

DEVELOPMENT COUNTERMEASURES FOR THE CONSTRUCTION OF ZHENGZHOU NATIONAL LOGISTICS HUB

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Abstract: Under the new development paradigm, addressing the critical issue of the "Construction of Zhengzhou National Logistics Hub," this paper deeply analyzes the current status of logistics development in Zhengzhou, discusses the strategic significance of constructing the Zhengzhou National Logistics Hub, clarifies the strategic direction, and proposes implementation strategies for its construction. The construction of the Zhengzhou National Logistics Hub is an important part of the logistics network system construction. It is conducive to promoting logistics network construction, reducing total social logistics costs, improving logistics service levels and quality, optimizing the economic spatial layout and economic system construction of Zhengzhou and Henan Province, and promoting the rapid and healthy development of Zhengzhou's logistics industry and national economy.

Keywords: Logistics hub; Logistics industry; Regional logistics; Logistics development countermeasures

1 INTRODUCTION

A logistics hub is a cluster of logistics facilities and an organization center for logistics activities that centralizes functions such as cargo aggregation, storage, distribution, and transshipment. The National Logistics Hub serves as the core infrastructure of the logistics system. It is a comprehensive logistics hub characterized by broader regional radiation, stronger agglomeration effects, superior service functions, and higher operational efficiency, playing the role of a key node and backbone in the national logistics network. According to the national logistics hub layout and construction plan, Zhengzhou is designated to build four types of national logistics hubs: Land Port, Airport, Production Service, and Commerce & Trade Service. Therefore, it is necessary to conduct in-depth research on the construction of the Zhengzhou National Logistics Hub and propose corresponding construction and development strategies to enhance Zhengzhou's logistics service capabilities and promote the rapid and healthy development of its logistics industry and economy.

Currently, relevant research focuses mainly on the planning and construction of national logistics hubs, the development of logistics industry, and the hub economy. Research related to the planning and construction of national logistics hubs focuses on relevant countermeasures and suggestions. Jiang Chaofeng believes that national logistics hubs should have complete functions and advanced facilities, adapting to the development trends of economic structure and industrial layout as well as foreign trade needs[1]. Wang Ming proposed that the task of high-quality construction and development of national logistics hubs is to accelerate logistics transformation and upgrading and cultivate the logistics hub economy[2]. Xie Yurong proposed carrying out collaborative operations centered on national logistics hubs, building specialized logistics systems relying on them, and cultivating and developing the hub economy around them[3]. Wang Weilong have proposed a development strategy for national logistics hubs to support logistics cost reduction and efficiency improvement[4]. Anderluh studied logistics hub cities [5]. Some scholars have proposed development strategies for the logistics industry from the aspects of logistics parks, logistics information platforms, multimodal transport, green logistics, talent cultivation, and resource integration[6-9]. Research on the hub economy mainly focuses on urban hubs and regional economies. Zhang Guoqiang analyzed the development mechanism of hub economy[10].

However, current research lacks certain timeliness and specificity. Therefore, closely combining the current economic and spatiotemporal environment, and against the background of high-quality economic development, this paper proposes development countermeasures for the construction of the Zhengzhou National Logistics Hub to address this urgent issue.

2 CURRENT STATUS OF LOGISTICS INDUSTRY DEVELOPMENT IN ZHENGZHOU

2.1 Current Status of Freight Development

With the continuous development of Zhengzhou's economy, the growth rate of freight turnover in Zhengzhou has been significant in recent years. Zhengzhou's freight turnover increased from 68.05 billion ton-kilometers in 2019 to 860.75 billion ton-kilometers in 2023. The average growth rate of freight turnover in the past five years exceeded 5%. In 2023, Zhengzhou's freight volume reached 225.54 million tons..

2.2 Current Status of Aviation Logistics Development

Relying on Zhengzhou Xinxing International Airport, Zhengzhou aviation logistics is positioned to build an international air cargo hub. Through rapid development in recent years, an international aviation logistics hub has been preliminarily established. Currently, Zhengzhou Airport's routes cover more than 100 cities in over 20 countries across Europe, North America, Asia, and Oceania. In 2023, the cargo and mail throughput of Zhengzhou Airport reached 607,700 tons. It has preliminarily built an international route network connecting the world's major aviation hubs and economies, forming an international freight development pattern featuring dual hubs, multiple nodes, multiple routes, and broad coverage.

2.3 Current Status of China-Europe Railway Express Development

In 2013, Henan Province launched the China-Europe Railway Express relying on the Zhengzhou Railway Port. Currently, the China-Europe Railway Express has built an international logistics corridor connecting Henan with Europe and Central Asia. In recent years, the Zhengzhou China-Europe Railway Express has developed rapidly in terms of the number of trips and freight volume. From 2020 to 2024, the number of trips increased from 1,100 to over 3,000, and the freight volume increased from over 90,000 TEUs to over 260,000 TEUs. Compared with China-Europe Railway Express services in other regions of China, Zhengzhou continues to maintain a leading position by virtue of its comprehensive strengths such as high total freight volume and a wide range of collection and distribution.

3 DEVELOPMENT STRATEGY AND SIGNIFICANCE OF ZHENGZHOU NATIONAL LOGISTICS HUB

3.1 Factors Influencing the Construction of Zhengzhou National Logistics Hub

As an important railway, aviation, and highway hub city in China, Zhengzhou has significant transportation and locational advantages. The China-Europe Railway Express has entered normalized operation, and high-speed railway construction is advancing rapidly. The highway network is developed, reaching all prefecture-level cities in the province within 3 hours. The 1.5-hour aviation circle of Zhengzhou Airport covers two-thirds of China's major cities. Zhengzhou possesses advantageous industries such as automobiles, equipment manufacturing, food, textiles and clothing, electronic information, cross-border e-commerce, and aviation logistics. In recent years, Zhengzhou has innovated cluster industry development and promoted the economic transformation and upgrading of industrial agglomeration areas, achieving remarkable results. Relying on the Zhengzhou Airport Economy Zone, high-end airport industries centered on aviation logistics, cross-border e-commerce, high-end manufacturing, and electronic information have developed rapidly.

Currently, Zhengzhou Airport has preliminarily been built into an international aviation logistics hub. However, compared with large international aviation hubs, there is still a large gap, especially in some logistics infrastructure. Some logistics enterprises in the Zhengzhou Airport area remain in the traditional freight stage, and new logistics technologies and management concepts have not yet been applied. The overall strength of logistics enterprises is not strong, logistics costs are relatively high, and high-end logistics talents are lacking. The construction of the Zhengzhou National Logistics Hub faces strong competition.

3.2 Development Strategy for Zhengzhou National Logistics Hub

Guided by the construction of Zhengzhou as a National Central City and the Central Plains Economic Zone, and in accordance with the requirements of high-quality economic development in Zhengzhou, the strategy takes the construction of the international logistics hub as an opportunity. Relying on the Zhengzhou International Aviation Hub and the Zhengzhou Airport Economy Zone, and based on Zhengzhou's rapid economic development and industrial layout, guided by regional logistics demand, the strategy aims to fully leverage Zhengzhou's advantages in location, transportation, policy, and industry. Following the principles of unified planning, rational layout, and phased implementation, Zhengzhou will build a National Logistics Hub. By constructing a modern logistics service system and a logistics information network platform, it aims to create a core node of the national logistics hub network. Through the successful operation of the Zhengzhou National Logistics Hub, effective allocation of logistics resources will be realized, and Zhengzhou's logistics service level will be further improved. The development of the logistics industry will drive the coordinated development of related industries such as equipment manufacturing, electronic information, cross-border e-commerce, food, and trade, providing strong support for the coordinated development of national logistics hubs in Henan Province and the construction of an efficient logistics service system in Henan.

3.3 Strategic Significance of Constructing Zhengzhou National Logistics Hub

The construction of the Zhengzhou National Logistics Hub is conducive to promoting the construction of Zhengzhou's logistics network and the integration of logistics resources, leveraging the synergistic effects of resources. It is conducive to the innovation of Zhengzhou's logistics industry management system and related logistics organization models. It helps reduce the total social logistics cost in Zhengzhou and improve the level and quality of logistics services, thereby further promoting the development and construction of the Zhengzhou Airport Economy Zone and the China (Henan) Pilot Free Trade Zone, and optimizing the economic spatial layout and economic system construction of Zhengzhou City and Henan Province.

4 IMPLEMENTATION STRATEGIES FOR THE CONSTRUCTION OF ZHENGZHOU NATIONAL LOGISTICS HUB

4.1 Strengthen the Development of Multimodal Transport

The construction of the Zhengzhou National Logistics Hub should rely on the Zhengzhou Aviation Hub to carry out related work, providing fast, convenient, and efficient logistics services such as direct air transport, transshipment, and cargo consolidation for the Zhengzhou Airport Comprehensive Experimental Zone and its radiating areas. At the same time, relying on the Zhengzhou Aviation Hub, multimodal transport services should be strengthened. Utilizing the transport capacity of international routes and the China-Europe Railway Express, transport modes should be innovated to reconstruct the logistics network between Europe and Southeast Asia and open up international multimodal transport routes.

Expand and densify the international passenger and freight route network. Expand the scale of air cargo to countries along the "Belt and Road," improve the layout of Zhengzhou Airport's international long-haul route network, and build an opening gateway for the central and western regions. Enhance the radiating power of the China-Europe Railway Express, open up new routes, and realize the coordinated and linked development of international freight trains. Strengthen docking with coastal port group companies, form specialized sea-rail intermodal transport companies, and solve the problem of bulk commodity exports for import and export enterprises in the province relying on highway transport to the sea. By building and reconstructing waterways, form an inland river water transport development pattern connecting the Huaihe River system, the Yangtze River system, and other water network areas to the sea, gradually expand the scale of ports, and leverage water transport channels to promote closer connections between the Central Plains Economic Zone and the Yangtze River Economic Belt, the Yangtze River Delta urban agglomeration, and the world economy.

4.2 Build and Improve the Logistics Network

In the dimension of logistics infrastructure, make full use of various logistics parks, logistics centers, railway freight yards, airport distribution centers, highway logistics bases, railway dedicated lines, various professional warehouses, multimodal transport facilities, bonded logistics centers, and other logistics infrastructure within the Zhengzhou city area. Through the Zhengzhou logistics infrastructure network, strengthen the interconnection of various logistics infrastructures and realize logistics resource sharing.

In the dimension of logistics organization, through various forms such as virtual organizations, strategic alliances, mergers and acquisitions, and capital cooperation, strengthen cooperation among logistics-related enterprises such as logistics enterprises, commercial enterprises, and production enterprises within Zhengzhou city. Realize complementary advantages, information exchange, and business synergy, guide the aggregation of Zhengzhou logistics resources, and realize the sharing and efficient utilization of Zhengzhou logistics resources.

In the dimension of logistics information, by building the Zhengzhou National Logistics Hub information network, integrate various logistics information of the Zhengzhou National Logistics Hub, realize the integration of various logistics information in Zhengzhou, effectively dock and match various logistics demands and resources, and realize rapid response to logistics demands and effective utilization of logistics resources in the Zhengzhou National Logistics Hub.

4.3 Create Professional Logistics Services

In recent years, Zhengzhou has innovated the development of industrial clusters and promoted the economic transformation and upgrading of industrial agglomeration areas, achieving remarkable results. Relying on the Zhengzhou Airport Economy Comprehensive Experimental Zone and the Henan Bonded Logistics Center, high-end airport industries centered on aviation logistics, cross-border e-commerce, high-end manufacturing, and electronic information have developed rapidly. Therefore, the construction of the Zhengzhou National Logistics Hub must leverage Zhengzhou's industrial advantages to create professional logistics services in areas such as cold chain logistics, e-commerce logistics, and aviation logistics.

In terms of cold chain logistics, guide relevant cold chain logistics facilities within Zhengzhou to gather towards the National Logistics Hub and promote the large-scale development of Zhengzhou cold chain logistics. Make full use of advanced technology to rationally plan and build cold chain logistics facilities such as three-dimensional cold storage and distribution cold storage, and encourage leading enterprises in cold chain logistics to carry out joint cold chain distribution. At the same time, vigorously develop railway refrigerated transport and refrigerated container multimodal transport. In addition, strengthen the construction of the Zhengzhou cold chain logistics information platform and strengthen the traceability of Zhengzhou cold chain logistics information to ensure cold chain food safety.

In terms of e-commerce logistics, relying on the Zhengzhou Airport Economy Comprehensive Experimental Zone, the Air Silk Road, and the China-Europe Railway Express, vigorously develop cross-border e-commerce logistics and build a cross-border e-commerce logistics system. Strengthen the construction of the Zhengzhou rural e-commerce logistics system and promote the efficient circulation of agricultural products within Zhengzhou. Increase the construction of various e-commerce logistics platforms in Zhengzhou and promote the interconnection of information between the Zhengzhou National Logistics Hub network and various Zhengzhou e-commerce networks.

In terms of aviation logistics, relying on the Zhengzhou Aviation Hub, innovate the aviation logistics service system and business models to provide logistics service support and efficient and convenient aviation logistics services for the Zhengzhou Airport Comprehensive Experimental Zone and its radiating areas, as well as for industries such as cold chain logistics, e-commerce logistics, equipment manufacturing, and electronic information within the radiation area of the Zhengzhou Aviation Logistics Hub.

4.4 Vigorously Develop International Logistics

Focus on promoting aviation hubs and railway hubs, improving the operation level of the China-Europe Railway Express, expanding sea-rail intermodal train routes, and forming a development pattern driven by both aviation ports and railway ports with the integration of logistics and industry. Establish land-based international hub ports, build warehousing and logistics bases for expressway freight hub distribution, and form open ports in the interior such as aviation, railway, and expressway ports. Construct the Henan Free Trade Pilot Zone at a high level, continue to deepen the construction of the service system, give play to the role of various ports, and build overseas warehouses and logistics distribution centers.

Accelerate the construction of a hub-and-spoke aviation logistics network and build the Zhengzhou International Aviation Logistics Center. Dock with aviation-preference product manufacturing enterprises and promote multinational companies to set up Asia-Pacific distribution centers in Zhengzhou. Promote internationally renowned air freight forwarders to set up regional express distribution centers, support international logistics integrators to carry out international transshipment at Zhengzhou Airport, and realize the consolidation and transshipment of international cargo between Europe, America, and the Asia-Pacific region at Zhengzhou Airport.

5 CONCLUSION

In recent years, the development trend of Zhengzhou's logistics industry has been good. The construction of the Zhengzhou National Logistics Hub is an important part of the construction of the logistics network system. It is conducive to promoting the construction of the logistics network, reducing total social logistics costs, improving the level and quality of logistics services, optimizing the economic spatial layout and economic system construction of Zhengzhou and Henan Province, and promoting the rapid and healthy development of Zhengzhou's logistics industry and national economy.

Through the construction of a modern logistics service system and a logistics information network platform, a core node of the national logistics hub network will be created. Through the operation of the Zhengzhou National Logistics Hub, the effective allocation of logistics resources will be realized, the level of logistics services will be improved, and the development of the logistics industry will drive the coordinated development of related industries such as equipment manufacturing, electronic information, cross-border e-commerce, and food, providing strong support for the construction of an efficient logistics service system in Henan Province. The construction of the Zhengzhou National Logistics Hub should be steadily advanced from the aspects of strengthening the development of multimodal transport, building and improving the logistics network, creating professional logistics services, and vigorously developing international logistics.

COMPETING INTERESTS

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REFERENCES

- [1] Jiang Chaofeng. Upgrading and renovating national logistics hubs for high-quality development. *China Storage & Transport*, 2024(07): 20.
- [2] Wang Ming. Discussion on high-quality construction and development of national logistics hubs. *New Silk Road*, 2019(09): 57-60.
- [3] Xie Yurong, Lu Chengyun, Wang Ming. Building a national logistics hub network and reconstructing a high-quality transportation pattern. *New Silk Road*, 2019(10): 22-24.
- [4] Wang Weilong, Zhang Jing. Development strategy of Shanxi national logistics hub supporting logistics cost reduction and efficiency enhancement. *China Logistics and Purchasing*, 2025(17): 149-150.
- [5] Anderluh A. Analytic hierarchy process for city hub location selection-the Viennese case. *Transportation Research Procedia*, 2020, 46(04): 77-84.
- [6] Yuan Shuhua. Development path of cold chain logistics for agricultural products in Henan province based on green development. *Logistics Technology*, 2023, 46(08): 143-146.

- [7] Yang Shanfeng. Empirical study on China's logistics hub construction under the the belt and road initiative- taking Zhengzhou airport as an example. *Journal of Commercial Economics*, 2021(12): 107-109.
- [8] Chen Bingying, Li Yan. Development path of international logistics in Zhengzhou airport economy zone under the background of double circulation. *Logistics Technology*, 2025, 48(19): 59-61.
- [9] Rubio S. Reverse logistics and urban logistics: making a link. *Sustainability*, 2019, 11(20): 5684.
- [10] Zhang Guoqiang. The development mechanism of hub economy. *China Transportation Review*, 2024, 46(09): 1.
- [11] Yang Yuxie. The practical challenges and path exploration of empowering the rise of central China with hub economy. *Business and Economics*, 2025(10): 41-44.