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# The rise of low-altitude economy:Analysis of information infrastructure core industry layout and stock market response

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***Abstract:*** *As the strategic cornerstone of low-altitude economic system, the layout of the core industry of information infrastructure is very important to promote industrial agglomeration and large-scale development.Based on relevant historical policies and diverse stock development trajectories, this study categorizes core industrial cluster stocks into two distinct modules: Air Traffic Management Products and 5G-A (Sensing & Communication Integration). Furthermore, we systematically analyze stock fluctuation patterns before and after policy implementation. This analysis aims to provide data-driven support for forward-looking industrial planning, unlock sector development potential, enhance the low-altitude economy's independent innovation capacity, facilitate emerging industry growth, and stimulate consumer demand. The research results provide theoretical support and practical guidance for the sustainable development of low-altitude economic information infrastructure industry.*

***Keywords:*** *low-altitude economy, information infrastructure construction, industrial layout, stock volatility*

## 1. Introduction

Under the tide of a new round of global technological revolution and industrial transformation, the development of low-altitude economy has shown a potential development trend. The core industry layout of low-altitude information infrastructure, as the underlying structure of low-altitude economy, has irreplaceable strategic significance for the construction of large-scale development of low-altitude industrial structure. Firstly, this paper expounds the core position of infrastructure construction in the development of low-altitude economy. Secondly, it reveals the development status of the core industry of low-altitude information infrastructure. Finally, combined with the systematic analysis of the fluctuations of stocks related to low-altitude information infrastructure construction, this paper puts forward suggestions on the innovative layout of low-altitude information infrastructure industry to help the low-altitude economic information infrastructure industry achieve sustainable development.

## 2. Research background and significance

### *2.1 The vigorous development of low-altitude economy and its potential economic value*

In the face of the continuous evolution of economic globalization pattern and the tide of scientific and technological innovation development, low-altitude economy has broad development prospects as a bridge and link connecting cross-regional economic integration with high quality.Through the gradual construction and improvement of the modern industrial system, the low-altitude economy promotes the coordinated development of multiple fields in the comprehensive economic form.It is integrated with the traditional general aviation and UAV low-altitude production service mode, and the deep integration of information and digital management technology with economic and social activities shows a strong new quality productivity characteristics.

### *2.2 The core position of infrastructure construction in the development of low-altitude economy*

As the underlying structure of low-altitude economic development, the core industrial layout of low-altitude infrastructure construction directly determines the depth and breadth of low-altitude economic development, and covers a number of key parts such as collaborative integration of industrial resources

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and the creation of multiple low-altitude application scenarios. The real-time and efficient transmission of information and data is carried out by Internet of Things devices combined with 5G communication networks. Drive the new generation of information technology to work together in an all-round way, so as to provide a strong safety guarantee for low-altitude flight activities.As an important driving field for the development of infrastructure construction industry, low-altitude logistics can ensure the accurate delivery of goods by drones through 5G communication networks and Beidou navigation system, and open up the "last kilometer" of low-altitude logistics.It is of great theoretical and practical significance to dig deep into the inner logic of the core industry layout of low-altitude economic information infrastructure.From a theoretical point of view, the core industry of low-altitude information infrastructure is accelerating the transformation from natural resources to efficient economic resources, constantly strengthening the construction of low-altitude intelligent integrated infrastructure system, providing important direction guidance for the layout and development of low-altitude infrastructure core industry, and creating a modern supply chain industrial system with infrastructure as the backbone.From a realistic point of view, the layout of the core industry of low-altitude information infrastructure more effectively supports and leads the integrated development of the industrial chain and the high-quality development of the regional economy. With the continuous release of policy dividends, low-altitude information infrastructure has ushered in new opportunities for development, which has had a significant impact on the stock fluctuations of related industries in the low-altitude economic industry chain. Therefore, the stock fluctuations of low-altitude information infrastructure industry before and after the promulgation of the policy should be worth exploring.

*Table 1:Deployment of Low-altitude Information Infrastructure Industrial Modules*

| Module Name | Purpose and Usage | Related Stocks | Technical Equipment |
|---|---|---|---|
| (1) Air Traffic Management Products | Supervise and control the flight operations in low - altitude areas, maintain aviation traffic order, and ensure flight safety and efficiency. | Les Information, Brilliance Technology, Sichuan Jiuzhou Electronic Technology | Air Traffic Control Center, Automatic Dependent Surveillance System, Air Traffic Management System, etc. |
| (2) 5G - A Sensing and Communication Integration | Meet the low - altitude communication requirements and accurately sense and position aircraft, which is used for the construction of intelligent airports. | ZTE Corporation, Tongyu Communication, Cai Qin Technology, Wuhan Fingu | 4.9GHz 5G - A Sensing and Communication Integration Base Station, 5G - Advanced Technology, etc. |

## 3. Development status of low-altitude economy

### *3.1 Foreign development situation*

The development of low-altitude facilities industrial clusters in foreign countries reflects the synergistic effect of market driving combined with government policy support and capital investment.The United States has shown great innovation and diversity in the field of low-altitude facility development. The Federal Aviation Administration (FAA) has played a leading role in policy and operational assurance in promoting the development of low-altitude economy, and has systematically formulated and implemented a series of regulations and standards to stimulate the potential economic value of low-altitude economy.Projects such as the Advanced Air MobilityAAM (AAM) /Urban Air MobilityUAM (UAM) program being developed in 57 cities/regions, and the Lilium Florida Regional network have greatly improved accessibility, It also brings a new practice path for low-altitude infrastructure construction.The industrial layout of low-altitude facilities in EU countries is committed to building a multi-dimensional and unregulated structure covering the whole life cycle.In general, it can be summarized as two levels of innovation in infrastructure construction and industrial spatial layout.From the perspective of infrastructure construction, significant investment continues to improve the navigation, communication and surveillance systems, and effectively realize the seamless cross-border low-altitude flight. From the perspective of industrial spatial layout, it shows an industrial pattern with a few core areas as the core engine and radiating to the surrounding areas. Cities such as Munich

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and Toulouse, with their profound aviation industry infrastructure, have attracted many low-altitude facilities research and development and manufacturing enterprises to converge, and build a cross-regional low-altitude industrial economic system with dynamic coordination of resources around the core links of aircraft manufacturing and parts production, so as to maximize the value of low-altitude resources.

### *3.2 Domestic development situation*

At the National People's Congress and the Chinese People's Political Consultative Conference held in March 2024, the term low-altitude economy was included in the government work report for the first time, showing its growing importance in the country's economic and social development [1].The Ministry of Industry and Information Technology and other four departments jointly issued the Implementation Plan for the Innovative Application of General Aviation Equipment (2024-2030), which opens a green channel for the airworthiness certification of new consumer general aviation equipment such as electric vertical takeoff and landing vehicles, and vigorously supports the research and development of flying vehicle technology, product verification and the exploration of commercial application scenarios. This policy dividend has spurred a rise in the prices of stocks related to the low economy.From July 15 to 18 of the same year, the third plenary session of the 20th Central Committee of the Communist Party of China once again emphasized the development of low-altitude economy in the main agenda. On November 5, 2024, the Ministry of Industry and Information Technology held the first plenary meeting of the low-altitude Industry Leading Group for the high-quality development of the low-altitude economy, which aims to build a preliminary framework for low-altitude economic development actions and further refine and implement the construction of low-altitude information infrastructure.

In view of the above development trend, this paper selects the policies on March 27, 2024 and November 5, 2024 as two key event nodes to explore the impact of policies on the low-altitude economic market.

## 4. Stock returns fluctuate in different industrial modules

In order to analyze the development status of low-altitude information infrastructure industry, this paper selects 7 stocks related to low-altitude information infrastructure construction and divides them into two modules. These include Air Traffic Management Products, 5G-A Sensing and Communication Integration, and span 90-120 stock trading days before and after the two events. This paper first analyzes the returns of the two module stock indexes before and after the two events, as shown in Figure 1-4.

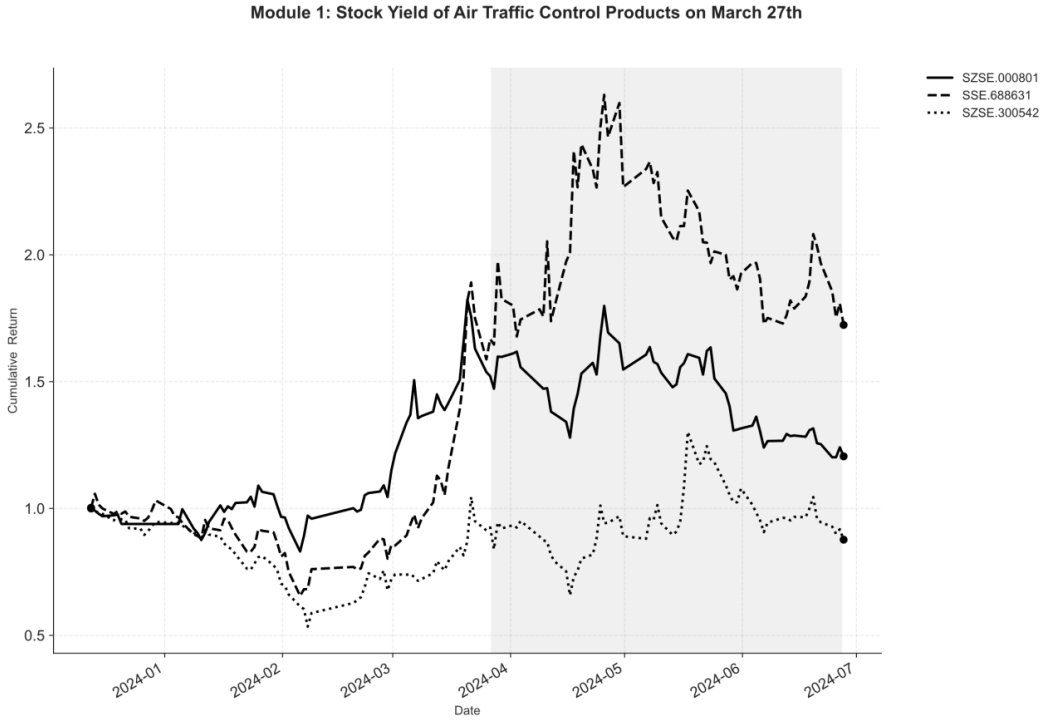


*Figure 1 Stock Yield of Air Traffic Control Products on March 27th*

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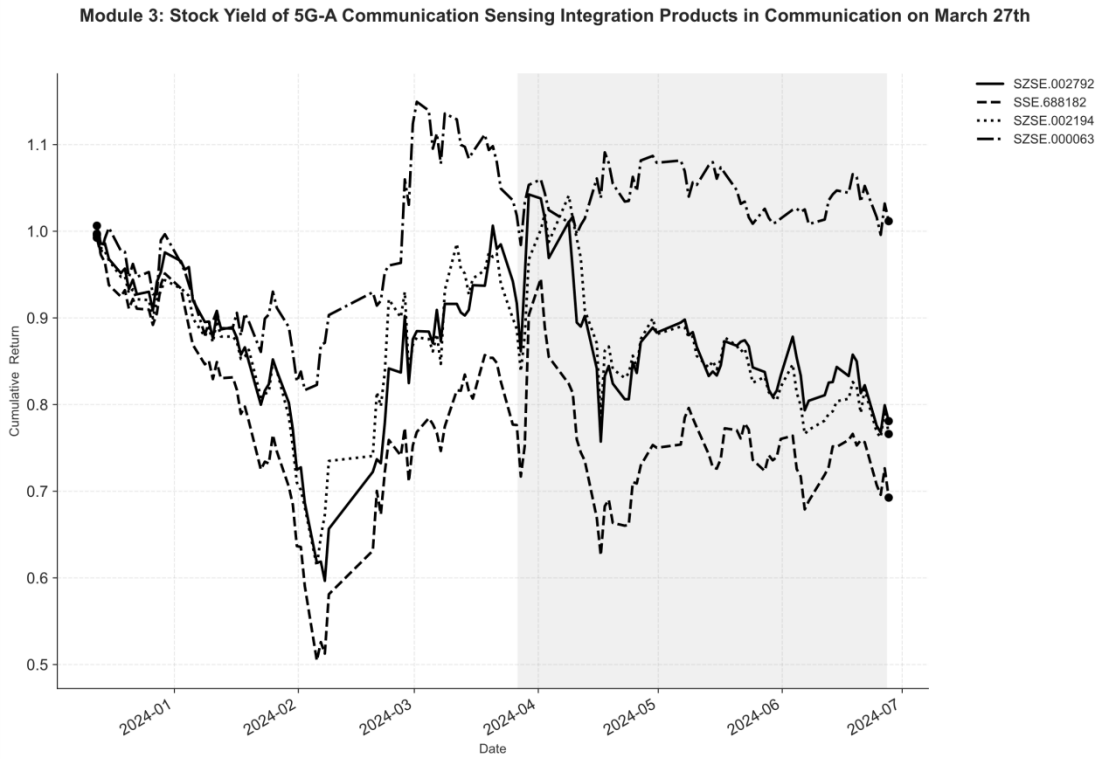


*Figure 2 Stock Yield of 5G-A Communication Sensing Integration Products in Communication on March 27th*

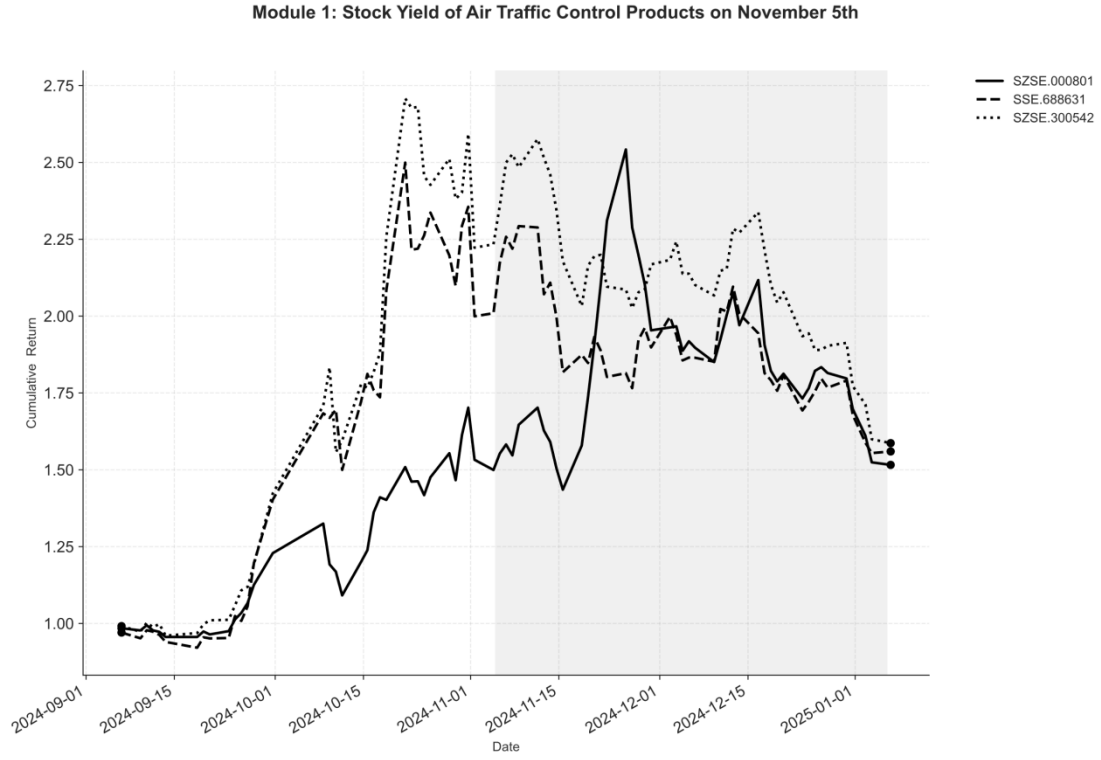


*Figure 3 Stock Yield of Air Traffic Control Products on November 5th*

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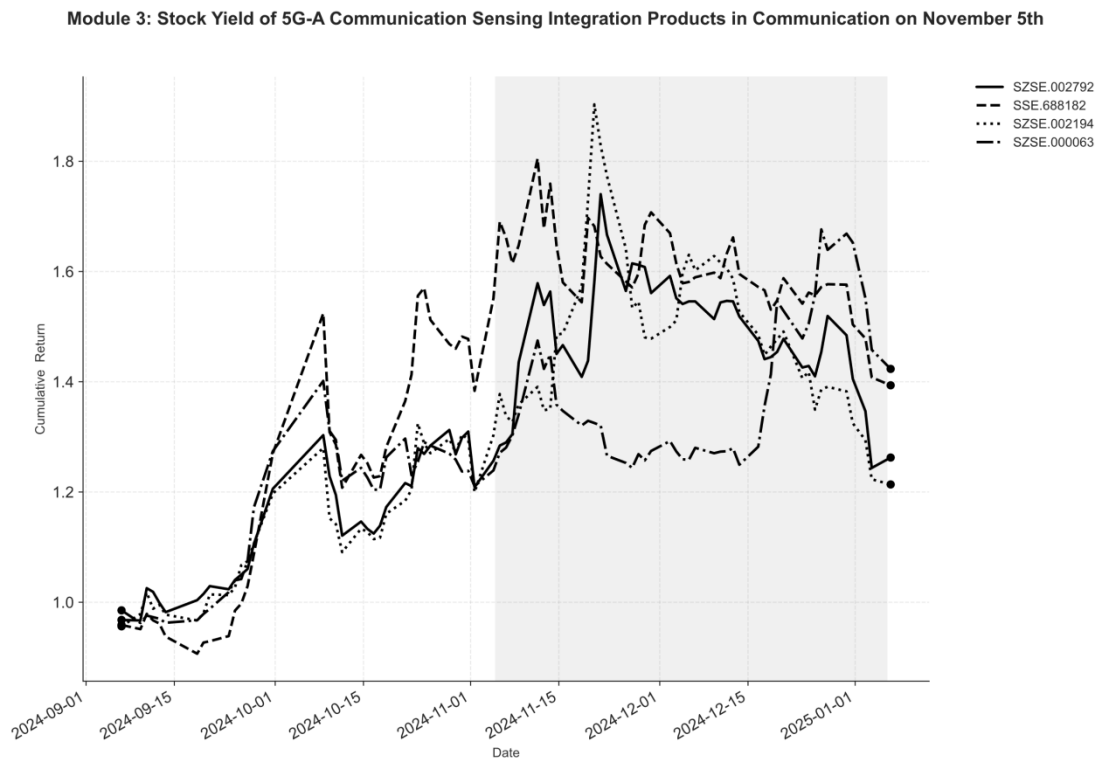


*Figure 4 Stock Yield of 5G-A Communication Sensing Integration Products in Communication on November 5th*

### *4.1 Yield result analysis*

Analysis from the full sample stock return rate: Before and after the release of the navigation policy on March 27, some stocks fluctuated, but the overall volatility was relatively small. Since the release of the second policy in mid-July, the yield of most stocks has gradually stabilized and shown an upward trend. Especially after the release of the third policy on November 5, the upward trend of stock returns was significantly enhanced and the volatility increased.The conclusion shows that the release of low-altitude economy-related policies has a phased impact on the trend of stock market returns. The continuous promotion and implementation of policies not only inject new vitality into the market, but also bring uncertainty, thus promoting the rise of returns and the intensification of volatility.

From the analysis of the volatility of individual stock returns, after the promulgation of the third policy, the price trend of SZSE.002194 (Wuhan Fingu) stock returns after the introduction of the low-altitude economic policy is relatively stable and rising, which indicates that the low-altitude economic policy has a significant positive effect on the stock.As a supplier of radio frequency devices, Wuhan Fingu Company will carry out 5G-A three-dimensional perception network to support multi-scene verification such as UAV trajectory tracking in low-altitude environments and electronic fence protection in key areas, and deepen the diversified dynamic scenario application of low-altitude information infrastructure. The continuous advancement of low-altitude information infrastructure construction has brought greater development space to the RF device market. As a result, market expectations for its future earnings have risen.

### *4.2 Analysis of the causes of yield fluctuation*

Analysis from the market level: low-altitude economic policy dividends have released positive signals to the market, prompting investors to form optimistic expectations of low-altitude market returns, and then guide social funds to flow to low-altitude economy related industries, to build a new modern industrial system with low-altitude information infrastructure construction as the core.Under the background of the government providing all-round resource channels and policy support for the development of low-altitude economy, the long-term development of the whole industry chain of low-altitude information infrastructure has obvious development advantages and broad development prospects, prompting enterprises to usher in business expansion opportunities in the fields of low-altitude

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communication, navigation, radar detection, air traffic control systems and other fields, and helping enterprises adapt to the development needs of deep-seated intelligent skills.

For enterprises, the analysis of the yield fluctuation chart before and after the promulgation of the policy shows that after the promulgation of the policy, the relevant stock price has increased significantly in the short term.For example, SS.688631 (Les Information) stock yield rapidly rose from about 0.9 to nearly 2.0 within two weeks after the release of the policy, with an increase of more than 50%, reflecting the market's positive response to the policy.Investors are generally optimistic about the development prospects of general aviation equipment companies in a favorable policy environment, so they buy a large number of related stocks, thereby promoting a rapid rise in stock prices. However, after a short period of sharp gains, some share prices fell back within a month. This is due to the combination of factors such as the gradual digestion of the policy impact by the market and the selling of stocks by some investors in order to achieve early profits. This stock price fluctuation clearly shows the dynamic change of supply and demand relationship in the market stimulated by policies, and provides a valuable empirical basis for exploring the long-term impact of low-altitude economic policies on the capital market.

### *4.3 Thermal analysis of stocks in different modules*

Through the thermodynamic analysis of Beidou/navigation stocks before and after the policy on March 27, we can see that the correlation between Canqin Technology and some stocks is low before the implementation of the policy. After the policy was implemented, its correlation with stocks such as CICT Mobile and ZTE was significantly enhanced, and the depth change of the color block intuitively reflected the improvement of the correlation value. For example, the correlation of Canqin Technology and CICT Mobile jumped from about 0.5 to more than 0.7, and the correlation with ZTE also showed a similar growth trend, which was attributed to the fact that the navigation policy on March 27 effectively stimulated the development of low-altitude economic industries, and promoted the cooperation opportunities between Canqin Technology and other enterprises in the Beidou/navigation business. In turn, the correlation between them is strengthened. In the early stage of the development of low-altitude information infrastructure industry, policies guided resources to gather in this field, related enterprises cooperated around core technologies and application scenarios, and stock correlation was enhanced and the enhancement trend was sustainable. However, with the intensification of market competition, the sustained impact of policy on correlation is therefore faced with challenges, and subsequent new policy incentives or industrial upgrading are needed to maintain and strengthen this correlation.

## 5. Actively cultivate market demand and seek development potential

At present, the construction of low-altitude information infrastructure in China is in the initial stage, based on its extensive application prospects and potential market coverage, indicating that low-altitude economy contains huge development potential. It is estimated that after the promotion of 307 cities and 2,036 county-level units in the country, the low-altitude economic market capacity is expected to exceed hundreds of billions of yuan, showing a market development trend with great potential.In this context, through the systematic analysis of low-altitude information infrastructure-related stocks, it is believed that the new quality productivity-oriented low-altitude information infrastructure industry layout has a strong leading role in low-altitude economy. The industrial layout not only effectively enables the digital transformation of traditional industries, but also cultivates emerging industries to create new momentum and development trend. By advancing the construction of low-altitude navigation/communication facilities tailored to local conditions, we shall cultivate market demand through industrial chain optimization and create a favorable environment for the low-altitude infrastructure sector. This approach will unlock the potential of robust domestic demand, stimulate market entities' enthusiasm and innovation capability, ultimately achieving high-quality coordinated development across the entire industrial ecosystem..In addition, the system combines auxiliary technologies such as phased array radar to form a comprehensive, high-precision low-altitude surveillance network, which effectively responds to complex and changeable urban environments and reduces communication signal interference, significantly improving urban information security supervision capabilities. Shenzhen took the lead in launching a six-square-kilometer low-altitude perception system pilot project in October 2024, with a total investment of about 66 million yuan, to provide intelligent support for urban management, fully demonstrating the strong market demand for this technology in practical applications.

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## 6. Industrial layout and suggestions

### *6.1 Establish a unified and efficient low-altitude infrastructure safety supervision system*

Cities should be committed to building a high-standard, multi-directional, full-cycle low-altitude infrastructure safety supervision system, implement all-weather supervision of low-altitude airspace, accelerate the construction of low-altitude 5G-A all-sensing integrated infrastructure network, accurately calculate the position, speed and heading of aircraft, and achieve 360-degree all-round low-altitude surveillance. This system not only effectively complements ADS-B and radar technology in the aviation field, but also provides preconditions and technical support for the development of low-altitude economy and the creation of operational airspace.

### *6.2 Enhance the innovation capability of low-altitude infrastructure and give full play to the advantages of regional industrial clusters*

At present, technological innovation in the industrial chain of low-altitude information infrastructure construction is generally characterized by isolation, and many enterprises focus on their own technological research and development [2], thus ignoring the agglomeration and collaborative development of the industrial chain.Therefore, by optimally integrating scientific and technological advancements, we can eliminate barriers between enterprises and establish a comprehensive low-altitude digital infrastructure ecosystem. This will foster the diverse sharing and application of industrial resources, driving systemic synergies across the sector.. At the same time, we will add new driving forces to economic and social development by improving the capacity of basic services. Building on this foundation, it is imperative to foster cross-regional industrial collaboration and establish a synergistic platform for industry-academia-research integration. This initiative will strengthen interdisciplinary and cross-regional partnerships between research institutions and universities, while proactively developing a forward-looking talent development system tailored to the next-generation complex low-altitude information infrastructure sector. Through the sharing of cutting-edge research results and personnel exchange and training programs, the transformation of scientific research results is realized to the maximum extent, and the low-altitude infrastructure industry ecology is further improved.

## 7. Conclusion

The low-altitude information infrastructure industry is undergoing major changes. The layout of its core industries is of great significance for promoting the agglomeration and large-scale development of low-altitude economy industries. By developing a forward-looking layout for the low-altitude economic information infrastructure industry, we aim to build core competitive advantages in industrial clusters, enhance independent innovation capabilities in the low-altitude economy, and stimulate the steady growth of emerging industries alongside consumer demand. Furthermore, this initiative will facilitate cross-regional coordination and efficient integration across the upstream, midstream, and downstream sectors of the industry.Therefore, this paper analyzes the stock return rate and thermal map of the four modules of low-altitude information infrastructure before and after the three events, analyzes the development potential of the low-altitude economic information infrastructure construction industry, and then puts forward suggestions on industrial layout, emphasizing the construction of low-altitude safety supervision system and the improvement of low-altitude infrastructure innovation ability, so as to promote the sustainable development of low-altitude economic information infrastructure industry.

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