

The SWOT Analysis of Shenyang's International Inland Port Construction

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Abstract

As a vital central city in Northeast China, the construction of an international inland port in Shenyang is of great strategic significance for promoting regional economic development and enhancing the level of international trade facilitation. The SWOT analysis method is employed to thoroughly investigate the strengths, weaknesses, opportunities, and threats of Shenyang's international inland port construction. It is found that Shenyang has significant strengths in geographical location, the development foundation of China-Europe freight trains, and the synergy of policies and infrastructure. However, it also faces weaknesses such as insufficient port hub capacity, high logistics costs, and a single industrial structure. The overlapping national strategies, the transformation to green logistics, and the innovation of digital supply chains present new opportunities for the construction of Shenyang's international inland port. Yet, potential threats exist, including geopolitical uncertainties, homogenized competition in the region, and barriers to multimodal transport standards. Based on the analysis, strategies such as strengthening the "port-inland port-industry" ecosystem, innovating policy toolkits, and digital empowerment upgrades are proposed to provide useful references for the construction and development of Shenyang's international inland port.

Keywords

Shenyang; International Land Port; SWOT Analysis; Strategic Suggestions.

1. Introduction

International land ports are modern integrated logistics hubs built around inland transportation nodes. Though not directly adjacent to coastal or river areas, they seamlessly connect coastal ports, international air routes, and inland hinterlands through multimodal transport systems like sea-rail and road-rail intermodal operations. These facilities serve as "sealess ports" and "international logistics transit hubs" for inland cities to access global markets. They transcend conventional warehousing or transportation stations by integrating full-chain services including customs clearance, bonded storage, international transshipment, cargo distribution, and supply chain finance --. Enterprises can complete the entire process from cargo consolidation, customs clearance to international transportation here in a single stop, eliminating multiple transfers at coastal ports. This significantly shortens the maritime cycle for inland goods and reduces cross-regional logistics costs.

In the context of global economic integration, international land ports, as crucial hubs connecting inland regions with international markets [1], have become increasingly prominent. With the acceleration of economic globalization and the deepening implementation of the Belt and Road Initiative, the construction and development of international land ports as key nodes linking inland and coastal areas have garnered widespread attention. As a major central city in Northeast China, Shenyang's development of international land ports holds significant strategic importance for promoting regional economic growth and enhancing international trade facilitation. However, existing literature on Shenyang's international land port construction has

predominantly focused on describing its foundational conditions and development potential, lacking a systematic analytical framework. Additionally, while some studies have conducted SWOT analyses of international land ports, they predominantly focus on other regions with insufficient specificity regarding Shenyang's case. As a core city in Northeast China, Shenyang possesses tremendous potential for building international land ports due to its unique geographical advantages, abundant seaport resources, and the rapidly developing foundation of China-Europe freight trains [2]. Nevertheless, the construction process faces numerous challenges and opportunities. Therefore, this paper employs the SWOT analysis method to conduct a comprehensive and systematic study on Shenyang's international land port development, aiming to clarify its strengths and weaknesses, seize development opportunities, address potential threats, and provide theoretical foundations for formulating scientific construction strategies [3]. This will promote the high-quality development of Shenyang's international land port and contribute to the economic revitalization and international trade cooperation of Northeast China.

2. SWOT Analysis

SWOT analysis is a structured strategic planning and decision-making tool that systematically examines the internal strengths, weaknesses, opportunities, and threats of the research object, forming a comprehensive understanding of its current development status and ultimately providing a basis for formulating targeted strategies. It was first proposed by Heinz Weihrich, a management professor at the University of San Francisco in the 1980s, and has since been widely applied in various fields such as enterprise management, regional development, project evaluation, and personal career planning. Its core value lies in not ignoring the inherent talents and shortcomings of the research object, nor being detached from the opportunities and risks of the external environment, thus avoiding decision bias caused by single dimensional analysis. The four dimensions of SWOT do not exist in isolation, but need to be broken down specifically based on the attributes of the research object. Its core characteristics, see Table 1.

Table 1. The Four Dimensions of SWOT

Dimension	Core definition	Analysis focus
Strengths	The internal positive factors that the research object possesses and can support its development have the characteristics of "controllability and scarcity"	Core resources, core capabilities, and unique endowments
Weaknesses	The internal negative factors that exist within the research object and constrain its development have the characteristics of "endogeneity and need improvement"	Shortcomings in resources, deficiencies in capabilities, and structural issues
Opportunities	The external positive factors that exist in the external environment and can bring development dividends to the research object have the characteristics of "timeliness and external driving"	Policy support, market demand, technological change
Threats	External negative factors that exist in the external environment and may have an impact on the research object, characterized by "uncertainty and external pressure"	Market competition, policy risks, environmental changes

3. SWOT Analysis of Shenyang International Land Port

3.1. Strengths

3.1.1. Dual-core Driving Geographical Location Advantage

Situated at the geometric center of Northeast Asia's economic sphere, Shenyang serves as a vital transportation hub and logistics distribution center in the region. Its seamless connectivity with two major seaports-Dalian Port and Yingkou Port, each with an annual throughput exceeding 100 million tons-has forged a dual-hub development model integrating land and maritime logistics. Through sea-rail intermodal services like the Shenyang-Dalian freight train, cargo transit time can be reduced to 17 hours, creating an open economic framework characterized by "land-sea synergy and east-west mutual reinforcement." This dual-core geographical advantage not only provides efficient cargo distribution channels for Shenyang International Land Port but also deepens the integration of Northeast China's domestic and international markets, significantly elevating Shenyang's regional economic prominence and influence.

3.1.2. The Foundation for the High-quality Development of China-Europe Freight Trains

After years of development, the Shenyang-Europe Railway Express has established a "three corridors and five ports" network, connecting 50 cities across 20 countries including Russia and Germany [4]. In 2024, the return freight trains of the Shenyang-Europe Railway Express set a new record, highlighting the city's pivotal role in cross-border logistics and its strong market appeal. The Shenyang Hub Center now handles 1,500 annual operations, with average container values reaching \$90,000 per shipment – the highest in Northeast China [5]. These figures demonstrate Shenyang's significant advantages in operational efficiency, cargo quality, and market competitiveness within the rail freight network, providing solid support for the development of its international land port.

3.1.3. Policy and Infrastructure Synergy

During the construction of Shenyang International Land Port, it has received strong support from both national and local governments. The introduction of policy documents such as the "Liaoning Belt and Road Comprehensive Pilot Zone Construction Plan" and the "Northeast Sea-Land Corridor Development Guidelines" has provided clear policy guidance and robust institutional safeguards for the development of Shenyang International Land Port. Meanwhile, Shenyang has achieved remarkable progress in infrastructure construction, establishing China's first "Customs-Railway Data Sharing" system, which has increased customs clearance efficiency by 40%. This synergy between policy and infrastructure not only enhances the operational efficiency and service quality of Shenyang International Land Port but also strengthens its competitiveness in the international market, laying a solid foundation for its sustainable development.

3.2. Weaknesses

3.2.1. The Capacity of the Land Port Hub Needs to Be Improved

As a vital component of Shenyang International Land Port, Shenyang East Station's existing facilities have become inadequate to meet current development demands. Although the Puhe Logistics Base has expanded to 92,000 square meters, it still appears relatively small compared to Zhengzhou International Land Port (planned for 50 square kilometers). The insufficient capacity of the land port hub has constrained Shenyang International Land Port's cargo handling and logistics service capabilities, diminishing its status and role as a regional logistics hub. Therefore, enhancing the land port hub's capacity stands as one of the urgent challenges in Shenyang's efforts to build an international land port.

3.2.2. Logistics Cost Disadvantage of Inland Cities

As a landlocked city, Shenyang faces inherent disadvantages in logistics costs. Statistics show that the average land transportation cost from Shenyang to Dalian Port is 18% higher than that to Qingdao Port. These elevated costs not only increase operational expenses and weaken corporate competitiveness, but may also drive cargo flows to regions with lower logistics costs. Compounding this challenge, Shenyang competes against regional rivals like Changchun and Harbin, intensifying market competition pressure. Therefore, reducing logistics costs and improving efficiency have become critical priorities for Shenyang's development as an international land port.

3.2.3. Risk of Industrial Structure Homogeneity.

Currently, Shenyang International Land Port's cargo structure remains relatively homogeneous, primarily consisting of electromechanical equipment (35%) and automotive parts (28%), with high value-added commodities like chips and biopharmaceuticals accounting for only 7%. This concentrated industrial composition makes the port highly vulnerable to fluctuations in manufacturing [6]. Any downturn in manufacturing could significantly impact both cargo throughput and economic performance. Therefore, optimizing the industrial structure by increasing shipments of high-value-added products has become a crucial strategy for Shenyang International Land Port to mitigate operational risks and enhance competitiveness.

3.3. Opportunities

3.3.1. National Strategies Overlap During the Window Period.

In recent years, China has rolled out a series of major national strategies that have created exceptional development opportunities for the Shenyang International Land Port. The implementation of the Regional Comprehensive Economic Partnership (RCEP) has significantly expanded trade collaboration between Shenyang and ASEAN countries. Capitalizing on these opportunities, the city launched its first RCEP Europe transshipment freight train service, which drove a 62% surge in exports to ASEAN markets in 2023. Furthermore, the deepening implementation of the "Northeast Revitalization" strategy has provided policy support and financial guarantees for the port's development. By strategically leveraging this convergence of national initiatives, Shenyang is actively pursuing pilot projects such as the Bonded Logistics Center (Type B) initiative. These efforts will enhance the port's operational capabilities and service standards, ultimately fostering deeper integration between Shenyang and global markets.

3.3.2. Opportunities for Green Logistics Transformation.

In the global push for green development, sustainable logistics has emerged as a pivotal industry trend. The China-Europe Railway Express demonstrates remarkable environmental benefits, with its carbon footprint being merely 1/15th of air transport. Capitalizing on this advantage, Shenyang could apply for national green logistics hub certification to attract leading new energy companies like Tesla and CATL. By advancing eco-friendly logistics solutions, the city can not only enhance the sustainability of its International Land Port but also inject fresh momentum into economic growth, driving structural upgrades in its industrial ecosystem.

3.3.3. Digital Supply Chain Innovation Scenarios.

With the rapid advancement of information technology, digital supply chains have become a vital tool for enhancing logistics efficiency and service quality. Currently, blockchain technology has been implemented in full-process visual tracking of freight trains. Future initiatives may explore the development of "digital twin land ports" to enable predictive cargo scheduling and intelligent tariff declaration. Through digital empowerment, Shenyang International Land Port can achieve real-time sharing and precise management of logistics information, thereby

improving operational efficiency and service quality while boosting the port's competitiveness and global influence.

3.4. Threats

3.4.1. Geopolitical Uncertainty.

The current complex and volatile international geopolitical landscape has introduced uncertainties to the development of Shenyang International Land Port. For instance, the Russia-Ukraine conflict caused a 23% decline in freight volume for the "Shenyang-Moscow" rail service during Q12024. Such geopolitical volatility not only affects cargo throughput and economic performance at the port but may also erode market confidence among enterprises. To mitigate these risks, Shenyang needs to accelerate the establishment of alternative routes to Central Asia and Northern Europe, thereby reducing the impact of geopolitical tensions on the port's development.

3.4.2. Regional Homogeneous Competition Intensifies.

With the accelerated development of regional economic integration, neighboring cities have been speeding up the construction of logistics hubs. Both Changchun and Harbin are planning to establish China-Europe Railway Express assembly centers, while Dalian Port will launch five new shipping routes in 2023. These cities face homogenized competition with Shenyang in logistics hub development, which may dilute Shenyang's dominant position. Therefore, Shenyang needs to strengthen collaborative development with surrounding cities, forming a complementary and mutually beneficial development pattern to enhance its core competitiveness in regional logistics hubs.

3.4.3. Multimodal Transport Standard Barriers.

The multimodal transport sector currently faces challenges including standardization barriers. Existing issues such as inconsistent container specifications (particularly difficulties in accommodating 45-foot specialized containers) and segmented freight pricing have increased operational costs and complexities for businesses. These problems not only undermine the efficiency and service quality of Shenyang International Land Port's multimodal transport operations but may also drive some companies to adopt alternative logistics solutions or hubs. To address this, Shenyang should strengthen collaboration with relevant authorities and enterprises to standardize and optimize multimodal transport protocols, thereby reducing transportation expenses and enhancing the competitiveness of Shenyang International Land Port.

4. Strategic Recommendations

4.1. Strengthen the "Port-land Port-industry" Ecosystem

4.1.1. Industrial Layout Optimization

Building on Zhengzhou's "Freight Train + Industrial Park + Manufacturing" model, we are establishing an automotive cross-border e-commerce industrial park near Shenyang International Land Port. This initiative will attract regional distribution centers from industry leaders including BMW and Michelin. Through the agglomeration effect of industrial clusters, this strategic move aims to enhance both the value-added capabilities and logistics demands of Shenyang International Land Port.

4.1.2. Logistics-Industry Integration

Strengthen collaboration between land ports and industrial parks to deepen the integration of logistics services with manufacturing and commerce sectors. For example, providing customized logistics solutions for automotive parts suppliers to achieve seamless coordination across raw material supply, production processing, and finished product distribution.

4.1.3. Expand Service Functions

Introduce financial, insurance, customs declaration and other service enterprises in the land port area to form a one-stop service mode, reduce enterprise operating costs and improve the comprehensive service capability of the land port.

4.2. Innovation Policy Toolkit

4.2.1. Cross-border Transport Negative List Management

Implement the "cross-border transport negative list" management mode, clarify the list of goods prohibited and restricted from transport, simplify the approval process, and improve the efficiency of cross-border transport.

4.2.2. Pilot Program for Property Rights of Single-Document International Combined Transport Bills of Lading

This initiative explores the property rights mechanism of "single-document" bills of lading in international multimodal transport, enabling enterprises to complete all transportation modes under a single bill of lading. By eliminating document conversion processes, it reduces operational costs for businesses. Additionally, the program investigates the financial attributes of bills of lading to provide financing support for small and medium-sized enterprises (SMEs).

4.2.3. Policy Support and Subsidies

Strengthen policy support for international land port construction by establishing a special development fund to finance infrastructure development, logistics technology R&D, and enterprise subsidies. Provide subsidies and tax incentives for newly launched international freight trains and additional logistics operations.

4.3. Digital Empowerment Upgrade

4.3.1. Build the Northeast Asia Logistics Big Data Center

Integrate data from customs, railways, ports, logistics enterprises and other channels to establish the Northeast Asia logistics big data center. Through big data analysis, real-time monitoring, predictive scheduling and intelligent decision-making of cargo transportation can be realized.

4.3.2. Develop a Carbon Footprint Calculator for China-Europe Railway Express

Leveraging the green logistics advantages of the China-Europe Railway Express, we will create a "Carbon Footprint Calculator" to provide enterprises with carbon emission accounting services. Simultaneously, by integrating with the EU Carbon Border Adjustment Mechanism (CBAM), this initiative will help businesses proactively adapt to evolving international carbon policy changes.

4.3.3. Digital Twin Land Port Development

Explore the construction of "Digital Twin Land Ports" by utilizing virtual modeling and digital simulation technologies to achieve digital management of land port facilities, visual tracking of cargo transportation, and optimized scheduling of operational processes. Leveraging blockchain technology ensures the authenticity and tamper-proof nature of logistics information [7], thereby enhancing supply chain transparency and credibility.

4.4. Enhance the Capacity of the Land Port Hub

4.4.1. Infrastructure Expansion and Upgrade

Increase investment in infrastructure construction for Shenyang East Railway Station and Puhe Logistics Base, further expand logistics sites, and enhance warehousing and loading/unloading capabilities. Plan and construct modern logistics storage facilities, introduce automated warehousing equipment, and improve logistics efficiency.

4.4.2. Development of Multimodal Transport Infrastructure

Enhance connectivity between railway, highway, and port facilities to establish seamless transfer platforms. Optimize container handling equipment by addressing challenges such as compatibility issues with 45-foot standard containers, thereby improving the efficiency and convenience of multimodal transport systems.

4.4.3. Regional Collaborative Cooperation

Strengthen coordination with major seaports including Dalian Port and Yingkou Port, optimize the sea-rail intermodal transport process, and achieve seamless integration between port and land ports. Explore establishing regional logistics alliances to share resources and enhance overall logistics efficiency across the region [8].

4.5. Optimize Industrial Structure and Logistics Cost

4.5.1. Optimize the Supply Structure

Strengthen investment and recruitment of high value-added commodities, attract enterprises in the fields of chips, biomedicine, high-end equipment manufacturing to settle in Shenyang International Land Port. Promote diversified development of industrial structure through policy guidance and market mechanism.

4.5.2. Reduce Logistics Costs

Optimize transportation routes by eliminating unnecessary transfer points to lower shipping expenses. Strengthen logistics partnerships with neighboring cities to achieve resource sharing and complementary advantages, thereby enhancing operational efficiency. Simultaneously, explore cost-sharing mechanisms for logistics operations to alleviate corporate burdens.

4.5.3. Enhancing Logistics Service Quality

Strengthen training and management in logistics enterprises to improve professional standards. Promote advanced logistics technologies and management models to boost operational efficiency and service quality, thereby enhancing the market competitiveness of Shenyang International Land Port.

4.6. Enhance Their Own Competitiveness and Strengthen Regional Competitiveness

4.6.1. Cross-border Transport Negative List Management

Accelerate the development of alternative routes in Central Asia, Northern Europe, etc., to reduce dependence on a single market. Strengthen trade cooperation with countries and regions along the Belt and Road to expand international logistics market space.

4.6.2. Regional Coordination and Differentiated Development

Strengthen the coordinated development with Changchun, Harbin and other surrounding cities to form a pattern of complementary advantages and differentiated development. Through differentiated positioning, enhance the core competitiveness of Shenyang International Land Port and avoid homogeneous competition.

4.6.3. Enhance International Influence

Actively participate in the formulation of international logistics standards and enhance Shenyang International Land Port's influence in the global logistics sector. Strengthen cooperation with international logistics enterprises to introduce advanced management expertise and operational models, thereby elevating the port's international profile.

5. Conclusion

Shenyang International Land Port possesses distinct advantages in infrastructure development, yet faces multiple challenges. Through SWOT analysis, this study proposes strategic recommendations including: strengthening the "port-land port-industry" ecosystem, developing innovative policy toolkits, implementing digital empowerment upgrades, enhancing land port hub capabilities, optimizing industrial structure and logistics costs, as well as addressing geopolitical risks and regional competition. The implementation of these strategies will help Shenyang International Land Port boost its competitiveness, achieve sustainable development, and provide robust support for economic revitalization in Northeast China and international trade cooperation.

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