a significant investment in purchasing logistics equipment, constructing warehouses, and developing information networks. This can be a heavy burden for companies, especially small and medium-sized enterprises, that lack sufficient funds.

E-commerce Logistics Models

Third-party logistics

While third-party logistics offers numerous advantages, it also has significant drawbacks:

- Weak monitoring of logistics processes;
- Inability to guarantee accurate and timely supply;
- Lack of assurance in the quality of logistics services;
- Challenges in maintaining long-term relationships with customers;
- Relinquishing control over the development of specialized logistics expertise.

E-commerce Logistics Models

Logistics Alliance (物流联盟)

A logistics alliance is a strategic partnership among businesses based on logistics collaboration. It refers to the network organization formed by two or more enterprises through various agreements and contracts to achieve their logistics strategic goals, with advantages in complementarity, risk sharing, and shared benefits.

Compared to self-built logistics, logistics alliances are more specialized but may have slightly less control.

E-commerce Logistics Models

Logistics Alliance (物流联盟)

Logistics alliances can be divided into the following 5 models:

- **Vertical Integration (纵向方式):** This alliance model, also known as vertical integration, is formed based on integrated supply chain management. It involves a comprehensive cooperation relationship that spans from raw material procurement to product manufacturing, sales, and services, creating an end-to-end collaboration.
- **Horizontal Integration (横向方式):** In the horizontal model, also known as horizontal integration, several logistics companies operating in parallel positions form an alliance.
- **Hybrid Mode (混合方式):** In the hybrid model, a logistics alliance is formed with one logistics company as the core, collaborating with one or several other logistics companies. This model includes both logistics companies positioned upstream and downstream, as well as those operating in parallel positions.
- **Project Alliance Mode (项目联盟方式):** In the project alliance mode, various logistics companies collaborate around a specific project to form an alliance. This type of alliance is limited to a particular project, so the scope of collaboration among alliance members is not extensive.
- **Dynamic Alliance (动态联盟):** The dynamic alliance is an external optimization and integration based on the core capabilities of the lead enterprise. In this mode, the lead enterprise focuses its investment and management attention on its core capabilities, while relying on external alliance member enterprises to provide certain non-core capabilities or capabilities that it may not possess in the short term.



Case 1

Express and Logistics Integrated Service Provider - SF Express

快递物流综合服务商-顺丰

SF Express



SF Express is a leading comprehensive logistics service provider in China. With nearly 30 years of development, leveraging its high-penetration express delivery network covering both the entire nation and major countries and regions worldwide, SF Express has established a complete integrated comprehensive logistics service system. It not only provides users with high-quality logistics services on the distribution end but also offers enterprises integrated supply chain solutions spanning procurement, production, distribution, sales, and after-sales services. As a logistics company with years of experience in both international and domestic logistics services, SF Express' strength is undeniable. Its high-quality logistics services, unique business model, and continuous spirit of innovation make it a role model for other enterprises to learn from and emulate.

Overview of SF Express's Development



The initial stage of entrepreneurship (1993-1997)

SF Express was founded in 1993 in Shunde, Guangdong. In its initial stages, the company was involved in express delivery services between Guangdong and Hong Kong. In 1996, as the customer base grew and China's economy flourished, SF Express expanded its express delivery services to other regions within China. Starting from Shunde, the company extended its network beyond Guangdong, establishing a strong presence in the Pearl River Delta urban cluster and later expanding its delivery service network to the Yangtze River Delta region.

Overview of SF Express's Development

Rapid Growth Period (1997-2001)



In 1997, SF Express expanded its business beyond South China to cover the entire nation, entering a phase of rapid growth. Many of its newly established express delivery service points were joined through cooperation and agency arrangements. For each new service point, SF Express registered a subsidiary, and these subsidiaries were owned by local partners, forming a logistics network among them. During this period, SF Express adopted a simple contracting model for its business operations, with the main company and its subsidiaries maintaining only business connections without substantial hierarchical constraints.

Overview of SF Express's Development

Management Optimization Period (2002-2007)



Starting in 1999, SF Express founder Wang Wei adopted a "one-size-fits-all" approach to repurchase the ownership of all subsidiary companies, transitioning from a franchise model to a direct-operated model. In 2002, Wang Wei completed the ownership repurchase, established the headquarters in Shenzhen, and positioned the company's business as a high-end express delivery service in the emerging domestic market. In early 2003, SF Express signed a contract with Yangtze River Express Airlines Co., Ltd. (扬子江快运航空有限公司) to become the first private express delivery company in China to use an all-cargo freighter aircraft (全货运专机). In 2005, SF Express established the group company.

Overview of SF Express's Development

Competitive Leadership Period (2008-2012)



The years from 2008 to 2012 marked the "golden era" of SF Express's development. During this time, **SF Express established its own airline company**, gradually expanded into the international market, and strengthened its competitive advantage in the express delivery industry. In February 2008, SF Express established a cooperative relationship with Russia, launching express delivery services to Russia and entering the **international market**. Subsequently, SF Express successively introduced express delivery services in countries such as South Korea, Japan, Singapore, and the United States. In November 2009, the Civil Aviation Administration of China officially approved the establishment of SF Airlines Co., Ltd. (referred to as "SF Airlines"). On December 31, 2009, SF Airlines' inaugural flight took off successfully. In 2010, SF Airlines' cargo transport volume reached 5.63 million tons, an increase of 1.18 million tons compared to 2009, marking the largest growth in the history of China's civil aviation. By 2012, SF Express had captured a 20% market share in the domestic express delivery industry, making it the privately-owned express delivery company with the highest market share in China.

Overview of SF Express's Development

Strategic Transformation Period (2012-present)



SF Express shifted their focus to e-commerce logistics in 2012 and launched "Logistics General Freight" (物流普运) product, but were met with lukewarm reception. However, in 2018 they leveraged their "low-cost" advantage, introducing "Heavy Goods Parcels" (重货包裹) and "Standard Less-than-Truckload" (标准零担) products and by November 2019 they achieved 10 billion in logistics business revenue. In April 2020, their Q1 financial report revealed 33.541 billion yuan, a year-on-year growth of 39.59%. In August 2021, they recombined the original two products into "Express Standard Reach" (快运标准达) and introduced a unified billing method, while the product was renamed to "SF Card Air" (顺丰卡航) in March 2022. Despite launching "SF Preferred" (顺丰优选) in 2012 to cater to the mid-to-high-end fresh food market, the market response wasn't favorable.

SF's Express Services

SF's Express Delivery Service (快递服务)

SF Express (顺丰特快)

"SF Express" is an expedited express service provided by SF Express. By integrating high-quality resources, SF Express aims to minimize the delivery time for each shipment, offering competitive delivery times within the industry. For cross-regional express deliveries, the fastest delivery time is before 12:00 PM on the next day.

SF Standard Express (顺丰标快)

Through standardized operations at each stage, SF Express offers precise and stable delivery times. For deliveries within the same province or within the same economic region, the fastest delivery time is before 12:00 PM on the next day.

SF's "Express Freight" service (快运服务)

Full Truckload Direct Delivery (整车直达)

Full truckload direct delivery can meet the customer's demand for shipping one or multiple full truckloads. It achieves direct delivery of goods through point-to-point or point-to-multipoint connections, avoiding intermediate transfers.

Express Standard Plus (快运标准达)

Express Standard Plus offers shipping services for parcels weighing 20kg and above, catering to B2C large packages, B2B store allocation scenarios, B2B less-than-truckload pallet goods, and bulk shipments. It provides high-quality door-to-door collection and delivery services throughout the entire journey.

SF's "Cold Chain" service (冷运服务)

Full Truckload Direct Delivery (冷运标快)

"Cold Chain Standard Express" is a specialized cold chain courier service provided by utilizing cold storage facilities. It offers temperature-controlled land transportation for perishable (易腐烂的) goods and prioritizes end-to-end delivery.

Cold Chain Parcel LTL (Less Than Truckload) (冷运小票零担)

"Cold Chain Parcel LTL" is focused on shipments weighing between 20 to 200kg. It offers city-to-city temperature-controlled transportation with a fixed door-to-door price, specifically designed for cold chain logistics.

SF Express's "Pharmaceutical" service (医药服务)

Precision Temperature Express (精温专递)

"Precision Temperature Express" provides precise temperature-controlled cold chain delivery services for physical hospitals, online healthcare providers, pharmaceutical e-commerce platforms, pharmacies, and more. It ensures temperature control between 2 to 8 degrees Celsius and offers direct home delivery services to individual customers. It guarantees delivery within the fastest 2 hours within a 10-kilometer radius from the dispatch location.

Precision Temperature Scheduled Shipping (精温定航)

It is designed to meet the distribution requirements of multiple small-batch shipments for biopharmaceuticals, vaccines, and other products. Based on the attributes of the pharmaceuticals and their temperature and humidity requirements, this service utilizes techniques such as consolidation or distribution, as well as multi-product loading, to provide customers with precise temperature-controlled less-than-truckload (LTL) logistics services within the temperature range of 2 to 8 degrees Celsius. The service guarantees a delivery time frame of 2 to 7 days.

SF's "International" service (国际服务)

International Express (国际标快)

International Express is a service introduced to meet the urgent shipping needs of customers. It involves expedited shipping, transit, and delivery at each stage to ensure the fastest possible international parcel service.

International Economy (国际特惠)

International Economy is an economical international express service introduced to meet the non-urgent shipping needs of customers.

SF's core advantages

Operational model (经营模式)

SF employs a direct operation model with a three-tier structure consisting of the Group, Operations Headquarters, and Regional Divisions. The headquarters oversees unified operations and management of all branch institutions. The company's development strategy is formulated by the headquarters, while the management of inter-city express services across different cities within a region and the subsidiaries' management approaches are set by regional subsidiaries. The business operations in individual cities are managed by respective regional divisions.

SF Express's core advantages

Logistics network resource (物流网络资源)

Within China, SF boasts over 30,000 cooperative points, more than 15,000 service outlets, 500+ transit centers, 170+ various types of warehouses, and nearly 100,000 transportation trunk and branch lines. It has established a nationwide express network that also extends to major countries worldwide. This robust ground service capability has solidified SF's steadfast partnership with businesses.

SF Express's core advantages

Warehouse management (仓储管理)

SF employs a leading domestic Warehouse Management System (WMS) that supports inventory management for various product categories. By utilizing this system, SF can monitor in real-time the entire warehousing process, including receiving, shelving, inspection upon entry, inventory queries and adjustments, transfers, stocktaking, maintenance, allocation, picking, checking, and packaging for outbound shipments. This ensures timely, accurate, and swift order fulfillment.

SF Express's core advantages

Technological innovation (科技创新)

Throughout its development, SF has consistently emphasized technological innovation and actively invested in constructing various intelligent logistics facilities. This effort encompasses a range of areas, including big data and blockchain, AI-driven decision-making, automated sorting equipment, smart hardware, logistics drones, and digitized warehousing. The application and breakthroughs in technology have propelled SF's operational excellence across various aspects of the logistics process.

Case Study Summary

Opportunity

SF's early development was benefited from the open policy environment in China towards the logistics and express delivery industry. Seizing the opportunity and aligning with the trend, SF established its leading position in the express delivery industry through its high-quality services.

Air cargo operations

The advanced development of air cargo services laid the foundation for SF's high-efficiency express delivery advantage.

Direct-operating model

The unique direct-operating model helped the company accumulate high-quality customers.

E-commerce brand

JD.com and Alibaba have strong e-commerce ecosystems, user bases, and scales, while SF faces uncertainties transitioning from logistics to e-commerce. To expand, SF needs to explore its path.

Case 2

Integrated Logistics Ecosystem - Cainiao Network

全物流生态链-菜鸟网络



Introduction to Cainiao network

Cainiao Network was established on May 28, 2013, through a collaboration involving Alibaba Group (阿里巴巴), Yintai Group (银泰集团), Fosun Group (复星集团), Fuchun Group (富春控股集团), four major express delivery companies and other related financial institutions.

Cainiao Network is an internet technology company focused on providing a platform service for logistics networks. Leveraging big data, intelligent technology, and efficient collaboration, Cainiao Network works together with its partners to build a global logistics network. This network aims to improve logistics efficiency, accelerate inventory turnover for merchants, reduce overall logistics costs, and enhance consumers' logistics experience.



Introduction to Cainiao Network



Logistics efficiency

Cainiao Network's mission is to collaborate with logistics partners and strive to achieve a 24-hour delivery guarantee within China and a 72-hour delivery guarantee worldwide. Data shows that by 2017, China had entered a period of extreme busyness with an average of 100 million parcels delivered daily. Since its establishment, Cainiao Network has witnessed significant improvements in logistics efficiency due to network upgrades. During the "Double 11" shopping festivals of Tmall in 2013 and 2017, the time taken to deliver 100 million parcels was reduced from 9 days to 2.8 days.

Introduction to Cainiao Network



Business logic

Cainiao Network's business logic is to build a platform that efficiently connects different service providers, merchants, and users along the logistics supply chain, thereby improving logistics efficiency and service quality while reducing logistics costs. Through the efforts of Cainiao Network and its partners, as of March 2022, Cainiao Network has established 7 warehousing and distribution hubs nationwide, with over 230 warehouses covering an area of more than 30 million square meters. The network also includes over 200,000 express delivery points, providing distribution coverage to over 2,700 counties and districts across the country. Among them, over 1,600 counties offer users the option to experience ultra-fast delivery services such as same-day and next-day delivery.

Cainiao Network's main business

- **Cainiao Rural (菜鸟乡村)**

"Cainiao Rural" refers to an integrated one-stop service that includes delivering goods to villages, selling agricultural products, distribution, and various product installation and maintenance services within rural areas.

- **Cainiao Post Station (菜鸟驿站)**

"Cainiao Post Station" is a logistics service platform catering to communities and campuses, offering parcel collection services for online shoppers.

- **Cainiao Parcel (菜鸟裹裹)**

"Cainiao Parcel" is a courier service app with main features including package tracking, booking express deliveries, automatic package tracking, and using Cainiao Post Stations for package collection and delivery.

- **C2M (Consumer-to-Manufacturer) fully managed supply chain services (C2M全托管式供应链服务)**

This service provides "full-service" support to the Taogongchang manufacturers that are integrated into Cainiao Network's C2M origin warehouses.

- **Cainiao Direct Delivery (菜鸟直送)**

Cainiao Direct Delivery is aimed at establishing a comprehensive same-city delivery network and is applied in various service scenarios such as O2O same-city delivery, B2C warehouse distribution, B2C home furnishing, and B2B urban distribution.

- **Global Freight Services (全球货运)**

Global Freight Services provide end-to-end, fully visible shipping solutions for customers worldwide, encompassing both import and export freight.

Background of Cainiao Network

Challenges in Traditional Logistics

- Lack of focus on information platform integration leaves logistics companies in passive roles and results in complex delivery processes.
- E-commerce businesses invest heavily to offer efficient logistics services, passing these costs onto consumers.

Alibaba's Response: Establishing Cainiao Network

- Alibaba's growth faces challenges from self-built logistics competition, emphasizing the need for enhanced logistics quality.
- Cainiao Network is formed to centralize control over logistics supply chains, with various partners assuming specialized roles.
- Partners include organizations responsible for warehouse construction, supply chain management, mainline logistics, regional logistics, last-mile delivery, and Alibaba's information management

Cainiao Network's Positioning: Collaborative Logistics Revolution

Building an Intelligent Logistics Network

- Cainiao Network collaborates with logistics firms to establish an intelligent logistics network.
- It aims to enhance logistics information systems and leverage urbanization for widespread storage and distribution bases.

Collaborative Ecosystem Formation

- Creates a collaborative framework with upstream and downstream enterprises.
- Constructs a logistics platform for seamless integration of specialized warehousing and distribution businesses.

Leveraging Modern Technologies

- Utilizes technologies like big data and cloud computing to establish open and transparent data platforms.
- Provides shared data applications to various enterprises for seamless information exchange.

Case Study Summary

Cainiao Network's Competitive Collaboration Approach: Redefining Logistics

1 | Unified Operation of Diverse Logistics Firms

- Cainiao Network adopts a competitive collaboration mindset by integrating various logistics enterprises onto its platform.
- Advantages include large-scale and streamlined distribution methods that significantly reduce logistics costs.

2 | Specialization and Efficiency Enhancement

- Specialized divisions within the collaboration model enhance distribution efficiency.
- Expertise-driven approach improves overall efficiency in the supply chain.

3 | Optimal Utilization of Resources

- Utilization of existing warehousing facilities is optimized, reducing idle space and promoting even allocation.
- Higher concentration of transported goods aids resource optimization and minimizes vehicle idle time.

4 | Lowering Logistics Costs

- Mass-scale and concentrated distribution leads to reduced costs.
- Efficient utilization of resources and collaborative efforts minimize operational expenses.