

# Local Practice and Path Selection of Legal Norms in the Field of Low-Altitude Economy

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**Abstract:** *Low-altitude economy is an important representative of China's new productive forces and a new engine of economic growth. However, its characteristics of high-tech dominance and multi-industry integration pose a challenge to the traditional centralized and unified central legislation model. In this context, local legislative practice plays a key role in the first exploration. This paper systematically reviews the development context and local practice of China's low-altitude economic legal norms, analyzes the actual demand for the supply of local legal system, and points out the core dilemmas it faces in balancing development and security, coordinating central and local governments, giving consideration to local characteristics and regional coordination, defining the boundary between government and market, and matching supply and demand. Through the examination of these problems, this paper puts forward four improvement paths: first, to enhance the level and standardization of legal norms and strengthen the vertical connection between the central and local governments; second, to coordinate local characteristics and regional coordinated development and break down institutional barriers; The third is to establish a "public-private partnership" regulatory model with multi-subject participation, which integrates government regulation and industry self-discipline; the fourth is to promote public participation in response to market demand and achieve a balance between supply and demand of low-altitude resources. The research shows that the innovative and adaptable practice of local rule of law is an indispensable key link in the construction of the legal system of low-altitude economy with Chinese characteristics.*

**Keywords:** *Low-altitude economy, Local laws and regulations, Active risk prevention, Regional coordination, Security and development*

## 1. Introduction

"Low-altitude economy" is a comprehensive economic form based on low-altitude airspace, guided by low-altitude flight activities of various manned and unmanned aerial vehicles, and radiation-driven integration and development of related fields. As an important representative of China's new quality productivity, the low-altitude economy is being built as a new engine of economic growth. According to the data of China Low Altitude Economic Development Research Report (2024) by Saidi Research Institute of Ministry of Industry and Information Technology, the scale of China's low altitude economy has exceeded 500 billion yuan in 2023, with a growth rate of 33.8%, and is expected to exceed trillion yuan in 2026. It is expected to reach 2 trillion yuan in 2030. Low-altitude economy has trillion-level market potential and is a new growth pole to promote economic development.

The research on the development of low-altitude economy in China has a long history. The concept of low-altitude economy was first put forward by scholars such as Tan Rui<sup>[1]</sup> around 2010. In terms of policy, the Opinions on Deepening the Reform of China's Low-altitude Airspace Management issued in 2010 put forward the effective use of airspace resources; in February 2021, the Outline of National Comprehensive Three-dimensional Transportation Network Planning issued by the the national authorities for the first time included the concept of "low-altitude economy" in the national planning. In December 2023, the Central Economic Work Conference identified the low-altitude economy as a strategic emerging industry. In 2024, the Two sessions first wrote the "low-altitude economy" into its Report on the Work of the Government, clearly and actively building this "new growth engine". At the end of December of the same year, the National Development and Reform Commission led the establishment of the Department of Low-altitude Economic Development to promote the low-altitude economy into a systematic planning stage. 2024 is also known as the first year of low-altitude economic development. In 2025, the Report on the Work of the Government clearly pointed out that we

should "promote the safe and healthy development of new industries such as commercial aerospace and low-altitude economy". At the level of laws and regulations, the Civil Aviation Law of the People's Republic of China, which came into effect in 1996, is a comprehensive law in the field of aviation. In 2003, the State Council and the Central Military Commission promulgated the General Aviation Flight Control Regulations, which is a special regulation in the field of general aviation. In 2023, the State Council and the Central Military Commission promulgated the Interim Regulations on Flight Management of Unmanned Aerial Vehicles, which are special regulations in the field of unmanned aerial vehicles. In 2024, the Ministry of Transport promulgated the Safety Management Rules for the Operation of Civil Unmanned Aerial Vehicles. In 2025, the revised draft of the Civil Aviation Law clearly stated that the division of airspace should take into account the needs of low-altitude economic development. In addition, Anhui Province, Beijing, Guangdong Province and other provinces and municipalities have promulgated management measures for unmanned aerial vehicles to manage various flight activities within their jurisdiction. At present, China has initially formed a low-altitude economic law application system with the Civil Aviation Law as the core and various laws, regulations and normative documents in the field of general aviation and unmanned aerial vehicles as the main line.

The development of low-altitude economic industry is in the ascendant, but combing the existing legal norms, we can find that only one law of Civil Aviation Law and several special regulations at the central level can bring the content of low-altitude economy into the scope of management, and there are no other supporting laws. Combined with the guidance of the central policy and the broad prospects for the development of low-altitude economy, it is particularly necessary to explore the important functions and roles of local laws and regulations in the development of low-altitude economy.

## **2. The Realistic Demand for the Supply of Local Legal System in the Low-Altitude Economic Field**

### ***2.1. The Guarantee of the Rule of Law Is the Core Infrastructure Inherent in the Characteristics of Low-Altitude Economy and Technology***

The value of the low-altitude economy ultimately needs to be realized by aircraft flying into low-altitude airspace <sup>[2]</sup>. Flight safety is the eternal theme of the aviation industry. Compared with the traditional large passenger and cargo transport aircraft, the low-altitude economy mainly relies on UAV and eVTOL (electric vertical take-off and landing aircraft) flight, which is not manned or rarely manned. In addition, the flight altitude is low, and the low-altitude technology is constantly breaking through. The consequences of its fall are relatively controllable, and the high risk factor of traditional aviation is significantly reduced. But at the same time, compared with the mature technical and safety rule systems of waterway and land transportation, the technical instability and rule uncertainty of low-altitude economy make it contain more complex hidden safety risks, such as the need to unify aircraft technical parameter standards and the lack of an accident accountability system. The doctrine of active risk prevention <sup>[3]</sup> requires the rule of law to become the core infrastructure inherent in the technological characteristics of the low-altitude economy. Its basic logic is to correctly grasp and balance the relationship between development and security, the core of which is to guard against the potential safety risks of low-altitude flight with systematic thinking and forward-looking thinking, and fully tap and stimulate the development potential of low-altitude economy. The specific measures are to encourage technological innovation through legal systems and policies, promote the formation of competitive advantages in the low-altitude economy, and give full play to its trillion-level market potential and the role of a new economic engine. At the same time, the risk management outlet will be transferred to pre-control and behavior prevention, and flexible and diversified supervision modes such as safety assessment, risk classification and flight declaration will be used to ensure the safety of flight activities. Chinese traditional culture has always emphasized that "prevention in advance" is better than "accountability after the event". Whether based on life safety, airspace security or national sovereignty security, active risk prevention is a concept of low-altitude economic rule of law with Chinese characteristics, which is suitable for China's national conditions.

### ***2.2. Contradictions and Conflicts Between Central Legislation and New Technological Attributes of Low-Altitude Economy***

By sorting out the aforementioned legal norms of low-altitude economy, we can see that the effectiveness level of the existing legal norms in the field of low-altitude economy in China is relatively low, and there is a lack of overall and overall legal provisions at the central level. Compared

with the traditional centralized and unified legislative mode of department law, some scholars advocate adopting the legislative mode of field law<sup>[4]</sup>, such as the current environmental protection law cluster in China, which integrates different legal norms into a single legislation to respond to the rapid development and change of low-altitude economy as a new economic form. However, the low-altitude economy is different from the traditional economic form in the characteristics of high-tech dominance, fast renewal iteration and multi-industry integration, which is quite different from the traditional economic form. Faced with this emerging field, the central level has not yet made overall complete legal provisions, which is not only the inherent attribute of the law lagging behind social development, but also the realistic dilemma of the speed of technological change far exceeding the legislative cycle. If we are eager to adopt the unified regulation of central legislation, it may damage the enthusiasm of technological innovation and is not conducive to the rapid development of new technologies. Therefore, no matter which legislative mode is adopted, the legislation at the central level is facing considerable difficulties at the present stage of low-altitude economic development.

According to the research of Shi Xiongtian<sup>[5]</sup> and others, the development level of low-altitude economic modernization in China is in the leading position in economically developed provinces (cities) such as Guangdong, Jiangsu, Shanghai and other places, while some provinces (regions, cities) such as Inner Mongolia, Heilongjiang, Xinjiang and other places have a lower level of development and are still in the exploratory stage. The overall design is difficult to take into account the actual development of all regions, and it is not easy to implement in practice.

### ***2.3. The Important Functions of Local Legal Norms in the Development of Low-Altitude Economy***

Under the premise of the limitations of central legislation, local laws and regulations play a leading and exploratory role in the process of low-altitude economic development because they are close to the reality of regional industrial development and have pertinence, flexibility and rapidity in formulation. According to the statistics of Health<sup>[6]</sup>, from October 1949 to April 2025, there are 129 local laws and regulations for low-altitude economic development in China, including 9 local laws and regulations, 8 local government regulations and 112 local normative documents. These local laws and regulations play an important role in the development of low-altitude economy: first, they are the embodiment of the legalization of policy support and provide a good development expectation for the industry. For example, Paragraph 1, Article 1 of the General Provisions of the Regulations on the Development of Low-Altitude Economy in Guangzhou issued by the People's Congress of Guangzhou: "The purpose of formulating these Regulations is to promote the healthy development of low-altitude economy in Guangzhou". Secondly, local laws and regulations create an orderly market trading environment, promote the rational allocation of resources, maximize benefits, and effectively enhance the competitiveness of low-altitude economic industries. For example, Shenzhen has passed the Promotion Regulations, which stipulates that the relevant departments of the municipal government should coordinate with the air traffic management agencies and other departments to organize the construction of a digital management and service system for low-altitude flights, and that the guiding role of financial funds should be brought into play to drive social capital to participate in the investment of low-altitude economic industries. The effect of this continuous advanced layout is remarkable: in 2024, the number of enterprises involved in low-altitude economy in Shenzhen ranked first in the country, DJI's innovative consumer UAVs accounted for more than 70% of the global market share, and industrial UAVs accounted for 50% of the global market share. With an annual output value of more than 90 billion yuan<sup>[7]</sup>, Shenzhen has become a leading city in the development of low-altitude economy in China and has shown remarkable competitiveness in the international market.

### **3. Investigation on the Practice of Local Laws and Policies in the Field of Low-Altitude Economy**

The technological characteristics of low-altitude economy have created an urgent need for the protection of the rule of law, while the central legislation is facing practical difficulties due to the rapid technological iteration and unbalanced development, which makes the practical, flexible and efficient local legal norms an indispensable exploration and core support, which has been proved to be effective in optimizing the industrial environment and stimulating market vitality in practice. Through the investigation of the existing literature statistical data, the time and space distribution of local laws and policies in the current low-altitude economic field, as well as the layout of the text content, show an upward trend, but there is still room for improvement. The formulation of local laws and regulations is closely related to the local basic conditions, and has a profound impact on the subsequent industrial development process.

### **3.1. Time Distribution of Policies**

According to the research of Du Delin<sup>[8]</sup> and others, the development of China's low-altitude economic policy can be divided into three stages, 2010-2016 is the stage of exploration and development, the policies and standards of this stage are very few, and the State Council is the main issuing organ. 2017-2023 is the initial stage of development, during which the number of policies and standards has increased significantly, and the main issuing organs have changed from the State Council to the Civil Aviation Administration of China and the Ministry of Industry and Information Technology, focusing on the UAV field, during which the UAV market in China has developed rapidly. Since 2024, it has been an accelerated development stage. During this period, all regions have made joint efforts to promote the construction of low-altitude flight infrastructure, the construction of service platforms and the expansion of application scenarios, and the low-altitude economy has entered an accelerated development stage.

### **3.2. Spatial Distribution of Policies**

According to Zhang Yanshu<sup>[9]</sup> statistics, as of February 28, 2025, more than 80% of China's provinces have formulated local regulations and normative documents on low-altitude economy. In terms of geographical distribution, the southeast coastal provinces account for a large proportion, among which the provinces in the Pearl River Delta and Yangtze River Delta are the most prominent. For example, there are 11 relevant normative documents in Guangdong Province, which is the largest in all provinces in the country, which is in line with the regional characteristics of the urgent needs of the region. In addition to typical regions and provinces, the provinces that carry out local legislative activities in the field of low-altitude economy are mostly concentrated in the southeastern coastal and central regions, and economically developed provinces (cities) such as Jiangsu and Shanghai are in the leading position. There is a relative lack of policies in the western region. For example, Qinghai, Gansu, Ningxia and Guizhou have not yet issued any provincial or prefectural policies and are still in the exploratory stage. This is related to the complex local natural environment, weak economic foundation and high difficulty in developing low-altitude economy.

### **3.3. Contents of Policy Texts**

According to the research of Kong Dejian<sup>[10]</sup> and others, at present, the content of China's low-altitude economic policy can be divided into five parts: building low-altitude flight support system, promoting the development of low-altitude manufacturing industry, expanding low-altitude flight application scenarios, enhancing low-altitude scientific and technological innovation capabilities, and improving low-altitude economic support measures. "UAV", "enterprise", "general aviation", "industry chain", "application market" and so on are the key words of general concern in all provinces. At the same time, the natural environment, economic basis, industrial development and characteristic resources of each province are different, so the policy focus is different, and there are also some differences in the text content. Some regions have formulated special plans based on local characteristics or superior industries, and formed a differentiated development strategy and model of "low altitude + characteristic industries".

Through the analysis of the provincial low-altitude economic policy texts, it can be seen that the focus of low-altitude economic policy has shifted from UAV, low-altitude airspace, flight service infrastructure and other single elements to the comprehensive use of multiple elements, the policy orientation has shifted from safety first to both safety and development, and the expansion of airspace resources supply is an important example of the change of legislative concept. Promoting the development of low-altitude economy has shifted from the independence of various departments to overall coordination, and the issuing organs have expanded from the early State Council, the Civil Aviation Administration of China and the Ministry of Industry and Information Technology to the Meteorological Bureau, the Ministry of Transport, the Ministry of Agriculture and Rural Areas, the local people's congresses and government departments of various provinces. Many policy documents mention the establishment of information sharing system and coordination leading group, aiming at promoting the overall supervision of low-altitude economy. The application of these local laws and regulations has made up for the blank of the legal guarantee system of low-altitude economy to a great extent.

#### **4. Problems in the Practice of Local Legal Norms in the Field of Low-Altitude Economy**

##### ***4.1. The Contradiction Between Development and Security***

At the national level, this contradiction is mainly reflected in China's airspace management system. China's airspace management has gone through the reform stage of unified management of the Air Force-military aviation leadership, civil aviation management-military and civilian joint management. With the gradual relaxation of airspace control, the use efficiency of low-altitude airspace has been improved to a certain extent, but compared with the market competition development model of the United States, the open market model of the United Kingdom and the social market model of Germany, the management of low-altitude airspace in China is still under relatively strict supervision. For example, in August 2025, the Beijing Municipal People's Government issued the Notice of the Beijing Municipal People's Government on the Announcement of the Scope of Unmanned Aerial Vehicle Control Airspace, which reads: "The whole administrative area of Beijing is the unmanned aerial vehicle control airspace.". Without the approval of the air traffic control agency, the flight activities of unmanned aerial vehicles shall not be carried out in the controlled airspace. Some users reported that when applying for the integrated management platform of civil unmanned aerial vehicles, almost no airworthy airspace was found in the whole city, which made it impossible to fly unmanned aerial vehicles. There is a contradiction between the strictness of airspace management and the flexibility required for low-altitude flight.

At the public level, the contradiction is reflected in the concern for the public's data, privacy and personal and property security. Low-altitude flight may pose a threat to the legitimate rights and interests of ground rights holders, such as lighting, privacy, personal and property safety. When UAVs are used for filming and environmental research, operators may also access personal sensitive data <sup>[11]</sup> that is not within their business scope. Ground obligee how to determine the extension of rights and how to remedy the ground rights when damage is caused by flight activities need to be clearly responded by law <sup>[12]</sup>.

##### ***4.2. The Contradiction Between Local Characteristic Orientation and Regional Coordinated Development***

There are significant differences in natural resource conditions and social and economic development in different regions of China, and the general legal provisions at the central level are difficult to take into account the actual situation of different regions, which is in contradiction with the urgent need for fine legal norms at the local level. Therefore, in the early stage of low-altitude economic development, various regions should be encouraged to formulate local laws and regulations with local characteristics and in line with local needs. However, due to the lack of refinement of legislation at the central level, there is great arbitrariness in local legal norms. While adapting measures to local conditions, there are also obstacles to regional coordinated development due to the lack of convergence of control standards. For example, the airworthiness certification process, data return frequency, airspace classification standards, electromagnetic compatibility parameters and other key technical indicators at the technical level have not yet formed national standards, and local regulations have not yet been unified. The Yangtze River Delta and the Pearl River Delta are the leading areas of low-altitude economic development, and there are differences in the specific measures and standards of technical regulation in the relevant policy documents issued by Shanghai, Jiangsu, Zhejiang, Guangdong, Shenzhen and other places, which makes it difficult to effectively link up the technical standards and management norms in the regional coordinated development, thus forming regional barriers to technical regulation. This kind of regional barrier affects the overall development of low-altitude economic industry, and is not conducive to the utilization of resources and market integration in a wider range.

##### ***4.3. The Contradiction Between the Central Macro-Control and the Concrete Implementation of the Local Government***

As mentioned above, considering the special form of low-altitude economy as a new industry, there are some vacancies in the central legislation. The existing legal norms are at a low level, and local policies tend to focus on the development of local economic industries, which is prone to fragmentation. At the same time, low-level legal norms often mean smaller management authority and scope, fragmented management norms are difficult to adapt to the innovative and expanding development

characteristics of low-altitude economy, and it is also difficult to provide a holistic and systematic guarantee for the development of low-altitude economy. For example, Article 25 of the Regulations on the Development of Low-altitude Economy in Guangzhou stipulates that the operation of manned transport routes such as intra-city, inter-city and cross-border should be promoted as a whole, and Article 26 of the Regulations on the Promotion of Low-altitude Economy and Industry in Shenzhen Special Economic Zone stipulates that low-altitude passenger and cargo routes such as intra-city, inter-city and cross-border should be opened, with a distance of only 120 kilometers between the two places, but it has not been solved. To realize inter-city navigation, the linkage path needs to be further clarified by the upper law.

#### ***4.4. The Contradiction Between the Government and the Effective Market***

Low-altitude economy covers upstream parts manufacturing industry, midstream low-altitude flight industry and downstream infrastructure support and scenario application industry, which is a combination of "industry + aviation"<sup>[13]</sup>. This "long chain, multi-subject, cross-industry" characteristic forcibly merges the two parallel systems of traditional "industry supervision" and "aviation supervision", making "how the government manages safety and liberalizes the market" the intersection of all contradictions. This contradiction is mainly reflected in three levels:

First, the regulatory system is difficult to adapt to the industrial span, resulting in overlapping responsibilities and mismatch of resources. The government should not only refer to the original civil aviation regulatory model to make technical regulations on airspace division, route delimitation and aircraft parameter standards for different types of low-altitude aircraft, but also assume the regulatory responsibilities of market participants in commercial transactions, production and operation, and take measures to dynamically supervise aircraft flight to prevent possible safety accidents and damage to public interests. The regulatory radius has increased sharply, but the regulatory resources, including the preparation, budget and technical means, have not been strengthened synchronously, resulting in the lag of the actual regulatory capacity. Leading enterprises in Shenzhen, the "UAV Capital", such as Shunfeng and Dajiang, are also facing insufficient regulatory resources in the early testing of UAV express delivery and takeout distribution services. For absolute safety, regulators adopt a "one-size-fits-all" conservative approval or simply refuse to approve the industrial application deadlock. What is more complicated is that airspace management involves the military, civil aviation, local governments and other subjects, and the boundaries of responsibilities are not clear, which easily leads to the coexistence of "multi-head management" and "management gap". For example, Hunan Province has set up a "Low-Altitude Airspace Coordination Management Committee", which is jointly examined and approved by the military, local and civilian parties; while in Sichuan Province, the "Sichuan Low-Altitude Airspace Coordination Operation Center" directly accepts flight plans, and the military aviation authorizes civil aviation to manage them. Although the two modes are intended to cooperate, the approval process in actual operation is still lengthy, which seriously reduces the efficiency of the use of airspace resources.

Second, the lag of institutional guarantee restricts the vitality of innovation, and there is a gap in intellectual property protection. Existing laws and regulations still lack specific applicable standards for intellectual property protection of technological innovations such as unmanned aerial vehicles and flying vehicles, which makes it difficult to effectively encourage R & D and protect achievements. As an important micro-carrier<sup>[14]</sup> to promote the quality and quantity of industry, it is difficult for enterprises to give full play to the role of innovation subject in the absence of clear system escort.

Third, the industrial base is weak. At present, the low-altitude economic chain is still facing the problems of "sticking neck" of key core technologies, insufficient basic supporting capacity and insufficient talent support. Although many local governments (such as Zhuji City, Shangyu District and Yuecheng District) have put forward the goals of "introducing chain-leading enterprises" and "forming a complete industrial chain of low-altitude economy" in their policy documents, the characteristics of cross-regional and cross-industry development of low-altitude economy make it difficult for such regional planning to form a scale effect.

#### ***4.5. Contradiction Between Industry Supply and Market Demand***

At present, the development of low-altitude economy is facing the structural contradiction between the hot supply side and the fatigue of demand side. The government attaches great importance to the low-altitude economy, and all parts of the country have responded, and the manufacturing capacity has

risen rapidly. According to statistics, in 2024, only in the field of UAV system manufacturing, there were 2831 related enterprises in Guangdong, twice as many as Jiangsu Province, which ranked second. On the demand side of low-altitude economy, effective market demand has not been fully stimulated, low-altitude application scenarios are limited, and low-altitude consumption power is insufficient.

From the perspective of actual demand trends, the public's demand for low-altitude flight focuses on alleviating traffic congestion, improving commuting efficiency, low-altitude tourism, low-altitude logistics, agricultural and forestry plant protection, and safety emergency applications. Take UAM (Urban Air Mobility), which is highly anticipated, as an example: its commercialization prospects are facing realistic challenges. For individual users, although UAM can shorten the straight-line flight time in the air, the total time advantage may not be significant if the whole process time of going to the take-off and landing station, security check, waiting and vertical take-off and landing is included <sup>[15]</sup>. If UAM is popularized in the future, the low-altitude airspace may reproduce the congestion of ground traffic. Foreign studies have also pointed out that UAM may even lead to new ground traffic congestion points <sup>[16]</sup> leading to the take-off and landing stations. It can be seen that whether it is complementary or competitive with the existing transportation system has not been clarified <sup>[17]</sup>, which further inhibits the generation of effective demand. Market demand is the basis of realizing the industrial value of low-altitude economy, and also the core driving force to promote the development of low-altitude economy. If the relationship between industrial supply and market demand can not be balanced, the industrial chain of low-altitude economy will be unsustainable. Therefore, in the process of low-altitude economic development, we must attach great importance to the matching of supply and demand, and focus on cultivating real and sustainable market demand.

## **5. Ways to Improve the Practice of Local Legal Norms in the Field of Low-Altitude Economy**

### ***5.1. Timely and Appropriate Upgrading of the Level and Standardization of Legal Norms***

At present, the legislative system of China's low-altitude economy takes the Civil Aviation Law, the General Aviation Flight Control Regulations, the Interim Regulations on Flight Management of Unmanned Aerial Vehicles, and the Safety Management Rules for the Operation of Civil Unmanned Aerial Vehicles as the core, and the normative documents such as local government regulations and implementation rules as the extension. Generally speaking, the level of legal effect is not high, and the system needs to be strengthened.

Upgrading the level of legal norms, in the vertical dimension, is to strengthen the convergence of central and local legislation, whether it is to adopt the traditional legislative model of department law or the emerging legislative model of field law, the national level should make overall arrangements for the development of low-altitude economy. Considering the technical attributes of low-altitude economy, the basic orientation of legislation should be to maintain technological development and ensures that low-altitude technology is always advanced by adopting laws and regulations. At the same time, it is necessary to link up with the existing Criminal Law, Administrative Punishment Law and other laws to form a complete system of legal norms. For example, the "black flight" behavior of UAVs may involve violations of privacy, disclosure of state secrets and other acts, so it is necessary to clarify the difference between UAV flight behavior and traditional ground traffic behavior in legislation or legal interpretation, and to match the provisions of the Criminal Law and the Administrative Punishment Law. Local legal norms should not conflict with the legal provisions of central legislation, so as to achieve the unity of legal order. In the horizontal dimension, it realizes the logical approach from local policy documents to local government regulations, and then to local laws and regulations <sup>[18]</sup>. The construction of low-altitude industry chain will not be confined to a specific administrative region, and the development of low-altitude flight industry will inevitably span multiple administrative regions, which requires local laws and regulations to upgrade the administrative level to expand jurisdiction and jurisdiction. As mentioned above, both Guangzhou and Shenzhen Special Economic Zones have proposed to develop inter-city passenger and freight transport, but there is no unified upper law basis. The formulation of unified local laws and regulations at the level of Guangdong Province will effectively solve this development dilemma.

Promoting the standardization of legal norms is embodied in the standardization of the formulation procedure and the standardization of the formulation content. The formulation procedures should reflect the actual needs of the economy and society and the wishes of the people, and the local people's congresses and their standing committees should strengthen the filing and examination of legal norms. In terms of content, we should encourage the formulation of unified technical standards to promote

standardization and interoperability<sup>[19]</sup>. For example, the current classification standards for unmanned aerial vehicles in Chinese mainland are not consistent with those in Chinese Hong Kong and Chinese Macao, which may affect the smooth realization of cross-border navigation within the Guangdong-Hong Kong-Macao Greater Bay Area, and this problem will be effectively solved by unifying the air traffic rules and flight industry management between the three places across the Straits.

### **5.2. Give Consideration to Local Industrial Characteristics and Regional Coordinated Development**

At present, China's low-altitude economic development presents a significant pattern of regional differentiation. In this context, local legislation has important institutional value. Within the framework of national legislation, local governments can carry out differentiated and refined system design according to their own characteristics and development needs of low-altitude industries: on the one hand, supplementary provisions should be made for specific links not yet covered by national standards; On the other hand, on the premise of not conflicting with the superior law, we can explore the first legislation to provide a practical basis for the construction of the national system. From the point of view of realistic development, many places have formed a characteristic layout in the field of "low altitude plus" application-Zhejiang has made great efforts to build the brand of "UAV + e-commerce logistics" industry, Shaoxing Shangyu has explored the application scenario of "low altitude + government governance", while Beijing has promoted the construction of low altitude security industry system by virtue of its technical accumulation in the field of security countermeasures. It also plans to build a low-altitude commuting network in the Beijing-Tianjin-Hebei region. The exploration of local rule of law practice not only implements the principle of universality of law, but also responds to the differentiated needs of local governments, which not only fills in the gaps in the specific implementation of central legislation, but also shows unique institutional advantages because of its closeness to reality and strong operability.

While emphasizing the legislation with local characteristics, we should also actively promote the construction of the rule of law with regional coordination. At present, there is no mature case of regional cooperative legislation in the field of low-altitude economy in China. Promoting the institutional coordination across administrative divisions will help break down market barriers, promote resource integration and realize the integrated development of regional low-altitude economy. Beijing-Tianjin-Hebei, Yangtze River Delta, Guangdong-Hong Kong-Macao Greater Bay Area and other urban agglomerations are not only important engines of national economic development, but also low-altitude industrial agglomeration and innovation leading areas. Taking Beijing-Tianjin-Hebei as an example, the whole industrial chain foundation of low-altitude manufacturing in Hebei can complement the R & D and technological advantages of Beijing and Tianjin. Beijing's scientific and technological achievements in UAV, eVTOL and other fields can be verified and applied in the test sites of Tianjin and Hebei. In terms of commuting, logistics and other scenarios, three places also has the realistic needs of coordinated development. Therefore, it is necessary to promote regional legislative cooperation and gradually build a new pattern of low-altitude economic development with goal coordination, mechanism convergence and resource sharing.

### **5.3. Establishing a "public-Private Partnership" Regulatory Model with Multi-Subject Participation**

With the continuous evolution of low-altitude economic form, many participants, long industrial chain and rich application scenarios, it has formed an extremely complex business structure and interaction, which has greatly reduced the feasibility of the original industry regulatory framework<sup>[20]</sup>. In order to bring these complex and dynamic management contents into a reasonable norm, it is necessary to establish and improve the "public-private partnership" regulatory model that is compatible with the economic structure and operational characteristics of China. On the one hand, low-altitude economy involves public matters such as airspace management and flight safety, and must rely on the registration and approval of public authorities, so there must be rigid constraints of public law relations in the regulatory system. At the same time, in the initial stage of industrial development of low-altitude economy, the state needs to provide technical standards, market access and operation rules through public law, and guide the orderly development of industry through infrastructure investment and policy incentives, so the public law system of low-altitude economy is indispensable. On the other hand, legislators and governments are seldom directly involved in business activities and are not sensitive enough to market information, and their government regulatory measures are often limited in anticipation<sup>[21]</sup>. Therefore, it is necessary to combine government regulation with industry autonomy. The government should focus on the core areas such as security and risk management, public privacy and data protection, and the construction of fair market order; industry organizations should be

responsible for formulating industry standards and codes of conduct in line with legal norms and promoting industry self-discipline; market participants should consciously abide by the rules and do a good job of enterprise compliance; Accept social supervision and government supervision, and submit flight plans and data as required, so as to seek a reasonable balance between public and private interests. In addition, a data sharing mechanism between government and enterprises should be established to promote the safe and efficient circulation of flight data and operational information between the regulatory side and the enterprise side.

#### **5.4. Ensure Public Participation to Achieve a Balance Between Supply and Demand**

At present, China's Constitution does not specify that low-altitude airspace is similar to mineral resources, water flows, beaches and other natural resources, and belongs to the state, but it is based on the same non-renewable, scarcity and social welfare as the former natural resources. Academic circles generally advocate that low-altitude airspace should be the object of state ownership<sup>[22]</sup>. This definition of the nature of low-altitude airspace ownership can be included in the provisions of Article 9 of the Constitution of the People's Republic of China through the interpretation of purpose, and then the right to use low-altitude airspace can be defined as a usufructuary right derived from the state ownership of natural resources. After clarifying the legal attributes of public property and usufructuary rights in low-altitude airspace, the local legal practice should coordinate the relationship between public ownership and the use of private rights, and guide the market subjects and the general public to participate in legislation in an orderly manner, so as to achieve the optimal legal effect and safeguard the public interest.

For enterprises in the industrial chain, the threshold of participation can be lowered by participating in the formulation of technical standards and soliciting opinions in the draft legislation, so as to realize the benign interaction between the government and the market. For the general public, more attention is paid to the direct application of low-altitude services. Local legislation should be differentiated according to the needs of the public, such as the development of low-altitude commuting and logistics transportation between large urban agglomerations such as Beijing-Tianjin-Hebei, Yangtze River Delta and Guangdong-Hong Kong-Macao Greater Bay Area, and the layout of agricultural and forestry plant protection and emergency rescue in mountainous and remote areas. In Yunnan, Xinjiang and other areas rich in tourism resources, the focus is on expanding the application scenarios of low-altitude tourism. At the same time, listening to public opinions extensively through hearings and symposiums, complete the transformation from public opinion gathering to local legislation, and realize the co-construction, co-governance and sharing in the low-altitude economic field.

## **6. Conclusion**

The rise of low-altitude economy marks the strategic expansion of human activities to three-dimensional space, which brings not only revolutionary changes in industrial form, but also profound challenges to the traditional legal regulation system. The research of this paper shows that under the background of the temporary blank of the central unified legislation due to the rapid development of technology and the huge regional differences, the local legislation, with its unique flexibility, pertinence and courage to try first, provides an indispensable legal support for the initial cultivation and safe and orderly development of the low-altitude economy. In the future, the construction of low-altitude economic rule of law must move towards a road of "linkage between upper and lower levels, coordination between public and private sectors, and internal and external repair". Vertically, the central level needs to carry out top-level design in a timely manner to delineate the framework and provide guidance for local innovation. At the same time, the experience of local practice should also feed back the central legislation to form a benign interaction. Horizontally, we must break the boundaries of administrative divisions, promote policy coordination and mutual recognition of standards in key areas, and build an integrated low-altitude market; in terms of governance model, we should abandon the traditional idea of government monopolization and build a new pattern of pluralistic co-governance that integrates government, industry organizations, market players and public forces. In the final analysis, the ultimate goal of the legal protection of low-altitude economy is to realize the transition from "being able to control" to "flying well". This requires not only the perfection of legal rules, but also the innovation of legal thinking. By consolidating the basic link of local legislation and constantly promoting its optimization and sublimation, we can weave a network of low-altitude economic rule of law that can not only effectively prevent risks, but also fully stimulate vitality, reflect the will of the state and respond to local demands, thus laying a solid foundation for the

sustainable prosperity of this "new blue sea". Really let the low-altitude economy inject strong "air power" into the high-quality development of the economy and society.

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