

# ***Research on the Countermeasures of Transport Development under the New Development Pattern of "Dual Circulation" in China***

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**Abstract:** As a basic, leading, strategic and important service industry in the national economy, transport connects production and consumption, is the basic link and important support for the construction of modern circulation system and smooth national economic cycle, and plays an important role in the construction of new development pattern. The new development pattern of "Dual Circulation" has given new requirements and new tasks to the transport industry. Transport industry needs to grasp the important strategic opportunity, insists on high quality requirements, overall promotes integrated development of transport infrastructure, logistics, science and technology, governance, international cooperation, and dredges aorta and unclogs microcirculation, strives to become a solid support for the coordinated development of the modern industry system, the important link of internal and external economic cycle promotes, the cornerstone of the guarantee of industrial and supply chain security and stability, in order to help build a solid national economic cycle chassis and provide support for accelerating the formation of a new development pattern.

## **1. Introduction**

The establishment of a "dual circulation" development pattern with domestic circulation as the mainstay and domestic and international circulations reinforcing each other, is a strategic choice made by China to actively respond to changes in the domestic and international situation, keep pace with the times, improve the level of economic development, and shape new advantages in international cooperation and competition. It is also a systematic and deep-seated reform related to the overall situation [1, 2]. To build a new development pattern, we need to take the supply side structural reform as the strategic direction, expand domestic demand as the strategic starting point, so as to optimize the economic layout, make the regional coordinated development, improve the modern industry and circulation system, and speed up the promotion of a higher level of opening up [3, 4]. As a basic, leading, strategic and important service industry in the national economy, transport connects production and consumption, is the basic link and important support for the

construction of modern circulation system and smooth national economic cycle, and plays an important role in the construction of new development pattern.

## **2. Challenges and Opportunities of Transport Development in the New Situation**

At present, China's economy is in the key period of transforming the mode of development, optimizing the economic structure and transforming the driving force of growth, and its development prospects are promising [5, 6]. However, it also faces the impact of the new epidemic and the contradiction brought by the interweaving of structural, institutional and cyclical issues. As the "pioneer" of economic and social development, the field of transport is also facing many challenges and opportunities.

### **2.1. Infrastructure**

Firstly, traditional infrastructure still needs to be improved. The modern comprehensive three-dimensional transport network with multi center and network is still not perfect [7]. There are still shortcomings in urban (cluster) transport network, rural transport infrastructure network, regional transport hub and channel construction, which also provide incremental space for smooth internal circulation. Secondly, there is a strong demand for new infrastructure. The Ministry of Transport has issued the Guiding Opinions on Promoting the Construction of New Infrastructure in the Field of Transport, and clearly put forward that the future promotion of transport should further integrate new technologies such as 5G collaborative application, Beidou system and remote sensing satellite, etc.

### **2.2. Cargo Logistics**

Firstly, the logistics capacity of comprehensive transport still needs to be improved. The development of integrated transport system, multimodal transport and integrated logistics is still lagging behind. Secondly, the logistics emergency support is insufficient. For example, during the novel coronavirus pneumonia epidemic situation, emergency supplies were guaranteed, but it was still difficult to ensure that all kinds of urgent materials were delivered to the destination in the best channel and the shortest time [8, 9]. The emergency system, standard system and big data management of logistics needed to be strengthened.

### **2.3. Scientific and Technological Innovation**

Firstly, the research on basic foresight and core technology is not deep enough. As an application-oriented research field, transport still has a lot of basic frontier research and core technology controlled by others, lacking of disruptive and leading major innovation. Secondly, the integration of new technology, new materials and new equipment is insufficient [9, 10]. The application of new generation information technology, artificial intelligence, intelligent manufacturing, new materials, new energy and other technologies in the fields of green transport, safe transport and intelligent transport is still not extensive and in-depth, and the development of transport promoted by data resources is insufficient.

### **2.4. Governance Capacity**

Firstly, the transport governance system still needs to be improved. The legal system, credit evaluation system and standard system of transport still need to be improved, the ability of industry

and society to cope with major crisis still needs to be improved, and the security of global industrial chain and supply chain still has potential risks [11, 12]. Secondly, the comprehensive guarantee mechanism of transport needs to be strengthened. For example, during the epidemic period, the connection of subways and public transport in some cities was insufficient, the transport policies in many places were lack of overall coordination, and international flights and shipping also received a great impact.

## **2.5. International Cooperation**

Firstly, the epidemic situation and the strategic game between China and the U.S. have created uncertainty. The outbreak of the COVID-19 epidemic has greatly impacted China's foreign trade and the "go global" strategy of Chinese enterprises [13]. The U.S. takes advantage of the hegemony of the U.S. dollar to exercise long arm jurisdiction, which sets more obstacles for the export of Chinese enterprises, equipment, technology and standards. The reshaping of the world pattern also brings uncertainty and risk to the guarantee of China's global strategic channel. Secondly, the "One Belt and One Road" country has huge potential in the post epidemic era. Developing countries along one belt, one road, such as Southeast Asia, South Asia and Africa, are all considering development issues in the post epidemic era. There would be a rigid demand in the port, railway and other transport infrastructure construction.

## **3. Countermeasures and Suggestions for the Development of Transport under the New Development Pattern**

### **3.1. Infrastructure Interconnection Provides Basic Conditions for "Dual Circulation"**

Firstly, we should improve the infrastructure network construction of comprehensive transport. We should improve the urban (cluster) transport network and rural transport infrastructure network, strengthen the construction of cross regional and cross basin water transport channels, further promote the integration of urban and rural transport, and speed up the construction of modern and high-quality national comprehensive three-dimensional transport network, so as to consolidate the foundation of "Dual Circulation". Secondly, we should speed up the construction of new transport infrastructure. Give full play to the comparative advantages of new infrastructure and traditional infrastructure, promote the deep integration of new technologies such as 5g, big data, artificial intelligence, blockchain, Beidou system and remote sensing satellite with transport infrastructure, focus on the construction of online monitoring network for highway and waterway infrastructure operation and the construction of industry big data center, and promote the upgrading and transformation of digital and intelligent infrastructure.

### **3.2. Smooth Logistics to Improve Quality and Efficiency of "Dual Circulation" Operation**

Firstly, we should give full play to the important role of integrated transport in reducing logistics costs. By promoting the coordination of logistics elements and comprehensive transport, utilizing multimodal transport and efficient transport, etc., the level of digitization, greening and supply chain of logistics will be improved. Secondly, we should build a modern logistics system. We will further improve the terminal distribution network, develop new models of logistics services, and promote the formation of a higher level of dynamic balance in which demand leads supply and supply creates demand. Thirdly, we should establish and improve the logistics emergency support mechanism. We should study and establish major disaster early warning and logistics emergency plan, give full play to the advantages of the comprehensive transport network, form a seamless

connection from the supply chain to the terminal, to ensure the accurate and timely delivery of emergency supplies.

### **3.3. Strengthening Scientific and Technological Research and Development Gives Impetus to Innovation in the "Dual Circulation"**

Firstly, we should increase the forward-looking foundation and core technology research and development. We will give priority to forward-looking and disruptive innovations such as unmanned driving and suspension tunnels, promote the construction of major basic research facilities such as the long-term performance observation network of transport infrastructure, promote the research and development of domestic independent equipment and core software, and give full play to the role of large transport research facilities in basic theoretical research. Secondly, we should increase scientific and technological input in the field of transport. At the same time of docking with the national science and technology plan, we actively strive for scientific and technological input from the transport industry through various channels such as vehicle purchase tax and port construction fee, and then focus on innovation in the field of industrial application research. Thirdly, we should strengthen innovation in transport applications. We will encourage and standardize the application of new technologies, new models and new forms of business in the field of transport, so that the traditional transport model will be invigorated by the combination of Internet Plus and Smart Plus.

### **3.4. The Improvement of Governance Efficiency Provides Institutional Guarantee for the "Dual Circulation"**

Firstly, we should advance industrial reform. We will establish and improve systems and mechanisms that adapt to the integrated development of comprehensive transport, focusing on improving the legal system of transport, the emergency prevention and control system for major epidemics and disasters, and the guarantee system for promoting the "Dual Circulation" of transport. We will strengthen coordination in planning and realize the integration and integration of multiple plans. Secondly, we should improve the business environment. We will deepen reform in key areas and key links of transport, strengthen the upstream and downstream industry chains of transport, further expand the supply of high-quality and diversified transport services, and foster a market-based, law-based, and international business environment. Thirdly, we will strengthen public participation. We will encourage organizations in the transport industry to actively participate in their own governance, guide social organizations to govern themselves, regulate and self-regulate in accordance with the law, and expand channels for the public to participate in transport governance.

### **3.5. Strengthen International Connectivity to Provide Incremental Demand for the "Dual Circulation"**

Firstly, we should coordinate transport enterprises to "go global". We will set up a mechanism for overseas coordination and communication among enterprises at a higher level, form the advantages of fully integrating resources and continuously enhancing comprehensive competitiveness of overseas groups, and accelerate the construction of a modern international logistics supply chain system. Secondly, we should strengthen top-level design to guide international scientific and technological cooperation. Taking the "One Belt and One Road" waterway construction as the priority field and direction, we will jointly set up innovation funds or cooperation plans with foreign countries. We will focus on promoting the construction of "One Belt and One Road" innovation

network in the advantageous areas of transport, and form a new international cooperation pattern of network promotion platform and platform expansion network.

#### 4. Conclusions

The new development pattern of "Dual Circulation" has given new requirements and new tasks to the transport industry. Transport industry needs to grasp the important strategic opportunity, insists on high quality requirements, overall promotes integrated development of transport infrastructure, logistics, science and technology, governance, international cooperation, and dredges aorta and unclogs microcirculation, strives to become a solid support for the coordinated development of the modern industry system, the important link of internal and external economic cycle promotes, the cornerstone of the guarantee of industrial and supply chain security and stability, in order to help build a solid national economic cycle chassis and provide support for accelerating the formation of a new development pattern.

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