

# Research on the New Path of High-quality Development of General Aviation Industry under the New Development Pattern of "Double Circulation"

Liang Zhang

Guangzhou Civil Aviation Institute of Technology, Guangzhou, Guangdong, 51000, China

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**Abstract:** The paper reviews the achievements of the development of general aviation industry in the 13th Five-Year Plan period. With the supply-side structural reform as the main line, the reconstruction and improvement of navigation laws and regulations as the key point, the streamline administration, delegate power, strengthen regulation and improve services reform as the focal point, the reform of the navigation supervision mode and the strengthening of supervision and supervision as the starting point, the general aviation industry ecosystem has begun to take shape. This paper analyzes the shortcomings of the development of general aviation industry at present, and finally puts forward the path of high-quality development of general aviation industry based on the double-cycle theory.

**Keywords:** General aviation, Double circulation, Industry, path.

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## 1. General Situation of General Aviation Industry Development in China

General aviation and transport aviation are called "two wings of birds" and "two wheels of cars" in the development of civil aviation. General aviation industry has the characteristics of long industrial chain, wide service fields and strong driving effect, and is an important part of national air transportation system. In 2016, the *General Office of the State Council issued the Guiding Opinions on Promoting the Development of General Aviation Industry*, positioning the general aviation industry as a strategic emerging industrial system in China, which plays a very important role in promoting the transformation of regional economic structure, expanding domestic demand and safeguarding people's livelihood. It is an important option for national economic transformation and upgrading under the background of the new economic normal and supply-side structural reform; It is an important means to solve the contradiction between people's growing needs for a better life and unbalanced development in the "new era".

Since the 13th Five-Year Plan, the development of the general aviation industry has entered the fast lane, gradually forming an industry chain of general aviation aircraft manufacturing, general aviation aircraft maintenance, general aviation aircraft leasing, general aviation business services and other agglomeration effects, and a number of leading aviation enterprises has been developed rapidly. Especially in recent years, with the supply-side structural reform as the main line, the reconstruction and improvement of the navigation laws and regulations system as the focus, the "streamline administration, delegate power, strengthen regulation and improve services" reform as the focus, the reform of the navigation supervision mode and the strengthening of supervision and supervision as the starting point, the general aviation industry ecosystem has begun to take shape.

## 2. New Challenges of General Aviation Industry Under the New Development Pattern of "Double Circulation"

In recent years, the global governance system has been facing profound changes. The competition among major countries has become increasingly fierce. A new round of scientific and technological revolution and industrial transformation have developed in depth. The restructuring of industrial chains, supply chains and value chains has been accelerated. Economic globalization has encountered adverse current and the pattern of international economic cycles has undergone profound adjustments. In particular, COVID-19 has led to a sharp contraction in international trade, turbulence in international financial markets and limited international exchanges, which has exacerbated the trend of anti-globalization. The global economy has plunged into a deep recession and economic globalization has encountered a reverse current. It is difficult to maintain stable economic growth relying on an export-oriented economy. The above-mentioned problems make the development environment of general aviation industry significantly more unstable and uncertain, and the development of general aviation industry faces difficulties and challenges caused by the intertwining of structural, institutional and cyclical problems.

Despite China's rapid victory over the epidemic, it has taken the lead among major global economies in initiating the pace of economic recovery and has put the national economy back on a stable growth track by accelerating the construction of a new development pattern with the domestic general cycle as the mainstay and the dual domestic and international cycles promoting each other. However, due to the late start and low development of general aviation industry, especially the weak capacity of core technology research and development, the general aviation industry still faces many serious internal and external challenges on how to open the blockage, stagnation point and break point in the cycle, enhance the cycle momentum, form a virtuous cycle and finally realize the high-

quality development of the industry. Global trade protectionism superimposed on the new crown epidemic, the macroeconomic situation is tightening, the industry's basic capacity is relatively weak, the instability of the industrial chain is prominent, the industrial mechanism and institutional reform is lagging behind, the market mechanism has not been fully formed, the industrial talent gathering effect is not obvious, it is difficult to form effective intellectual support, the degree of integration with other industries is not high, the synergy of development is not enough, infrastructure construction and other factors of production supply is insufficient, the degree of regional differences is significant, the safety operation situation is serious, industrial development faces many security challenges.

### **3. New Path of High-quality Development of General Aviation Industry Under the New Development Pattern of "Double Circulation"**

#### **3.1. Improve supporting policies for the transformation and upgrading of general aviation industry, and improve the quality of policy implementation effectiveness**

In view of the challenges and opportunities for the development of general aviation industry under the new development pattern of "double circulation", it is urgent to carry out systematic optimization and adjustment of general aviation industry policies for the purpose of promoting the structural reform on the supply side of general aviation industry, innovatively establish an industrial policy system that adapts to the characteristics and laws of general aviation industry and the new development pattern of "double circulation", guide, support and promote the rapid development of general aviation industry, and make industrial policy truly become a new engine and new power to promote the development of general aviation industry. First, to accelerate the realization of "selective policy" to "functional incentive policy" direction of change. With functional incentive policy as a guide, provide tax benefit policy and technical support policy for the allocation of resources in the weak link of general aviation industry upgrade, so as to upgrade the total structure and optimize the efficiency of general aviation industry; The second is to speed up the transformation from "inclined" industrial policy to "competitive" industrial policy. Guided by competitive industrial policies, combined with the current development situation and trend of general aviation industry, legal and inductive means are used to provide a policy environment of fair competition for the general aviation industry and the operation of various types of general aviation enterprises, and a competitive industrial policy is formed by the selection of the superior and the inferior by the market; The third is to accelerate the transformation from the "scale-oriented" industrial policy to the "innovation-capable" industrial policy. Guided by innovative industrial policies, an intelligent general aviation innovation system with general aviation enterprises as the main body, general aviation market as the guide and the integration of production and education shall be established to form a basic mechanism for independent innovation, to comprehensively enhance the independent innovation capability of the general aviation industry and to

achieve a breakthrough in industrial quality; ; The fourth is to speed up the transformation from "traditional" industrial policy to "transformational" industrial policy, to promote the transformation of general aviation industry under the guidance of transformational industrial policy, to realize a new industrial model and a new industrial format, and to ensure that the industry maintains a new dynamic engine; The fifth is to accelerate the transformation from "homogeneity" industrial policy to "difference" industrial policy. Guided by differentiated industrial policies, encourage and support differentiated and characteristic general aviation industry development paths, and realize regional coordinated development of general aviation industry; The sixth is to realize the change from "targeted policy" to "precise policy". Under the guidance of "precision policy", we will move from "unscientific" to "scientific" in general aviation industry policy formulation, and from "relying on experience" to "relying on science". We will work hard in all aspects of general aviation industry, such as precision research, precision policy making, precision policy implementation and precision policy evaluation, so as to realize the overall improvement of the general aviation industry policy system and policy process; The seventh is to speed up the transformation from "non-standard evaluative" industrial policy to "institutionalized evaluative" industrial policy. Guided by the institutional assessment of industrial policies, we will promote the institutional construction of general aviation industrial policy assessment, improve the assessment standards, assessment procedures, assessment methods, assessment mechanisms and other content of industrial policies, and comprehensively enhance the scientific nature of general aviation industrial policies in the process of formulation and implementation.

#### **3.2. Broaden the breadth and depth of general aviation industry integration and development, strengthen the integration of various industries to integrate resources, and form a joint industrial development force**

In view of the challenges and opportunities facing the development of general aviation industry in the new development pattern of "double cycle", it is urgent to follow the principle of coordinated development between industries, break the industry and administrative barriers to industrial integration, strengthen the effective integration of general aviation industry with other industries, and form a synergy for industrial development. First, optimize the supply structure, standardize the general aviation market access mechanism, focus on the total quality of the general aviation industry to effectively improve the factor input structure, and strengthen the depth of general aviation industry integration; second, optimize the demand-side structure, make up for the "short board" of the main structure of general aviation demand, strive to improve the demand for general aviation services in the public sector, and expand the breadth of general aviation industry integration; Third, to build a synergistic mechanism conducive to the effective integration of the general aviation industry, and to establish as soon as possible an effective mechanism for mutual coordination between the government and the general aviation market, so as to effectively guarantee the smooth promotion and effectiveness of the integration of the general aviation industry; fourth, to accelerate the

integration with the tourism industry, and to explore the development of general aviation cultural tourism business such as general aviation science education, general aviation study, and general aviation interactive experience, so as to form an industrial integration development model of "general aviation + tourism"; fifth, to accelerate the integration with the emergency industry, and to explore the development of general aviation emergency business such as general aviation medical emergency rescue and general aviation fire rescue, so as to form an industrial integration development model of "general aviation + emergency"; Sixth, accelerate the integration with the sports industry, explore and develop general aviation sports events, aviation sports training, aviation sports experience and other businesses, and form an industrial integration development model of "navigation + sports"; Seventh, accelerate the comprehensive integration and development with the new infrastructure, and form a new general aviation intelligent industrial chain pattern with all data, all links and all green; Eighth, accelerate the integration with the digital economy industry, accelerate the integration of the Internet, big data, artificial intelligence, blockchain and navigation industry value chain, and form a new industrial integration development model of "navigation + digital informatization".

### **3.3. Optimize the layout of general aviation airports, innovate operation and management strategies, and enhance the economic benefits of the industry**

In view of the challenges and opportunities facing the development of general aviation industry under the new development pattern of "double cycle", it is urgent to optimize the layout of general aviation airports, improve the operational efficiency of general aviation airports, and realize the synergistic development with urban clusters. First, according to local conditions, the construction of general aviation airports should be matched with regional development, economic development, urban development and social development. The layout of navigation airports in Guangzhou, Zhuhai, Shenzhen and other places should aim at meeting the development needs such as the construction of the Maritime Silk Road, the international aviation economic zone and the business aircraft operation base. The western region of Guangdong, Hong Kong and Macao should aim at promoting the interconnection between the local economy and the economically developed regions in the Bay. The second is to build a comprehensive layout system for the core general aviation airports relying on the urban agglomerations, give full consideration to the effective connection between the navigable airports and the urban agglomerations, and rely on the urban agglomerations to carry out the comprehensive planning and layout of the core general aviation airports, so as to give full play to the cluster effect of navigable airports; Third, guide and support all kinds of domestic navigation enterprises to deeply participate in the planning and layout of navigation airports, guide and support the airport planning and layout of navigation enterprises, and comprehensively improve the use efficiency of navigation airports that enterprises participate in the construction; Fourthly, the development model of "airport+ industrial service chain" is introduced into the operation and management of navigable airport, and various industrial service chains related to the operation of cloud navigable airport are combined to create a new production format; Fifth, bring the general aviation

airport into the network of the urban emergency rescue system, and expand the radiation range of the navigable airport business; Sixth, provide financial subsidies to navigable airports at different levels and accurately, so as to improve the profitability of navigable airports, especially for public welfare navigable airports in remote areas of northwest Guangdong, which are located in public service functions and have poor profit prospects, and provide special funds to subsidize them to improve their competitive efficiency; Seventh, it is to guide the navigable airport to realize the transformation from operation mode to operation management mode, and to realize the benefits from management.

### **3.4. Highlight the strengthening of talent science and technology support, increase investment in talent training, and solidify the human resources factor guarantee for the development of general aviation industry**

In view of the challenges and opportunities faced by the development of general aviation industry under the new development pattern of "double circulation", it is urgent to follow the law of talent cultivation and rely on the hierarchical structure of talent demand required by industrial development to develop all kinds of general aviation talents that lead industrial development and guarantee industrial operation step by step, so as to enhance the adaptability between talents and industrial development. First, strengthen the top-level design, establish and improve a series of policies for the introduction, use, flow and incentive protection of talents, and form a complete policy system; second, improve the carrier platform for general aviation talents, strengthen cooperation with universities and research institutes, work around the field of general aviation technology innovation, promote the combination of industry, academia and research, and promote technology transfer and transformation of results; third, innovate talent management, standardize the management and evaluation system for all levels of talents in general aviation, realize the benign flow of all types of talents in general aviation, and attract more high-level talents to participate in the process of general aviation industry development. Fourth, create a good environment to give priority to the development of general aviation talents and create a humanistic environment, growth environment and entrepreneurial environment for talents in the general aviation industry; fifth, develop a strategic plan for the development of general aviation talents, cultivate talents needed for industrial development, develop a talent plan at different levels and further cultivate talents according to the scale of demand for talents in the general aviation industry; Sixth, encourage, support and guide the institutions to open new majors and cultivate high quality technical skill talents in the field of general aviation in a hierarchical and targeted manner, so as to improve the quantity and quality of high quality composite talents in general aviation industry and realize the mutual promotion and coordinated development of talents and industry.

### **3.5. Enhance the ability to link the internal and external cycles of the industry chain, strengthen element support, and promote the optimization and upgrading of the general aviation industry chain**

In view of the challenges and opportunities facing the development of general aviation industry under the new development pattern of "double cycle", it is urgent to do a good job of strategic design of general aviation industry chain, optimize the development environment of the whole industry chain and improve the toughness of the general aviation industry chain. First, improve the policies related to the general aviation industry chain, provide support and guarantee mechanisms for the transformation and upgrading of the industry chain, and enhance the adaptability of industrial policies to the development of the general aviation industry; second, develop strategic projects for the optimization of the general aviation industry chain in the domain, solve the weak links of the industrial foundation, make up for the weak independent R&D and manufacturing capacity of the general aviation industry and the weak short board of general aviation operation services; Third, relying on the advantages of the aviation hub, strengthen the innovation leadership of scientific and technological forces, accelerate the deep integration of new-generation information technology with general aviation manufacturing and general aviation operations, forge the long board of the whole industry chain supply chain, and form leading advantages in local fields; Fourth, in view of the characteristics of regional development, layout the direction of regional development of general aviation industry, and enhance the strategic depth and swing space of the modern development of the general aviation industry chain; Fifth, relying on information technology, digitalization to promote the optimization and upgrading of the whole industry chain of general aviation, to build a number of general aviation industry chain can be connected upstream, midstream and downstream, supply and demand ends of the information platform, accelerate the whole industry chain in the information platform without regard to agglomeration, improve the efficiency of industry cluster synergy, promote the optimization and upgrading of the advantageous industry clusters and characteristics of the industry chain; sixth, to strengthen the general aviation industry chain agglomeration effect, with the concept of "intelligent aviation" as a guide, accelerate the digitalization of general aviation industry, intelligent transformation, to achieve the digital development of the industry chain.

### **3.6. Build a long-term safety operation mechanism for the industry, enhance safety and security, industrial control and market competitiveness, and provide a solid safety foundation for industrial development**

In view of the challenges and opportunities facing the development of general aviation industry under the new development pattern of "double cycle", there is an urgent need to optimize the core elements of industrial safety development based on the dynamic evolution of the domestic market and global market to provide safety guarantee for industrial development. First, to solidify the general aviation industry "safety bottom line", under the premise of ensuring the high-quality development of the industry, with operational safety as the red line, pay great attention to the risk problems in general aviation flights, targeted measures to plug the safety loopholes to ensure the safe operation of the industry; Second, to lead by wisdom, to implement research on key core technologies of the industry, to strengthen the industry's independent research and development, independent design, independent manufacturing capabilities, and to enhance the industry's international competitiveness and market competitiveness; Third, to establish a scientific and complete general aviation industry safety early warning assessment system, to dynamically monitor and pre-judge the industrial safety situation, and to eliminate hidden dangers in the nascent stage. Fourth, focus on the key links and issues of industrial technology innovation, precisely strengthen the protection of intellectual property rights in the core chains of innovation chain, value chain and supply chain, and enhance the core competitiveness of the industry.

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