Scientific Research Publishing

Open Journal of Business and Management, 2026, 14(3), 1603-1615
https://www.scirp.org/journal/ojbm
ISSN Online: 2329-3292
ISSN Print: 2329-3284

The Logic, Challenges and Suggestions for Constructing Coastal Recreational Belt around City Empowered by Low-Altitude Economy: A Case Study of Zhanjiang

Lianrong Pang

Business School, Lingnan Normal University, Zhanjiang, China
Email: panglr@lingnan.edu.cn

How to cite this paper: Pang, L. R. (2026). The Logic, Challenges and Suggestions for Constructing Coastal Recreational Belt around City Empowered by Low-Altitude Economy: A Case Study of Zhanjiang. *Open Journal of Business and Management, 14,* 1603-1615.
https://doi.org/10.4236/ojbm.2026.143090

Received: April 28, 2026
Accepted: May 26, 2026
Published: May 29, 2026

Abstract

Against the backdrop that low-altitude economy has become a national strategic emerging industry and cultural tourism industry is undergoing high-quality transformation, the coastal recreational belt around city is a key carrier for the cultural tourism upgrading of coastal cities and solving the problem of scattered resources. Located at the linkage node of the Guangdong-Hong Kong-Macao Greater Bay Area and the Hainan Free Trade Port, Zhanjiang boasts the resource endowment of "sea-island-city" and the policy advantage of being a pilot zone for low-altitude economy in western Guangdong, providing inherent conditions for the in-depth integration of low-altitude economy and coastal recreational belt around city. Taking Zhanjiang as an example, this paper analyzes the internal logic of low-altitude economy empowering the construction of coastal recreational belt around city by enriching tourism scenarios, innovating tourism products and enhancing tourism image. It points out the challenges, including insufficient technical adaptation, product homogenization, weak infrastructure, shortage of talents and ineffective resource integration. Then, it puts forward optimization suggestions from five aspects: technological innovation, product upgrading, facility improvement, talent cultivation and resource integration, providing theoretical and practical references for Zhanjiang and similar coastal cities to promote the high-quality development of recreational belt around city relying on low-altitude economy.

Keywords

Low-Altitude Economy, Recreational Belt around City, Coastal Tourism

1. Introduction

The low-altitude economy is a comprehensive economic form driven by the manufacturing and flight operations of various civil low-altitude aircraft, which promotes the integrated development of related industries through radiating effects (Liu et al., 2025). As a strategic emerging industry, low-altitude economy has become a new driving force for the innovative development of regional economy, especially its application in tourism, which brings a brand-new experience perspective to tourists and acts as a new engine for the transformation and development of cultural tourism industry (Chen, 2026). The coastal recreational belt around city is a new type of experiential space gradually developed based on urban tourism and urban leisure industries, with the experience of recreationists as the core and supported by policy guidance and market cultivation. It provides such functions as sightseeing, leisure, vacation, entertainment, fitness, sports, and education (Dang et al., 2025; Guo & Wang, 2008). As an important leisure space carrier of coastal cities, coastal recreational belt around city is generally faced with bottlenecks such as scattered resources, homogeneous experience, insufficient spatial accessibility and inadequate industrial integration in the development process. In this context, exploring the development path of low-altitude economy assisting coastal recreational belt around city has become an important direction to break the traditional development dilemma and realize value network reconstruction (Cheng et al., 2026; Li, 2024).

Current studies mostly focus on single dimensions such as industrial policies, airspace management and technical applications of the low-altitude economy, or spatial planning and resource development of recreational belts around cities (Dang et al., 2025; Guo & Wang, 2008; Liu et al., 2026). There is a lack of systematic analysis on the internal mechanism, practical constraints and implementation paths for the deep integration of the low-altitude economy and coastal recreational belts around cities. Especially for composite coastal cities like Zhanjiang, which possess mainland, island and coastal ecosystems, both theoretical support and practical guidance are insufficient. As a sub-central city of Guangdong Province and an experimental zone of the western Guangdong low-altitude economy, Zhanjiang boasts unique resource endowments, including mangroves, coral reefs and Leizhou culture, making it highly representative for constructing a coastal low-altitude recreational belt around the city.

The standardized analytical framework of "Logic-Challenges-Countermeasures" can systematically reveal the internal logic of value network reconstruction for coastal recreational belts around cities empowered by the low-altitude economy, identify key challenges in resources, ecology, regulation and the market, and put forward optimized paths and policy suggestions suitable for Zhanjiang's development reality. This study aims to enrich the theoretical connotation of the integrated development of the low-altitude economy and culture-tourism, and provide a replicable practical paradigm for the construction of the western Guangdong low-altitude economy experimental zone and the high-quality transformation of culture and tourism in similar coastal cities.

2. Logic of Low-Altitude Economy Empowering the Construction of Coastal Recreational Belt around Metropolis

The integration of the low-altitude economy and coastal recreational belts around cities has solid theoretical and practical foundations. Its systematic and multi-dimensional empowering effects can break the constraints of traditional coastal tourism development and reconstruct the value framework of coastal recreational spaces (Chen, 2026; Long et al., 2026). Based on the above empowerment mechanism and Zhanjiang's coastal development context, this study systematically explores four core pathways for the low-altitude economy to promote the high-quality upgrading of coastal recreational belts, including innovating tourism experience scenarios, constructing cultural and tourism display platforms, optimizing tourism quality and regional brand image, and advancing the high-quality economic development of regional cultural tourism.

2.1. Innovating Tourism Experience Scenarios

Low-altitude economy injects unprecedented vitality into coastal recreational belts around metropolis, notably by reshaping tourists' experiential space. Through high-tech means such as drone aerial sightseeing and low-altitude flight experiences, tourists break through the traditional horizontal viewing mode and appreciate the unique charm of coastal ecological and cultural resources from an all-round, close-up new perspective. Meanwhile, low-altitude economy diversifies tourism experiences. Numerous coastal landscapes, ecological resources and cultural nodes are closely connected to form a regional tourism space. By helicopter and small aircraft low-altitude flights, tourists can overlook natural landscapes and listen to cultural stories through professional headphones, feeling the interaction between natural scenery and regional culture.

Zhanjiang boasts high-quality cultural and tourism resources, including Jinsha Bay, mangroves, Huguangyan Volcanic Lake, Naozhou Island, Xuwen Coral Reef and Leizhou Ancient City. It has been included in the construction scope of the Western Guangdong Low-Altitude Economic Pilot Zone, and possesses distinctive resource endowments and strong policy support for developing low-altitude tourism (Liu & Su, 2024). Relying on these core resources, it can realize integrated functions such as ecological healing, cultural experience and wellness leisure, construct a four-dimensional spatial pattern of "Near-Urban Healing Circle + Remote Island Exploration Belt + Cultural Experience Belt + Ecological Popular Science Circle", and innovate tourism experience scenarios in Zhanjiang.

2.2. Providing an Innovative Display Platform

With its unique technological and experiential advantages, low-altitude economy expands the display space of coastal recreational belts around metropolis. First, drone aerial photography enables tourists to capture and record the unique charm of coastal ecology and culture from the air, delivering an unprecedented immer-

sive viewing experience. Second, low-altitude flight platforms elevate the dimension of cultural tourism resource display. Holding cultural festivals, light shows and aerial performances on these platforms can showcase regional culture in innovative ways, attract tourists and improve experience quality. In addition, combined with AR panoramic display technology, cultural sites, traditional crafts and intangible cultural heritage can be presented three-dimensionally and visually, breaking the static browsing mode.

At present, Zhanjiang has piloted the application of unmanned aerial vehicle technology exhibitions in major cultural and tourism festivals, and has initially formed application scenarios of technology-enabled cultural and tourism display. By means of low-altitude aerial survey monitoring, digital archive recording and other approaches, the efficiency of protection and dissemination of ecological and cultural resources can be improved, which helps to shape a distinctive coastal cultural tourism brand and provide an innovative platform for cultural presentation.

2.3. Improving Tourism Quality and Regional Image

Manned and unmanned aircraft flight projects in low-altitude economy create possibilities for high-quality development of coastal recreational belts around metropolis, especially in tourism product quality and destination image. First, tourist experience is enhanced. Diverse routes designed through low-altitude flights meet tourists' demand for novel and three-dimensional tourism, allowing them to visit more attractions in less time. Second, tourism quality is upgraded. Low-altitude tourism imposes higher standards on personnel professionalism, safe operation and emergency rescue, promoting the standardization of service models. Moreover, the integration of low-altitude economy and coastal elements accelerates industrial upgrading and enhances regional tourism competitiveness.

Zhanjiang has launched pilot programs, including low-altitude sightseeing and aerial study tours, integrating technological elements into cultural and tourism scenarios and preliminarily forming differentiated brand recognition. By enriching tourism application scenarios based on low-altitude technologies and strengthening technological experience and distinctive identity, Zhanjiang's recreational belt around the city is promoted to upgrade from traditional coastal sightseeing to a composite model featuring three-dimensional leisure, ecological wellness, and cultural immersion, so as to comprehensively enhance regional attractiveness and brand influence.

2.4. Promoting Cultural Tourism Economic Development

As an emerging and powerful new quality productivity, low-altitude economy brings fresh development vitality to coastal recreational belts around metropolis. Developing low-altitude economy based on local conditions strongly boosts regional economy due to its extensive industrial linkage effects, covering aircraft operation, aviation services, tourism reception, catering and accommodation, cultural innovation and research, among others. In terms of employment, low-altitude econ-

omy transforms the traditional extensive tourism employment structure and demands more professional talents such as pilots, maintenance personnel, tour guides, planners and operators, thus optimizing the employment structure.

Low-altitude economy effectively breaks geographical barriers and connects Zhanjiang's scattered islands, ecological and cultural areas. This activates previously inaccessible and underutilized resources, enhances destination attractiveness and consumption scale, promotes balanced development of coastal areas to a certain extent, and improves the quality and efficiency of cultural tourism economy.

3. Challenges of Low-Altitude Economy Empowering Coastal Recreational Belt around Metropolis

Overall, the low-altitude economy delivers pivotal momentum for the transformative upgrading of Zhanjiang's coastal recreational belt. Nevertheless, restricted by geographical endowments, industrial foundations, technical constraints and institutional imperfections, the integration between the low-altitude economy and coastal cultural tourism sector remains in its preliminary developmental phase (Liu & Su, 2024). A set of multi-dimensional barriers, including inadequate technical infrastructure, imperfect supporting systems, insufficient resource integration, immature market cultivation, and deficient talent and institutional support, collectively constrain the in-depth advancement and large-scale industrial proliferation of integrated low-altitude cultural tourism paradigms.

3.1. Technical Facility Challenges

Zhanjiang has a tropical marine monsoon climate with high temperature, humidity, salt fog and frequent typhoons, which impose strict requirements on low-altitude flight technology and facilities. Existing technical models cannot fully adapt to the complex coastal environment. First, low-altitude airspace management is imperfect, with complicated airspace allocation, flight declaration and supervision processes. Long approval cycles for temporary and regular low-altitude tourism flights reduce enterprise operation efficiency and hinder flexible route adjustment according to tourist demand. Second, low-altitude flight safety support is insufficient, with inadequate coverage of communication, navigation, surveillance and meteorological early warning facilities. Weak signals in remote islands and ecological reserves hinder real-time aircraft monitoring and risk early warning. Third, low-altitude equipment has poor technical adaptability. Most existing drones and helicopters are general models with weak wind, salt fog and moisture resistance; battery life decays significantly in high temperatures, large-scale grounding is common in typhoon seasons, and high equipment failure rates affect operational stability (Xiao et al., 2026). Fourth, intelligent technology application is low. Technologies such as intelligent obstacle avoidance, automatic cruise, digital twin and AR immersion have not been fully integrated into tourism experiences. Most low-altitude projects remain simple aerial sightseeing, failing to fully exploit technological empowerment value (Fan et al., 2025).

3.2. Infrastructure Challenges

Infrastructure shortcomings are key constraints to the large-scale development of low-altitude tourism, manifested in unreasonable layout, incomplete supporting facilities and untimely operation and maintenance. First, special low-altitude facilities are scarce. The number of helicopter landing points, drone landing sites, alternate landing points and operation centers is small and highly concentrated in urban areas such as Jinsha Bay and Huguangyan. Key resource areas, including Naozhou Island, Techeng Island, Xuwen Coral Reef and Leizhou Ancient City, lack sufficient facilities, while remote islands and ecological areas are almost blank. Second, ground supporting connection is not smooth. There is no integrated connection between low-altitude flight nodes and scenic spots, transportation hubs, hotels and parking lots, causing inconvenience in transfer and poor accessibility. Some landing points lack public services such as tourist centers, medical first aid, rest areas and intelligent navigation, resulting in poor experiential coherence. Third, infrastructure construction and maintenance costs are high. Low-altitude facilities involve multiple approvals in airspace, land and safety, with long investment return cycles, making sustained investment difficult for local finance and enterprises. Some built facilities are aging and damaged due to lack of professional maintenance, failing to ensure safe operation.

3.3. Resource Integration Challenges

Compared with well-established coastal tourism cities in China, including Sanya, Zhuhai, and Qingdao, Zhanjiang exhibits distinctive resource endowments, developmental constraints, and locational advantages (shown in Table 1). However, the city's prevalent resource fragmentation and spatial isolation constrain the resource integration capacity and industrial empowerment of the low-altitude economy. Moreover, rigorous ecological supervision and frequent meteorological hazards further constrain the operational scope and developmental potential of low-altitude cultural tourism. In terms of ecological management, key protected areas such as mangrove and coral reef reserves enforce stringent controls over low-altitude flight altitudes, route planning, and operating hours, significantly limiting the spatial flexibility of low-altitude tourism deployment. In terms of meteorological conditions, recurrent extreme weather events, particularly typhoons and severe convective weather, cause widespread seasonal flight suspensions, disrupting the continuity and operational stability of the low-altitude tourism industry. Additionally, overlapping administrative supervision across multiple departments raises the institutional and transaction costs of project implementation. Spatially, the dispersed layout of local tourism resources and incomplete coverage of low-altitude flight routes impede the incorporation of remote scenic sites and ecological nodes into an integrated recreational system, restricting the effective transformation of resource superiority into industrial competitiveness. Furthermore, inadequate industrial linkage between low-altitude tourism and adjacent sectors, including marine sports, rural cultural tourism, and intangible cultural heritage ex-

periences, hinders the formation of a comprehensive all-for-one tourism system. Meanwhile, the lack of systematic cooperative mechanisms with the Guangdong-Hong Kong-Macao Greater Bay Area and Hainan Free Trade Port further limits industrial upgrading through regional synergies (Li, 2024).

Table 1. Comparison between Zhanjiang and similar coastal cities.

Comparison Dimension	Zhanjiang	Sanya	Zhuhai	Qingdao
Resource Endowment Structure	Possesses nationally protected mangrove and coral reef ecological resources, as well as distinctive cultural resources including Leizhou ancient city and intangible cultural heritage. It features prominent dual ecological and cultural advantages, accompanied by spatially fragmented offshore island resources.	Dominates high-end tropical coastal beach and marine landscape resources. Characterized by natural sightseeing-oriented tourism with weak indigenous cultural recognition and severe industrial homogenization.	Boasts abundant island clusters and bay coastal landscapes, focusing on urban leisure and coastal wellness tourism. Its cultural resources are dominated by modern commercial heritage with insufficient exclusive local characteristics.	Features temperate coastal landscapes, European-style architecture, and beer culture. It presents distinctive northern coastal tourism characteristics but lacks rare ecologically sensitive resources.
Ecological and Regulatory Constraints	Stringent ecological protection policies apply to mangrove and coral reef reserves. Frequent typhoons and high salt-fog environments impose strict restrictions on low-altitude flight routes, operational periods, and flight altitudes, resulting in strong industrial operational constraints.	Free of large-scale ecologically sensitive protection areas with lenient development regulations. The tropical climate supports year-round low-altitude operations with limited meteorological disturbances and sufficient operational windows.	Stable bay ecological conditions and mild climate reduce disaster risks. Low-altitude tourism enjoys favorable conditions for normalized operation with minimal institutional constraints.	The temperate climate features fewer meteorological hazards and stable flight conditions. Loose ecological and airspace regulations impose few restrictions on low-altitude industrial layout.
Industrial Development Stage	Low-altitude cultural tourism remains in the initial exploration stage, characterized by inadequate infrastructure, homogeneous product supply, incomplete specialized policies, and obvious industrial upgrading bottlenecks as a late-developing coastal city.	Pioneers low-altitude tourism development with mature industrial systems, complete supporting facilities, and high international brand recognition, serving as a national benchmark for coastal low-altitude tourism.	Benefiting from bay economic advantages, low-altitude tourism has formed mature urban leisure and island sightseeing formats with high marketization and rapid industrial iteration.	Low-altitude cultural tourism develops steadily with solid industrial foundations, closely integrated with urban leisure and festival tourism, and enjoys high market acceptance.

Continued

Locational and Functional Positioning	As a sub-central city of Guangdong Province and a pilot zone for the low-altitude economy in western Guangdong, Zhanjiang borders the Hainan Free Trade Port. It undertakes multiple missions including ecological conservation, cultural inheritance, industrial cultivation, and regional collaborative development.	As a core tourism node of the Hainan Free Trade Port and an international tropical coastal resort, Sanya focuses on high-end vacation and international tourism consumption driven by preferential port policies.	As a core coastal city in the Guangdong-Hong Kong-Macao Greater Bay Area, Zhuhai concentrates on urban leisure tourism and cross-regional industrial collaboration under the integrated bay development strategy.	As a northern coastal gateway and key tourism hub of the Yellow Sea, Qingdao relies on northern tourist markets and port advantages to prioritize temperate coastal sightseeing and urban leisure tourism.

3.4. Product and Market Challenges

The supply of low-altitude tourism products does not match market demand, with obvious homogenization, low-end and shallow problems, making it difficult to form core competitiveness (Qi & Sun, 2025; Hou et al., 2025). First, product structure is single and homogeneous. Zhanjiang's low-altitude tourism mainly relies on helicopter sightseeing and drone aerial photography with similar experience modes, lacking in-depth integration with ecology, culture, wellness, research and night economy. It is hardly distinguishable from low-altitude products in coastal cities such as Sanya, Qingdao and Zhuhai, with low recognition. Second, product chain is short with low added value. Most projects only provide single flight experiences without forming a composite consumption chain of "flight + sightseeing + culture + catering + accommodation + research", leading to short tourist stay, low comprehensive consumption and limited industrial driving effect. Third, market awareness and acceptance are low. As an emerging consumption, low-altitude tourism lacks popularization, and tourists are price-sensitive. Safety concerns and asymmetric information weaken tourists' decision-making willingness. Fourth, brand influence is weak. No low-altitude cultural tourism IP with regional recognition has been formed. Insufficient marketing and limited online and offline drainage make it difficult to attract middle-to-high-end and long-distance tourists.

3.5. Talent and Policy Challenges

The integrated development of the low-altitude economy and cultural tourism industry relies on a professional talent pool and a sound institutional guarantee system. Nevertheless, Zhanjiang is constrained by both insufficient talent supply and a lagging policy framework. In terms of talent support, there is a substantial shortage of qualified professionals, such as licensed pilots, equipment maintenance technicians, aviation meteorological analysts, and safety supervisors, which cannot meet the demands of regular and compliant operation. Compound talents equipped with both professional low-altitude operation capabilities and local cultural tourism

planning, as well as cultural interpretation competencies, are extremely scarce, resulting in inadequate locality and professionalism in tourism product design. Local universities have not yet offered majors related to low-altitude tourism and unmanned aerial vehicle application, making talent development highly dependent on external introduction. This approach incurs high costs and poor team stability. Meanwhile, most practitioners lack systematic professional training, making it difficult to guarantee service standardization and tourist experience quality. In terms of policy support, Zhanjiang has not yet issued special supportive policies for low-altitude cultural tourism. Institutional arrangements regarding refined airspace management, land approval, financial subsidies, and social capital introduction remain imperfect, while industry supervision and self-regulation systems are absent, restricting the standardized and long-term development of the industry.

4. Suggestions for Low-Altitude Economy Empowering the Construction of Coastal Recreational Belt around Metropolis

Compared with conventional coastal tourism cities, the integrated development of low-altitude cultural tourism in Zhanjiang exhibits distinctive regional characteristics. However, it is confronted with systemic bottlenecks across technical infrastructure, supporting facilities, resource integration, product markets, talent policies and related institutional systems, which impede the in-depth implementation and large-scale expansion of low-altitude cultural tourism formats. Accordingly, this study puts forward the following developmental proposals:

4.1. Strengthening Technical and Safety Support

Appropriately increase investment in airworthiness technology and develop special low-altitude equipment for coastal areas with high temperature resistance, high salt resistance and strong wind resistance to enhance adaptability to typhoons, high humidity and salt fog environments (Hu et al., 2025). Simplify airspace approval procedures and set up a "one-stop" approval window for low-altitude flights to improve efficiency. Build an intelligent low-altitude supervision platform to integrate flight monitoring, meteorological early warning, airspace scheduling and emergency rescue. Establish a regular safety inspection, equipment maintenance and emergency response mechanism, equipped with professional rescue teams and equipment, to comprehensively improve safety support capabilities. Promote the in-depth application of big data, artificial intelligence and Beidou navigation to enhance intelligent obstacle avoidance, automatic cruise and precise positioning.

4.2. Improving Infrastructure and Supporting Services

Following the idea of "core area densification, remote island coverage, corridor connection", add helicopter landing points and drone connection stations, focusing on key nodes such as Naozhou Island, Techeng Island, Xuwen Coral Reef and Leizhou Ancient City. Improve the transportation connection system, launch sce-

nic through trains, and equip with parking lots, tourist centers, rest areas, medical stations and intelligent navigation. Establish a professional operation and maintenance mechanism for infrastructure with regular inspection and intelligent monitoring to ensure safe and stable operation. Build a comprehensive low-altitude tourism service center to provide one-stop services including consultation, reservation, ticketing, security check and rest, enhancing tourist convenience and experience (shown in Table 2).

Table 2. Optimization of low-altitude flight infrastructure layout in Zhanjiang.

Area Type	Key Layout Points	Construction Content	Functional Orientation
Near-City Core Area	Jinsha Bay, Huguangyan	Landing point + Service center	Distribution hub, daily operation
Remote Island Area	Naozhou Island, Techeng Island	Landing point + Connection station	Island connection, island-wide sightseeing
Ecological Area	Xuwen Coral Reef, Mangroves	Drone station + Observation point	Ecological observation, popular science research
Cultural Area	Leizhou Ancient City, Leizu Temple	Landing point + Performance platform	Cultural experience, aerial tour

4.3. Innovating Product System and Improving Service Quality

Deeply develop four product models: "low-altitude + ecology", "low-altitude + culture", "low-altitude + wellness" and "low-altitude + research", and build characteristic brands such as "Ocean Healing Passport", "Low-Altitude Intangible Cultural Heritage Corridor" and "Aerial Leizhou Culture Route". Enrich products such as night flights, festival performances, customized routes, parent-child research and high-end private experiences to extend the consumption chain and increase product added value. Launch differentiated products for different customer groups to meet diverse needs (shown in Table 3). Strengthen employee training, improve service standards and evaluation mechanisms, enhance service professionalism and standardization, and increase tourist satisfaction and loyalty.

Table 3. Innovative low-altitude tourism product system in Zhanjiang.

Product Type	Core Projects	Target Customers	Characteristic Highlights
Low-Altitude + Ecology	Aerial tour of mangroves, coral reef observation	Ecological enthusiasts, family tourists	Panoramic sea view, popular science education
Low-Altitude + Culture	Aerial intangible cultural heritage performance, ancient city tour	Cultural tourists, research groups	AR immersion, cultural narration
Low-Altitude + Wellness	High-altitude healing flight, island wellness	Middle-aged and elderly, high-end tourists	Relaxation, physical and mental healing
Low-Altitude + Night Tour	Drone light show, bay night flight	Young groups, urban tourists	Night economy, internet-famous check-in

4.4. Strengthening Resource Integration and Regional Collaboration

In response to the dilemmas of resource fragmentation, insufficient industrial linkage, stringent ecological regulations, and complex airspace control, a collaborative development system for low-altitude cultural tourism that adapts to ecological protection and institutional norms shall be established. By relying on the low-altitude route network to connect scattered ecological, cultural and island resources, a three-dimensional spatial structure consisting of a Near-Urban Healing Circle and an Offshore Island Exploration Belt shall be constructed to facilitate the transformation of resource advantages into industrial competitive advantages. In line with the ecological protection requirements for mangroves and coral reefs, and in combination with the meteorological characteristics of typhoon seasons, differentiated regulations on flight altitudes, routes and operating hours shall be adopted to balance tourism development, ecological security and operational safety. A multi-departmental joint approval mechanism shall be established to simplify the review procedures for eligible projects. In-depth integration of low-altitude tourism with marine sports, rural cultural tourism, intangible cultural heritage experiences and other sectors shall be promoted to shape an all-region three-dimensional cultural tourism development pattern. Cross-regional cooperation with the Guangdong-Hong Kong-Macao Greater Bay Area and Hainan Free Trade Port shall be enhanced to build a cross-regional cultural tourism linkage system, so as to comprehensively improve regional industrial competitiveness.

4.5. Improving Policy Support and Talent Guarantee

To address the two soft constraints of inadequate policy support and shortage of professional talents, a comprehensive institutional and talent guarantee system should be constructed. Special supporting policies for low-altitude cultural tourism shall be formulated to improve supporting systems regarding airspace opening, land use guarantee, financial subsidies and social capital introduction, with special development funds set up simultaneously. It is necessary to deepen university-enterprise collaborative education, encourage local colleges and universities to offer majors related to low-altitude tourism, equipment operation and maintenance, and cultural tourism planning, build practical training bases, and establish a localized talent training system. Meanwhile, the incentive mechanisms for talent introduction, salary and welfare, and career promotion should be optimized to precisely attract high-end professionals in technology, operation planning and industry management. In addition, a low-altitude tourism industry association can be established to formulate unified operational and service standards, standardize market order, and promote the standardized and high-quality development of the industry.

5. Conclusion

As an important form of new quality productive forces, the low-altitude economy

can empower the high-quality development of coastal recreational belts by innovating experience scenarios, expanding the dimension of resource display, and upgrading tourism service quality. At the present stage, however, the integrated development of the two remains in the initial stage. It not only faces common industrial shortcomings of the industry, but also encounters localized special constraints, including strict ecological regulation, frequent meteorological disasters and stringent airspace governance. Based on the research framework of "development logic-practical dilemma-optimization path", this study constructs an optimization system adapted to the regional characteristics of Zhanjiang, facilitating the in-depth integration of the low-altitude economy and coastal recreational belts, and realizing coordinated win-win among ecological protection, cultural inheritance and cultural tourism economy.

In the future, the integrated development of the low-altitude economy and coastal recreational belts will evolve toward digitalization, scenario diversification and all-region integration. With the continuous improvement of policy systems, technological iteration and market maturity, low-altitude tourism will upgrade from a single aerial sightseeing format to a compound industrial form covering immersive experience, ecological health preservation, research and study education, and cross-regional linkage. Subsequent research can further explore the integrated application mode of intelligent technology in low-altitude cultural tourism, and deeply excavate the mechanism of ecological coordination and cross-regional collaborative development, so as to provide theoretical support and practical paradigms for the high-quality transformation of cultural tourism in similar coastal cities across China.

Acknowledgements

This paper is supported by the Zhanjiang Philosophy and Social Science Planning Project (No. ZJ2SYB35): Research on the Mechanism and Path of Value Network Reconstruction of Zhanjiang's Urban Recreational Belt Driven by the Low-Altitude Economy.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

Chen, Y. (2026). Logic, Challenges and Suggestions of Low-Altitude Economy Empowering Intangible Cultural Heritage Tourism in Ethnic Areas. *Journal of Yunnan Open University, 28,* 116-121. (In Chinese)

Cheng, M. Y., Feng, M. T., Wang, S. B., & Cheng, Z. Z. (2026). Coupling Mechanism and Evolution Path of Low-Altitude Economy and Marine Tourism from the Perspective of Airspace Resources: A Case Study of the Shandong Peninsula. *Western Finance & Accounting, No. 3,* 73-76. (In Chinese)

Dang, N., Dai, X., Ding, C. B., & Wu, B. H. (2025). The Healing Effect of Suburban Recreational Belt on Tourists' Perceived Health Benefits. *Tourism Tribune, 40,* 45-61. (In Chi-

nese)

Fan, Y. J., Lu, K., & Zhang, Y. (2025). Learning from Quasi-Space Resource Management Experience to Accelerate the Establishment of Low-Altitude Airspace Ownership System. *Macroeconomic Management, No. 12,* 14-20. (In Chinese)

Guo, L. F., & Wang, W. (2008). Growth Model and Cultivation Path of Suburban Recreational Belt: From the Perspective of Experience Economy. *Tourism Tribune, No. 2,* 55-59. (In Chinese)

Hou, G. Y., Yan, F. C., & Zhao, N. (2025). Collaborative Innovation of Low-Altitude Economy Boosting the Integrated Development of Cultural and Tourism Industry. *Science and Management, 45,* 26-31. (In Chinese)

Hu, W. X., Mu, D., Li, Z., Guo, Y. Y., & Chen, X. M. (2025). Key Technical Issues and Innovative Strategies for Low-Altitude Economy Development. *Acta Aeronautica et Astronautica Sinica, 46,* 531-539. (In Chinese)

Li, S. J. (2024). Practical Paths of Empowering Low-Altitude Economic Development of Hainan Free Trade Port with New Quality Productive Forces. *People's Tribune—Academic Frontier, No. 15,* 76-83. (In Chinese)

Liu, G., & Su, L. (2024). Feasibility Analysis of Low-Altitude Economy Industry Development in Zhanjiang City. *Business Culture, No. 19,* 140-142. (In Chinese)

Liu, Y. Y., Yang, D. L., & Dai, Y. (2025). Concept Connotation, Development Characteristics and Promotion Strategies of Low-Altitude Economy. *Journal of Technical Economics, 44,* 29-37. (In Chinese)

Liu, Y. Y., Yang, D. L., & Ren, Z. P. (2026). Discussion on the Integrated Development Idea of "Four Chains" in Low-Altitude Economy. *Science and Technology Management Research, 46,* 21-27. (In Chinese)

Long, Q. C., Sun, G. C., Li, Y. X., & Li, H. (2026). Research on Innovative Formats of "Low Altitude + Cultural Tourism" from the Perspective of Integrated Development: A Case Study of Nanchong City. *Journal of Hebei Institute of Tourism Vocational College, 31,* 47-52. (In Chinese)

Qi, H. N., & Sun, F. (2025). A Brief Discussion on Low-Altitude Economy Empowering High-Quality Development of Cultural Tourism Industry. *Industrial Innovation Research, No. 14,* 60-62. (In Chinese)

Xiao, L. B., Zhang, H. T., & Zhang, Z. F. (2026). New Quality Productive Forces Empowering the Resilience of Low-Altitude Tourism Industrial Chain: Driving Logic, Practical Constraints and Practical Paths. *Journal of Guilin University of Aerospace Technology, 31,* 105-114. (In Chinese)