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Transforming Returns into Competitive Advantage: Reverse Logistics Management at Taobao

Transformar las devoluciones en ventaja competitiva: la gestión de la logística inversa en Taobao

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Abstract

The rapid growth of e-commerce has made online retail consumers' primary channel, yet it has also driven rising merchandise return rates, a challenge that demands robust returns logistics infrastructure, and streamlined return processing is now essential for platforms seeking to sustain customer satisfaction and competitive positioning, particularly in China's expanding marketplace. This study examines Taobao, China's leading e-commerce platform, analyzing its competitive advantages and operational challenges in returns logistics management. Using a case study approach supported by a literature review, performance is evaluated through multiple key indicators measuring policy effectiveness and system efficiency. Findings reveal that Taobao has built a comprehensive returns infrastructure through transparent regulatory frameworks and systematized procedures, while also identifying areas requiring improvement. Targeted optimization strategies are proposed accordingly. These insights offer foundational guidance for other platforms developing effective, culturally adapted return services, supporting sustainable growth across China's e-commerce sector.

Keywords: Return logistics; Return service; Reverse logistics; Online retailing; E-commerce industry; China

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Abstract

El rápido crecimiento del comercio electrónico ha convertido a esta modalidad en el canal principal de los consumidores en línea; no obstante, también ha incrementado las tasas de devolución de mercancías, un desafío que exige una sólida infraestructura de logística de devoluciones. La optimización de los procesos de retorno resulta esencial para que las plataformas mantengan la satisfacción del cliente y su posicionamiento competitivo, especialmente en el creciente mercado chino. El presente estudio analiza Taobao, la plataforma líder de comercio electrónico en China, examinando sus ventajas competitivas y los desafíos operativos en la gestión de la logística de devoluciones. Mediante un enfoque de estudio de caso apoyado en una revisión bibliográfica, se evalúa el desempeño a través de múltiples indicadores clave que miden la eficacia de las políticas y la eficiencia del sistema. Los hallazgos revelan que Taobao ha construido una infraestructura integral de devoluciones basada en marcos regulatorios transparentes y procedimientos sistematizados, al tiempo que se identifican áreas de mejora. En consecuencia, se proponen estrategias de optimización específicas. Estas conclusiones ofrecen una guía fundamental para otras plataformas que busquen desarrollar servicios de devolución eficaces y adaptados culturalmente, apoyando así el crecimiento sostenible del sector de comercio electrónico en China.

Palabras clave: Logística de devoluciones; servicio de devolución; logística inversa; comercio minorista en línea; industria del comercio electrónico; China

Introduction

Research background

The proliferation of information technology has catalyzed revolutionary transformations throughout the global e-commerce landscape (eMarketer, 2017). This transformation manifests most prominently in the ascendancy of online retailing. Recent pandemic-related disruptions have substantially affected conventional retail operations, precipitating consumers' accelerated adoption and increasing dependence upon digital retail channels.

However, the inherent limitation of online shopping, consumers' inability to physically examine products generates product compatibility uncertainty (Hong & Pavlou, 2014), constituting a primary deterrent to online purchasing decisions (eMarketer, 2016). Higher return rates present substantial challenges for online retail operations. Statistical evidence indicates that e-commerce return rates significantly exceed traditional retail levels, with online shopping returns occurring at double the frequency of physical store purchases (McWilliams, 2012). Complaints stemming from this phenomenon continue to escalate. As of 2022, online shopping complaints comprised 42.78% of total consumer complaints in China, representing the highest category (Cao & Mo, 2022). Within digital economy sectors, returns and refund-related grievances constitute over one-third of complaints, reaching nearly half in certain categories (Cao & Mo, 2022). Returns and refund complications not only escalate e-commerce platform operational expenditures but also present after-sales service challenges for online merchants.

The product return phenomenon necessitates reverse logistics implementation. For platforms and merchants, developing streamlined reverse logistics management systems represents a strategic approach to optimizing returns processes and minimizing costs and resource consump-

tion associated with return incidents, encompassing establishment of rational return policies and superior return services.

Exemplary return services enhance customer satisfaction and loyalty while attracting additional clientele. Prompt and equitable return and refund processing can improve product quality and distribution mechanisms while strengthening brand reputation. Customer return policies constitute essential components of e-commerce platform and retailer competitive strategies. Effective customer return management generates customer value (Chen & Chen, 2016).

Previous reverse logistics research predominantly focused on return services' impact on consumer behavior and shopping experiences (Xu et al., 2015). Studies also emphasize technological innovations in reverse logistics, exploring technology applications for computerizing reverse logistics processes (Duan et al., 2019). Developed nations have accumulated theoretical and practical knowledge addressing reverse logistics challenges within e-commerce contexts. Meanwhile, compared with developed countries, China's reverse logistics research commenced relatively recently and lacks localized investigation.

Taobao.com, operated by Alibaba Group, constitutes one of China's leading retail e-commerce websites, commanding an impressive 80% market share (Davis, 2014). However, Taobao confronts significant challenges related to escalating consumer risk consciousness. Therefore, well-formed return policies and reverse logistics management models are necessary to mitigate consumer risk perceptions when shopping on Taobao. This study comprehensively analyzes Taobao's reverse logistics management model through reverse logistics management strategies while clarifying optimization processes to enhance competitiveness and reduce consumer risk concerns.

Research objectives

This investigation analyzes Taobao's return service and reverse logistics management from successful reverse logistics management perspectives. This study addresses three principal questions:

RQ1: what key factors influence successful reverse logistics management?

RQ2: what challenges currently exist in Chinese online retail platforms' reverse logistics?

RQ3: how should Chinese online retail platforms optimize their reverse logistics systems?

Panigrahi (2018), emphasizes process, reverse logistics capabilities, and knowledge-driven initiatives' critical importance in reverse logistics management. These elements enhance customer satisfaction while providing competitive business advantages. Astoundingly, research findings indicate retailers can boost sales by implementing effective return policies encouraging purchases rather than returns. Fifteen key elements are identified to measure effective return policies, including return quality, product competitiveness, system improvement, service innovation, complaint reduction, and customer expectation management.

This study analyzes Taobao's reverse logistics management system strengths and proposes improvement strategies. Additionally, it provides insights into successful reverse logistics management strategies' importance within the online retailing industry. Through this analysis, it offers practical guidance for advancing reverse logistics management in China's online retailing industry and promoting reverse logistics management system establishment on other Chinese online retailing platforms.

Literature Review

Conceptualization Reverse Logistics in the E-commerce Industry

Reverse logistics essentially works as the counterpart to forward logistics, operating in the opposite direction. At its core, it covers the entire spectrum of logistics activities—from collecting discarded consumer products to returning usable materials back to the marketplace. In detail, it involves sophisticated processes for remanufacturing, reusing, or recycling abandoned goods.

Reverse logistics has progressed from an environmental initiative to a mainstream business strategy. As understanding has matured, it has been adopted widely across multiple industries. From factories to storefronts, reverse logistics transcends environmental protection alone, now being valued as an essential supply chain mechanism for cutting costs, boosting efficiency, and improving customer experience (Abdulrahman et al., 2014; Panigrahi et al., 2018). Merging forward and reverse supply chains horizontally to create "closed-loop" sustainable supply chains are becoming increasingly necessary (Ding et al., 2023). More recently, focus has intensified on e-commerce applications. This fast-growing industry, marked by relentless innovation and refinement, has come to appreciate this concept's critical role. E-commerce reverse logistics mainly deals with returns and exchanges—products bought online by customers and shipped back to sellers and their upstream supply chain partners (Qian et al., 2012), serving post-sale support functions. Handling returns and exchanges remains the e-commerce sector's most pressing challenge. Thus, building effective reverse logistics capabilities in e-commerce is crucial (Wang et al., 2013).

Internet-based shopping has established itself as the leading consumption pattern in modern e-commerce; however, the non-physical nature of online purchases creates high volumes of returns and exchanges. Because e-commerce takes place in virtual environments where customers cannot touch or inspect products beforehand, it introduces doubts about product fit and compatibility (Hong & Pavlou, 2014), which drives up return and exchange frequencies. Reverse logistics fulfills a critical function in offering after-sales support for e-commerce businesses. Well-developed reverse logistics service infrastructure is vital for fostering positive relationships between companies and their customers. More recently, a growing number of e-commerce firms have acknowledged reverse logistics' strategic significance in improving customer satisfaction and enhancing supply chain competitive positioning (Ma, 2010).

Recent scholarship has continued to refine the conceptual boundaries of e-commerce reverse logistics. Prajapati et al. (2022), emphasize sustainable forward-reverse logistics integration

in B2C settings as essential to achieving circular economy goals. Davidavičienė and Mohamad (2021), demonstrate that reverse logistics performance in e-commerce markets is materially shaped by platform policy design and third-party carrier coordination. Additionally, the emergence of False Failure Returns (FFRs, items returned without functional defect; Ferguson et al., 2006) has been exacerbated in post-pandemic e-commerce by return shipping insurance (RSI) mechanisms that lower consumer return barriers, a phenomenon documented in Chinese platforms including Taobao and JD.com (Sheng et al., 2016; Nageswaran et al., 2020). Consumer motivations for returns are similarly multidimensional: impulsive purchasing, product-description mismatches, and counterfeit goods remain primary drivers (Janakiraman et al., 2016; Yuliawati & Brilliana, 2022) while Yao et al. (2023), demonstrate that model selection for returns in fashion e-commerce requires integrating both consumer preference uncertainty and logistical cost trade-offs.

Return Logistics Under E-commerce Environment

A major challenge facing e-commerce is the substantial volume of products sent back to vendors or producers, and this issue has transformed reverse logistics in e-commerce settings into an emerging phenomenon on reverse e-logistics (Davidavičienė & Mohamad, 2021). The scale of this problem is well-documented in the Chinese context: as of 2022, online shopping complaints comprised 42.78% of all consumer complaints in China, with returns and refund grievances constituting over one-third of complaints within digital economy sectors (Cao & Mo, 2022). Both product characteristics and transactional process characteristics influence consumer return behavior (Janakiraman et al., 2016), with typical motivations including price perceptions, satisfaction levels (Jiang & Rosenbloom, 2005), product quality failures, unmet expectations, and transportation damage (Yuliawati & Brilliana, 2022).

Growing competitive pressures have pushed sellers to beautify product photos and amplify product attributes to entice buyers. Some businesses stimulate consumer purchasing by highlighting lenient return policies (for example, "7-day return options"). Su (2009) and Nageswaran et al. (2020), have explored common return policy types (such as complete refunds, partial refunds, or no refunds), revealing that while favorable return policies effectively draw customers, they also bring considerable return-related issues.

Problems related to quality, such as manufacturing defects, products not matching user specifications, and items failing to meet customer expectations, are the leading causes of consumer returns (Ferguson et al., 2006; Guide et al., 2006). Counterfeiting represents a major quality challenge. Counterfeiting and product misrepresentation remain persistent concerns on Chinese e-commerce platforms, continuing to drive return volumes despite platform efforts at enforcement (Cao & Mo, 2022). Even though Alibaba announced initiatives to eliminate counterfeit luxury goods and remove fake listings, consumer worries about product authenticity continue to exist.

Beyond structural return drivers, consumer preference uncertainty compounds these motivations at the individual level. E-commerce customers rely on images and descriptions to form

visual impressions, preventing them from fully grasping product features (Hong & Pavlou, 2014; Wang et al., 2013). They can only evaluate product quality through other shoppers' reviews. However, varying interpretations of usage experiences and some fake positive reviews drive up return rates. Online shopping encourages impulsive buying. Consumers often ignore negative reviews when purchasing, affecting later return decisions (Nasr-Bechwati & Siegal, 2005). Consumer preferences also vary by product category (Peterson et al., 1997). Buyers are less willing to return digital products (such as e-books) purchased impulsively (Biswas, 2004), while physical products (like clothing) carry more purchase risk (Dai et al., 2014). Impulsive, curiosity-driven purchases without proper product knowledge commonly lead to returns.

Transportation Imperfections and Return Logistics Models

During the transportation, loading, unloading, delivery, and distribution processes, various types of damage can occur to goods, such as broken packaging, expired products, quality deterioration, delays, physical damage, or incorrect deliveries (Wang et al., 2013). High volumes of returns weaken retailers' competitive strength and market position as more competitors enter the market (Chen & Chen, 2016). This can significantly hurt retailers profits. Therefore, retailers must recognize and understand why online returns happen and create effective return policies and efficient return logistics systems to stay competitive.

While extensive research on reverse logistics models exists, specific studies on return logistics models in e-commerce settings are limited. E-commerce return logistics have been organized into three types: returns managed by manufacturers, returns handled by online merchants, and returns processed by third-party logistics companies, based on different return channels. Three shortcomings of traditional logistics models in apparel e-commerce returns and exchanges have been noted, prompting proposals for a new apparel e-commerce return and exchange logistics model combines that outsourced third-party and joint venture features from a green logistics perspective.

Self-operated return logistics models mean companies build internal return logistics systems, using their own resources to handle product returns and exchanges. E-commerce businesses operating their own logistics directly control and manage the entire return logistics process, ensuring consistent service quality and efficiency (Han, 2021). Currently, only large, financially strong companies use this return logistics model.

Third-party return logistics models refer to e-commerce companies outsourcing their returns operations to specialized third-party logistics firms, which handle the complete returns and processing workflow (Ying & Dayong, 2005; Cho et al., 2008). By outsourcing return logistics to specialized third-party providers, e-commerce businesses can focus their main attention and resources on developing core operations and improving long-term competitiveness (Yeung et al., 2012). Most e-commerce companies currently adopt this return model.

Alliance return logistics model concepts involve cooperative partnerships between similar e-commerce companies creating shared return logistics systems for greater efficiency, including partnerships with specialized logistics firms (Yao et al., 2023). These alliances follow "shared risks and benefits" principles (Zhang et al., 2020). This logistics model achieves resource sharing and cost savings, boosting return logistics efficiency in ways that benefit all parties (He et al., 2019). Effective return logistics management is critical to e-commerce success. It is not merely about handling returns; it is about turning returns into a competitive advantage.

Reverse Logistics as Competitive Advantage

In recent years, considerable research has explored strategies for building and sustaining organizational competitive advantages (Appelbaum & Gallagher, 2000). Within today's competitive marketplace, effective reverse logistics management is broadly acknowledged as one of the essential factors for companies achieving competitive advantages. A key challenge is determining how reverse logistics can serve as a competitive advantage for e-commerce firms. Efficient reverse logistics systems can deliver cost savings, potentially boosting market share and profitability by decreasing raw material needs and strengthening environmental credentials (Sarkis et al., 2010). Various indirect advantages of reverse logistics, such as higher customer satisfaction, better corporate image, and additional value creation, further enhance its importance (Jalil, 2019; Lai et al., 2013). Recycling programs and the reuse of products and packaging have become widespread global practices while also creating significant employment opportunities (Roleders et al., 2022). This shift has fostered the emergence of new consumer demographics with greater environmental consciousness and stronger recognition of eco-friendly product values, which they incorporate into their buying behavior (Vaz et al., 2013), and successful reverse logistics initiatives align well with these consumer values.

Effective reverse logistics programs differentiated companies and enable marketplace competitiveness (Jayaraman & Luo, 2007). Rather than treating reverse logistics as an expensive addition to normal operations, it should be seen as an opportunity to strengthen competitive advantages while reducing costs (Gayialis et al., 2022; Saruchera & Asante-Darko, 2021). Reverse logistics is not merely operational; it is a strategic competitive advantage with lasting impacts on enterprise sustainability.

Research Methodology

Methodological Approach

This study uses a qualitative case study approach, with a focus on Taobao as the primary case. Through detailed analysis of Taobao's current return policies and reverse logistics operations, this research aims to identify challenges present in China's e-commerce market and proposes specific recommendations to help Taobao improve its reverse logistics management system. Additionally, the research findings provide useful references for other Chinese online retail platforms develo-

ping their own reverse logistics systems. The case analysis method allows for in-depth investigation of specific cases to explore problems, making it well-suited for studying reverse logistics in e-commerce markets. By focusing on Taobao as a case study, we can conduct comprehensive analysis, exploring reverse logistics strategies, challenges, and solutions thoroughly. This enables us to obtain valuable insights into returns logistics management.

Research Strategy

While many studies have explored e-commerce reverse logistics, most research primarily examines e-commerce platforms and businesses from operational perspectives. Their main goal is creating circular reverse logistics systems to lower reverse logistics costs. There is a clear research gap in holistic, integrated studies of return logistics within reverse logistics, especially concerning consumer satisfaction, particularly for major Chinese e-commerce platforms like Taobao and JD.com. To fill this gap, we use: 1) literature reviews of related studies, 2) comprehensive searches for official documents, customer reviews, and other Taobao materials, and 3) thorough investigations of Taobao's return policies and return logistics management. We identify key factors for successful reverse logistics management through systematic, comprehensive literature reviews. Then, we choose Taobao, a Chinese e-commerce platform, as a case study to examine how Taobao effectively manages reverse logistics to enhance consumer satisfaction and identify its challenges. Finally, we offer optimization strategies for Taobao's reverse logistics management and provide reference materials for researchers studying e-commerce reverse logistics management.

The study began with a systematic literature review, searching academic journals using keywords: reverse logistics, e-commerce (or online retailing), and returns logistics. This produced 283 results, but only some addressed return policy and consumer satisfaction. The authors screened further, comprehensively analyzing approximately 50 relevant articles. This identified key factors for successful reverse logistics management and examples showing how these factors improve consumer satisfaction and competitiveness. We then extensively searched Taobao's official documents, reports, and merchant/consumer reviews on reverse logistics and returns and tested the Taobao platform to document its complete return policy and reverse logistics process.

Document selection followed a four-stage screening procedure. In Stage 1 (identification), a keyword search was conducted across Web of Science, Scopus, and Google Scholar using the terms "reverse logistics," "e-commerce," "online retailing," and "returns logistics," yielding 283 initial results. In Stage 2 (title and abstract screening), records were excluded if they (a) focused on manufacturing or physical-retail contexts without an e-commerce component, (b) predated 2000 unless theoretically foundational, or (c) were written in languages other than English or Chinese. This reduced the pool to 87 records. In Stage 3 (full-text eligibility), articles were retained only if they addressed at least one of the following: reverse logistics models, return policy design, consumer return behavior, or platform-level logistics management. Papers without empirical evidence or a clear theoretical contribution to e-commerce reverse logistics were excluded. In Stage

4 (final inclusion), approximately 50 articles met all criteria and were retained for synthesis. Official Taobao platform documents, Alibaba Group annual reports, and verified consumer review aggregators were treated as supplementary grey literature and assessed for relevance and source credibility before inclusion.

Platform testing was conducted to empirically document Taobao's return process from the consumer's perspective. Between March and May 2023, the research team initiated twelve simulated return transactions spanning four product categories representative of high-return segments on the platform: apparel and footwear (four transactions), electronics accessories (three transactions), home goods (three transactions), and personal care products (two transactions). Each test transaction followed the live return workflow available to registered Chinese Taobao accounts, beginning with order receipt and proceeding through after-sales service application, logistics selection, parcel dispatch, merchant verification, and refund issuance. For each transaction, the following data points were recorded in a structured observation log: (1) time elapsed at each process stage, (2) system-generated versus manually entered data fields, (3) logistics options presented, (4) communication modalities available between buyer and seller, and (5) refund channel and processing time. Observations were cross-referenced against Taobao's published platform guidelines and Cainiao's publicly available service documentation to validate consistency between stated policies and observed system behavior.

No formal interviews or expert consultations were conducted in this study. This decision reflects the research design's deliberate orientation toward documentary and observational evidence rather than perceptual or attitudinal data. The primary research objective was to evaluate Taobao's existing reverse logistics infrastructure against an established performance framework, a task for which platform documents, publicly available operational data, and direct system observation provide sufficient and appropriate evidence (Yin, 2018). Furthermore, gaining access to logistics managers or platform executives at Alibaba Group through formal interview channels was not feasible within the scope of this study.

Selection and Motivation

Taobao, China's leading e-commerce platform and largest online retail marketplace, serves over one billion users and features more than one billion products. In 2012, Taobao generated sales of $170 billion, significantly exceeding the combined sales of Amazon and eBay for that year ("World's Greatest Bazaar," 2013). Taobao's enormous scale and complexity create multiple challenges, including optimizing returns processes, improving supply chain efficiency, and addressing sustainability issues that demand support from complex, large-scale supply chain networks. These challenges are essential for understanding reverse logistics management in China's e-commerce industry. Taobao holds considerable influence in China's e-commerce sector, and its success has brought numerous reverse logistics issues to light, particularly concerns about its return policy and reverse logistics management.

The background

Taobao is China's first and most popular online retail platform, launched by Alibaba Group in 2003. It is also the leading online trading platform in the Asia-Pacific region. As Taobao has grown and attracted more users, it has evolved from a single C2C online marketplace into a comprehensive retail platform offering multiple e-commerce models, such as C2C, group buying, distribution, and auctions. Taobao is dedicated to providing Chinese consumers with convenient, secure, and high-quality shopping experiences while also working to export Chinese-made products and services worldwide.

Taobao uses third-party logistics models and partners with logistics companies in its supply chain to better serve both sellers and buyers. Taobao negotiates agreements on pricing, operational methods, service content, and appropriate terms of logistics services to clarify both parties' duties and responsibilities. In actual logistics operations, Taobao, as a platform provider, mainly serves as a recommender of logistics firms it has contracts with and as an adjudicator of complaints. Customers can independently select courier companies recommended by Taobao based on price and service quality. In 2006, Alibaba Group signed strategic cooperation agreements with the China Postal System. Taobao has formed partnerships with over ten domestic and international logistics companies, providing coverage across all consumer regions in China.

To resolve problems related to goods not matching products, counterfeit products, and other issues, Taobao implemented a 7-day return policy in 2011, allowing customers to apply for returns within seven days of purchase without providing specific reasons under certain conditions. This consumer protection measure has helped boost consumer trust and satisfaction. Additionally, Taobao's third-party logistics system provides strong support for Taobao's return logistics management.

Trustworthiness of the Study

To ensure the rigor of this qualitative case study, trustworthiness was addressed through Lincoln and Guba's (1985), four criteria of credibility, transferability, dependability, and confirmability. Credibility was established through triangulation of three independent data sources: peer-reviewed literature, official platform and corporate documents, and direct platform observation. Findings from each source were systematically cross-checked; where discrepancies arose between stated policy and observed system behavior, they were flagged and examined rather than resolved by assumption. Extended engagement with the Taobao platform across multiple product categories and over a three-month observation window further strengthened credibility by capturing seasonal and categorical variation in the return process. Transferability was supported by providing a thick description of Taobao's operational context (platform scale, logistics architecture, and regulatory environment), enabling readers to assess the extent to which findings may be applicable to other large-scale Chinese e-commerce platforms operating under comparable conditions. Dependability

was addressed through transparent documentation of the research process, including the staged literature selection procedure and the structured observation log used during platform testing, allowing the analytical steps to be audited and, where applicable, replicated. Confirmability was achieved by grounding all evaluative conclusions in specific evidence from the data sources rather than researcher inference alone; the performance framework provided an explicit, pre-specified structure that constrained interpretive drift and ensured that findings were traceable to observable platform behaviors and documented policies.

Research Findings

Taobao's Return Policy

Taobao.com implemented consumer protection services to comprehensively protect consumers' rights in online transactions. Under the "Truthful Description of Goods" commitment, Taobao offers optional seller services like "7-Day No Reason Return," "Triple Compensation for Counterfeit," "Virtual Goods Flash Delivery," and more. For returns, Taobao primarily uses a "7-day return policy"; buyers can initiate "7-Day No Reason Return" for eligible products in intact condition within seven days of receipt. The 7-day window starts at midnight after logistics tracking confirms delivery and lasts 168 hours. Eligible products must meet: (1) Undamaged products and original packaging. (2) Complete products with accessories, attachments, or freebies, complying with "Three Guarantees" policies. (3) Special products may have specific rules. Custom products, perishables, and digital goods are excluded from seven-day returns.

Return shipping costs when buyers refuse goods for personal reasons: (1) For free shipping products, sellers cover forward shipping; buyers pay return shipping. (2) For non-free shipping products, buyers pay both forward and return shipping. When buyers refuse goods due to seller errors (wrong products or quality issues), sellers pay return shipping costs.

To return the product, here are the following procedures:

(1) Sign in to your Taobao account, navigate to "My Taobao," then "My Orders," locate the order you need to process, and click on "After-sales Service."

(2) Select the appropriate service type and follow the on-screen instructions to fill out your return request, providing the reason for return, item identification numbers, and preferred return method, then submit your application.

(3) Sellers are given five days to review your return request. Once approved, the return address will be displayed. You must send the product back within seven days of approval.

(4) You can independently choose any third-party logistics company for the return shipment and enter the tracking number in the "Return Information" section. When sellers receive the returned goods and confirm they're in acceptable condition, they will process the return and issue your refund.

(5) After sellers verify that your return meets the policy requirements, your payment will be refunded through the same method you originally used, whether it was Alipay, bank card, or another payment option.

Taobao's Reverse Logistics Model and System

Currently, Taobao uses third-party logistics models aligned with its characteristics, outsourcing reverse logistics to professional logistics providers (third-party logistics companies). Third-party logistics firms have specific agreements with Taobao outlining rights and obligations. Taobao oversees logistics services but doesn't assume joint liability (Chen, 2016). When consumers request returns, Taobao doesn't directly handle logistics; consumers independently select third-party logistics companies for returns.

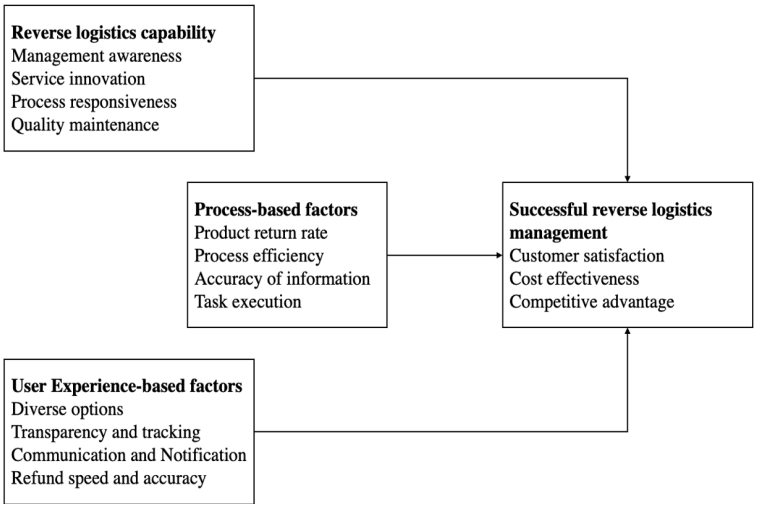
After the November 2012 Courier Warehouse Explosion, Alibaba partnered with eight express companies, including China Post and Shentong, to launch Cainiao Network in 2013 to tackle delivery delays and complaints. Cainiao Logistics uses big data to build logistics platforms offering e-commerce companies complete logistics solutions—order processing, warehouse management, intelligent distribution, and cross-border services (Falcone et al., 2020). Taobao's reverse logistics relies mainly on Cainiao Logistics for informatization and intelligence. Cainiao's scope extends beyond supply chains to full return system design. Taobao provides "one-click return" shipping, with Cainiao logistics supplying supporting products and systems.

For returns, Taobao offers two options: (1) Self-shipping: Buyers ship via Cainiao Station and enter tracking numbers. Non-Cainiao couriers (e.g., SF Express) require seller coordination, as Taobao can't track them. (2) Doorstep pickup: Most popular method. Users select pickup time; system auto-generates addresses. Taobao forwards to Cainiao, which schedules courier pickup.

Successful Reverse Logistics Management Model

Conceptual Framework of the Model

Figure 1. Conceptual Framework for Evaluating Taobao's Reverse Logistics Management Performa



Source: adapted from Grabara et al. (2014); Chinda (2017); Panigrahi et al. (2018).

Grabara et al. (2014), conducted extensive literature reviews and identified activities capable of achieving effective reverse logistics, primarily categorized into design and production, process management, quality and organization, finance and marketing. Chinda (2017), investigated 17 factors influencing successful reverse logistics, encompassing "Availability of managers with requisite reverse logistics expertise," "Availability of reverse logistics companies," and "Workers' environmental consciousness." Panigrahi et al. (2018), developed frameworks for assessing reverse logistics management performance through qualitative research, incorporating reverse logistics capabilities, process-based factors, and knowledge-based factors, with objectives of enhancing customer satisfaction, achieving cost efficiency, and securing competitive advantages. We performed comparative analysis of the above-mentioned research findings, comprehensively synthesized them, and constructed frameworks to evaluate Taobao's performance in current return logistics management. This framework will yield insights into Taobao's reverse logistics performance. Figure 1 presents the conceptual framework used to evaluate Taobao's reverse logistics management performance across the three dimensions of process-based factors, reverse logistics capabilities, and user experience-based factors.

The Application of the Model to Taobao's Return Analysis

The following analysis applies the three-dimension framework to Taobao's return logistics system. Each dimension contains two types of findings, which are distinguished throughout: descriptive findings (observable platform features, policy specifications, and operational data) and interpretive assessments (evaluative judgements derived by applying the framework criteria to the descriptive evidence). Items marked [D] are descriptive; items marked [I] are interpretive.

(1) Process-Based Factors

Product Return Rate [D]: Statistics show that among China's e-commerce platforms, Taobao's return rate reaches as high as 10%, the highest among all platforms; in contrast, JD.com's return rate is approximately 4%, and Suning.com's return rate is around 3%. Therefore, reducing return rates from the source remains a key issue that Taobao needs to address.

Process Efficiency [D]: Collaboration between Taobao platform, Cainiao platform, and third-party logistics companies has achieved close integration between online and offline operations, and effective coordination of logistics systems has solved problems of complex buyer return processes and slow order processing. This cooperation has made the entire business chain highly informatized, reduced labor costs, and effectively improved overall returns logistics efficiency.

Accuracy of Information [D]: Consumers don't need to fill in addresses during the return process; Taobao systems automatically generate all necessary information, including waybills and return addresses, reducing manual data entry steps for users, improving data accuracy, and minimizing return problems caused by incorrect information.

Task Execution [D]: Taobao systems calculate shipping costs in real-time based on order information, taking into account that different courier channels may offer varying service quality at different times on the same routes. Through Cainiao platform's big data analysis of shipping and receiving routes and various courier channel service quality, the system selects optimal channels to place orders.

(2) Reverse Logistics Capabilities

Management Recognition Dimension [D]: Alibaba Group's 2013 introduction of Cainiao Logistics represented a strategic intervention targeting critical service gaps in Taobao's return and exchange mechanisms. This development marked a pivotal shift in organizational priorities, with reverse logistics transitioning from a peripheral concern to a core component of the enterprise's integrated business architecture.

Service Model Configuration [D]: Capital expenditure requirements and resource allocation constraints inherent in proprietary logistics networks impose significant coverage boundaries. Taobao strategically opted against vertical integration in logistics, instead implementing a federated carrier model to enhance service penetration. Cainiao's infrastructure encompasses partnerships with over 140 courier organizations spanning domestic and international markets, employing standardized shipment identifiers while functioning as Alibaba Group's primary mobile gateway for package tracking operations.

Process Flexibility Constraints [I]: Service delivery consistency among Taobao's logistics partnerships exhibits considerable variation, with certain providers possessing limited organizational capacity and underdeveloped service infrastructure. Seasonal demand spikes, exemplified

by the Double Eleven shopping festival, expose the inability of these entities to implement rapid procedural modifications necessary for managing volatile return quantities.

Quality Assurance Limitations [I]: The variable characteristics of reverse logistics, including product heterogeneity, diverse return methodologies, and multiple carrier involvement, impede the establishment of standardized packaging specifications and quality control mechanisms. Return items traverse multiple packaging and distribution nodes, which compounds deterioration risks. Fragile commodities and items requiring specialized environmental controls face particularly acute quality maintenance challenges throughout reverse logistics operations.

(3) User Experience-Based Factors

Diverse Options [D]: Taobao itself does not have any affiliated courier companies. In actual reverse logistics operations, Taobao, as platform provider, serves merely as recommender and supervisor for logistics companies with which it has signed agreements. It does not restrict customers' choice but allows them to compare and independently select logistics companies. Moreover, regarding return methods, Taobao provides consumers with two options: door-to-door pickup or self-sending of goods. Multiple logistics channel availability provides consumers with broader choice ranges.

Transparency and Tracking [D]: Taobao provides real-time logistics tracking functionality, enabling platforms, merchants, and consumers to be informed of returns real-time status. After express delivery is dispatched, systems continuously monitor orders in real-time, promptly capturing updated logistics trajectory data. This implementation achieves real-time informatization across entire business chains, enhancing return process visibility through effective monitoring and information feedback mechanisms.

Communication and Notifications [I]: For orders facing issues, compared to self-built logistics, Taobao lacks centralized, professional communication channels. In cases of after-sales disputes between consumers and merchants, Taobao platform intervention lacks proactive measures. For example, Pinduoduo platform, during merchant communication regarding after-sales issues, intervenes proactively by displaying popup windows if prolonged communication proves ineffective. In contrast, Taobao requires consumers to initiate platform interventions themselves, and processing speed after intervention is relatively slow.

Refund Speed and Accuracy [D]: Taobao excels in refund process efficiency when compared to other e-commerce platforms. Most products qualify for express refunds, and door-to-door return options are available. Refunds are processed upon returned goods shipment. For valid requests involving already shipped orders, platforms have capabilities to advance refund payments ahead of time.

Discussion

Comparison of Taobao's Performance Against Prior Studies

The twelve-factor framework draws on Grabara et al. (2014); Chinda (2017) and Panigrahi et al. (2018). Comparing Taobao's observed performance against each factor and its treatment in prior studies reveals a mixed profile of relative strengths and structural gaps. Within the process-based dimension, Taobao's Cainiao integrated order processing and automatic waybill generation align well with the process efficiency and information accuracy standards identified by Panigrahi et al. (2018), as core capabilities for competitive reverse logistics. The real-time channel selection algorithm for cost optimized courier routing similarly matches the "task execution" criterion those authors describe as distinguishing high-performing platforms. However, Taobao's product return rate of 10% (the highest among major Chinese platforms) exceeds the thresholds associated with efficient reverse logistics in the retail literature. Janakiraman et al. (2016), demonstrated that lenient return policies significantly increase return volumes; Taobao's unconditional seven day no reason return policy is precisely the kind of liberal policy their meta-analysis associates with elevated rates. JD.com's lower rate of approximately 4% is consistent with its tighter return eligibility conditions and its proprietary logistics infrastructure, which Cho et al. (2008), identify as enabling faster processing and reduced consumer uncertainty, both factors that suppress return frequency. This contrast directly addresses an unexpected finding: despite Taobao's superior scale and technology integration, its return rate is more than double JD.com's, pointing to policy design rather than logistics capability as the primary driver.

Within the reverse logistics capabilities dimension, Taobao's Management Recognition score is strong: Alibaba's 2013 establishment of Cainiao as a dedicated logistics arm reflects the strategic organizational commitment that Chinda (2017), identifies as the most influential factor in successful reverse logistics implementation. The federated carrier model supporting Taobao's Service Model Configuration dimension is consistent with the third-party logistics (3PL) approach that Krumwiede and Sheu (2002), identify as appropriate for platforms lacking the capital base for proprietary networks. However, the Process Flexibility and Quality Assurance dimensions reveal significant shortfalls. Panigrahi et al. (2018), found that high-performing reverse logistics systems require both standardized packaging protocols and the organizational capacity to scale rapidly under demand shocks. Taobao's reliance on heterogeneous third-party carriers with varying service levels makes both conditions difficult to satisfy. This finding partially contradicts Falcone et al. (2020), who document Cainiao's strengths in big-data-driven logistics coordination; the present analysis suggests that coordination capacity alone does not compensate for the absence of enforceable packaging and handling standards at the carrier level.

Across the user experience dimension, Taobao performs strongly on Diverse Options, Transparency and Tracking, and Refund Speed. Areas where the platform's technological infrastructure delivers measurable advantages. These results are consistent with Davidavičienė and Mohamad (2021), whose Lebanon/Syria e-commerce case study found that real-time tracking and flexible

return channels are among the strongest drivers of consumer return satisfaction. Taobao's expressed refund capability (processing refunds upon shipment dispatch rather than upon receipt verification) represents a particularly notable strength that goes beyond what most e-commerce platforms offer and aligns with the refund speed findings of Jiang and Rosenbloom (2005). The Communication and Notifications dimension is, however, a significant weakness. Grabara et al. (2014), identified centralized and proactive after-sales communication as a key benefit of high quality reverse logistics. Taobao's current model, which requires consumers to self-initiate platform intervention and routes disputes through individual merchant customer service, is structurally at odds with this standard. The Pinduoduo comparison in the descriptive findings where popup-based proactive intervention is triggered automatically illustrates that this gap is not technologically inevitable but reflects a deliberate platform architecture choice.

The 10% Return Rate: Addressing an Unexpected Finding

Taobao's 10% return rate is counterintuitive given the platform's strong performance on process efficiency and tracking. One would expect that a platform offering superior logistical convenience and real-time visibility would be associated with lower return volumes, as consumers would feel more confident about their purchases. Three explanations, each grounded in existing literature, help resolve this apparent paradox. First, Taobao's marketplace structure (an open C2C and B2C platform hosting millions of independent sellers) creates substantially greater product-description variability and quality inconsistency than JD.com's predominantly self-stocked and quality-controlled inventory model. Hong and Pavlou (2014) demonstrate that product fit uncertainty is highest in platform markets where seller-provided information cannot be independently verified, exactly the conditions prevailing on Taobao. Second, Taobao's unconditional seven-day no-reason return policy, combined with return shipping insurance (RSI) availability, removes virtually all cost and friction barriers to returning goods. Nageswaran et al. (2020), show that in omnichannel settings, maximally lenient return policies reliably inflate return volumes, with the effect particularly pronounced for fashion and electronics categories that dominate Taobao's sales mix. Third, the prevalence of False Failure Returns (FFRs, items returned without genuine defect) documented by Ferguson et al. (2006) are structurally more likely on Taobao than on platforms with professional product quality controls. Taken together, these factors suggest that Taobao's high return rate is not a symptom of logistics failure but of a business model that deliberately accepts high return volumes as the cost of maximum consumer accessibility and trust.

Alignment of Proposed Optimizations with Existing Literature

The proposed Specialized Return Communication Network, a dedicated platform-operated customer service channel for return disputes, aligns closely with Grabara et al. (2014), finding that direct buyer platform communication channels are associated with higher return process satisfaction and faster dispute resolution. It also reflects the proactive intervention logic documented in Panigrahi et al. (2018), framework, where platforms that assume direct responsibility for after-sa-

les mediation outperform those that delegate it to individual sellers. However, this optimization diverges from the prevailing platform economy model, in which marketplace operators minimize direct operational involvement. The transition would represent a partial move from an asset-light coordination model toward a more vertically integrated service model, a shift with precedent in JD.com's approach (Han, 2021) but one that carries significant labor and technology investment implications for Taobao.

Qian et al. (2012), demonstrate that centralized reverse logistics network designs produce measurable cost reductions and damage rate improvements relative to distributed consumer-initiated return models in e-commerce settings. Prajapati et al. (2022), make a similar argument from a circular economy perspective, showing that consolidation hubs enable value recovery from returned goods (through refurbishment, resale, or recycling) that is not possible when returns are handled individually by thousands of independent sellers. Amazon's consolidation center model, which processes returns centrally before redistributing to secondary markets, is a real-world analogue that has demonstrated the viability of this approach at scale (Gayialis et al., 2022).

The Proprietary Return Processing System proposal (an AI assisted automated eligibility verification system that approves or rejects return requests without merchant involvement) is the most forward looking of the three optimizations and the most divergent from the current literature base. While automated decision support in logistics is an active research area (Gayialis et al., 2022), fully automated return eligibility adjudication without human review raises concerns that the existing literature does not yet fully address. Specifically, false rejection rates and their impact on consumer trust (Su, 2009), and the risk that algorithm driven approvals may inadvertently facilitate abuse by sophisticated consumers (McWilliams, 2012). The proposal is directionally consistent with Taobao's existing data infrastructure. Cainiao's big-data orientation provides the analytical foundation, but implementation would require careful calibration against the FFR management challenges documented by Ferguson et al. (2006).

Discussion: Challenges and Optimization of Taobao's Reverse Logistics

Major Chinese e-commerce enterprises, including JD.com and Suning.com, have strategically prioritized the development of proprietary logistics infrastructure to strengthen their competitive positioning in terms of operational control and service excellence, thereby delivering enhanced return services and doorstep convenience to customers. However, the establishment of independent logistics systems necessitates substantial capital investment and resource allocation, inevitably constraining geographical service coverage. Taobao pursued an alternative strategy by eschewing internal logistics development and instead implementing a third-party logistics (3PL) framework. This approach involves contractual partnerships with logistics providers to delineate mutual responsibilities and obligations, while maintaining the Cainiao network solely for coordination purposes. Under this operational model, Taobao does not directly execute logistics operations for product returns; rather, consumers independently select courier services for merchandise return. This methodology introduces temporal inefficiencies that diminish customer satisfaction

with Taobao's return service experience. Especially, the heterogeneous capabilities and service standards among third-party logistics providers who typically maintain partnerships with multiple e-commerce platforms result in insufficient customization to address platform specific requirements. This misalignment contributes to elevated costs and extended response times within the return process. Therefore, Taobao's existing reverse logistics infrastructure requires strategic refinement to minimize operational expenses, enhance customer satisfaction levels, and establish sustainable competitive differentiation.

Existing Challenges of Taobao's Reverse Logistics

(1) Communication Infrastructure Deficiencies and Information Flow Obstacles

The existing communication framework exhibits significant inefficiencies in information transmission and issue resolution. Within Taobao's return protocol, consumers engage directly with merchant customer service representatives who possess authorization to approve return requests, a structure that introduces unnecessary processing delays. Customer service responsiveness may be compromised due to offline status or oversight, substantially diminishing the operational efficiency of return and exchange procedures. Concurrently, the absence of direct communication channels between Taobao and end consumers impedes the platform's ability to acquire unmediated customer feedback, consequently limiting its capacity to discern and respond to evolving consumer and behavioral patterns.

(2) Packaging Standardization Challenges and Transit Damage Vulnerability

Quality control over packaging materials and methods remains problematic, elevating the risk of merchandise deterioration during transit. The reverse logistics process involves diverse product categories that may undergo multiple packaging iterations—encompassing original manufacturer packaging and subsequent consumer repackaging—with each handling stage representing a potential damage inflection point. Given that most returns are initiated independently by consumers utilizing varied logistics providers, packaging standards exhibit considerable heterogeneity in terms of material durability and protective capacity. This variability increases susceptibility to compression and impact damage throughout transportation. When damage does occur, attribution of liability between logistics contractors and the Taobao platform becomes ambiguous, frequently precipitating disputes.

(3) Inspection Protocol Inefficiencies and Temporal Constraints

Upon arrival at merchant warehouse facilities, returned merchandise necessitates comprehensive verification procedures to confirm item quantities and whether returned goods satisfy established return eligibility criteria. These verification processes are time intensive and compromise overall return processing velocity, thereby prolonging the duration consumers must wait to receive refunds or replacement items. Specifically, the complete return cycle—from initial request

submission to refund finalization—extends across a minimum seven day period. This protracted timeline not only amplifies temporal and labor resource investments but also undermines sustained consumer satisfaction levels.

Suggestions to Improve Taobao's Reverse Logistics

(1) Creation of Specialized Return Communication Networks

Establishing a dedicated team focused exclusively on return and exchange matters represents a critical improvement opportunity. This initiative requires expanding the customer service workforce specifically assigned to return management and investing in comprehensive training programs to strengthen their service capabilities, thereby enabling more efficient interactions and reducing customer wait times. By deploying enhanced communication technologies and providing real-time online assistance, the platform can offer consumers direct access to support without relying on individual merchant customer service teams. This approach also enables the platform to intervene proactively when disputes arise between consumers and merchant representatives, ensuring fair and timely resolution.

(2) Establishment of Unified Return Consolidation Centers

Creating centralized return processing facilities would channel returned merchandise to single point locations where standardized inspection and packaging protocols can be applied uniformly. This consolidation approach would significantly reduce the incidence of product damage during reverse logistics operations by ensuring consistent handling standards. These centers would also hold authority to directly manage the disposal of products that cannot be resold, eliminating unnecessary transportation stages and their associated costs.

(3) Implementation of Proprietary Return Processing Systems Supported by Comprehensive Databases

Developing an independent return service platform with full operational authority over return workflows would transform the current process. This system would conduct immediate verification procedures when return requests are submitted, automatically determining whether to approve or decline each request. Consumers would interact directly with the platform to file return applications, providing thorough explanations for their return reasons along with supporting photographic evidence. When submitted requests meet established return policy criteria, the system would grant approval and initiate refunds without requiring merchant participation. Requests failing to meet criteria would be declined automatically, ensuring efficient reverse logistics management that functions independently of customer service availability. The centralized database supporting this system would enable comprehensive analysis of return patterns across various situations, allowing the platform to continuously refine its approaches based on emer-

ging data trends, ultimately providing lasting solutions to the return management challenges that e-commerce platforms commonly face.

Conclusion and Implications

Conclusion and Discussion

Reverse logistics represents systems that operate counter to traditional forward logistics flows, encompassing all logistics activities involved when goods move from final consumers back to manufacturers or sellers throughout the product distribution process (Kivinen, 2002). For the online retail industry, reverse logistics centers on managing the logistics challenges associated with product returns and refund administration (Panigrahi et al., 2018), involving the return of products from downstream customers to upstream suppliers when merchandise fails to meet order expectations. Both the speed and quality of logistics operations have become essential factors determining e-commerce service quality. Yet the reality shows that as return rates continue climbing, challenges related to reverse logistics services for product returns are becoming increasingly pronounced.

This study seeks to conduct an in depth examination of reverse logistics services within Chinese e-commerce platforms. To ensure accurate and thorough analysis, we reviewed existing literature on critical success factors for reverse logistics management (Grabara et al., 2014; Chinda, 2017; Panigrahi et al., 2018), synthesizing their research outcomes to formulate a conceptual evaluation framework. We selected twelve factors most appropriate for assessing e-commerce platforms' reverse logistics management effectiveness and organized them into three major categories: reverse logistics capability, process related factors, and user experience factors. Adopting a case study approach with Taobao as our research focal point, we examined the platform's return policies and reverse logistics management systems. Using our developed framework to evaluate Taobao's reverse logistics services, we identified several significant problems including inefficient information transmission and problem resolution, high risk of damage to returned products, and excessive time consumption throughout the return process. Based on these findings, we propose corresponding improvement measures, including optimization of return and exchange communication channels, establishment of centralized return processing facilities, and creation of an integrated return service platform system to enhance the overall quality of reverse logistics services.

Implications

Theoretical Implications

This study offers important theoretical contributions to research examining reverse logistics in online retailing. Managing product returns through reverse logistics channels stands as a central concern in e-commerce platform logistics development and represents an area where significant future advances are expected. The importance of this domain operates on two levels: impro-

ved return service quality enhances customer satisfaction, while cost reduction drives increased profitability. Therefore, developing robust reverse logistics capabilities is essential for online retail industry growth. While research has examined key factors behind successful reverse logistics operations, dedicated studies specifically investigating the factors that influence logistics management within reverse logistics systems have been limited. Drawing on existing theoretical frameworks, we modified and created a conceptual framework specifically suited to evaluating return logistics management effectiveness. This framework fills theoretical voids that existed in previous models. The study contributes to theoretical progress in the field of online retailing reverse logistics management by providing fresh insights and deeper understanding.

Additionally, we conducted thorough analysis of the actual operational conditions at Taobao platform. We identified and analyzed returns and reverse logistics challenges that are uniquely characteristic of online retail settings, providing new angles from which to view existing theories. This work helps the academic community gain better understanding of how reverse logistics operates within online retail platforms and supports ongoing development of reverse logistics management theory.

Managerial Implications

From a business management standpoint, this study goes beyond theoretical findings to strongly emphasize delivering practical, workable solutions for platforms like Taobao and other online retailers seeking to strengthen their return services and reverse logistics management. The rapid growth of online shopping and its continued advancement have created serious challenges for the e-commerce industry, evidenced by high return rates and growing customer complaints. Many online retail companies recognize the urgent need for effective approaches to managing reverse logistics. For e-commerce platforms, delivering high quality return services and maintaining efficient reverse logistics operations brings important advantages: greater profitability through lower total operating costs, higher customer satisfaction, and improved company reputation. We focus particularly on practical operational recommendations tailored to Taobao's platform needs. Building on thorough analysis of problems in return services and reverse logistics management, we present a range of specific management practices covering platform improvements, technology innovations, and system wide changes. By sharing the lessons and experiences gained from examining Taobao's case, this study provides management guidance that helps other online retail platforms avoid or solve similar reverse logistics problems. Sharing industry experiences and best practices contributes to creating a healthy competitive environment that supports sustainable growth across the entire sector. This set of recommendations aims to offer reference points for tackling return logistics issues in online shopping contexts, achieving balanced progress in both reverse logistics infrastructure and return service quality. By refining management approaches, upgrading technology support, and building stronger partnerships, e-commerce platforms can better handle returns challenges, boost operational efficiency, and meet customer expectations simultaneously, ultimately developing positive brand images. These recommendations carry both

theoretical value and practical focus, emphasizing their transformation into real, measurable outcomes in day-to-day operations, providing clear direction for businesses seeking improvement.

Limitations and Future Research

This study is subject to four principal limitations. (1) Single case study design: the exclusive focus on Taobao restricts generalizability. Taobao's open marketplace structure (hosting millions of independent C2C and B2C sellers) creates reverse logistics challenges specific to that architecture. Platforms with JD.com's self-operated model or Pinduoduo's social-commerce model may exhibit materially different performance patterns that this framework does not capture. (2) Reliance on publicly available documents: the absence of insider interviews with Taobao logistics managers or Cainiao operational staff means that some interpretive claims in Section 4.2.2 rest on observed platform behavior rather than verified internal performance metrics such as carrier level quality scores, refund dispute rates, or return fraud statistics. (3) Cross-sectional snapshot: data collection was bounded to a 2023 observation window. Taobao's logistics architecture and Chinese regulatory requirements are subject to rapid change; findings reflect platform conditions at a specific moment and may not represent current operations. (4) Absence of consumer and merchant perspectives: the framework based evaluation does not incorporate the subjective experience of buyers or sellers. Consumer satisfaction scores and merchant compliance burden would materially enrich the analysis and may reveal gaps between observed process performance and experienced service quality.

Three specific directions for future research follow from these limitations. First, comparative multiplatform studies should apply the same twelve-factor framework systematically to Taobao, JD.com, and Pinduoduo to allow controlled attribution of performance differences to platform architecture, policy design, or logistics model choice. Such a study would empirically test whether the self-operated logistics model consistently outperforms the third-party federated model across all dimensions, or only specific ones. Second, quantitative consumer satisfaction surveys targeting return process experiences, administered to users with comparable return histories across platforms, would provide the empirical grounding needed to assess whether the interpretive weaknesses identified here (particularly Communication and Process Flexibility) translate into measurable satisfaction differences. Third, longitudinal studies tracking the impact of specific policy changes on return rates and framework performance would address the cross sectional limitation. As Taobao continues evolving Cainiao's AI-logistics capabilities and as Chinese regulators revise return policy requirements, natural experiments will arise enabling causal evaluation of policy interventions on the twelve factors identified in this study.

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