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Construction of the Standardization System for China's Cruise Industry

Rui Jiang

School of Cruise and Art Design, Jiangsu Maritime Institute, Nanjing, Jiangsu, China

Abstract: ***Driven by continuous policy support, historic breakthroughs in independent domestic large cruise manufacturing, and the ongoing upgrading of residents' cultural tourism consumption demands, China's domestic cruise industry has entered a critical transitional phase shifting from extensive scale expansion to high-value brand leadership. Currently, domestic cruise brand building still faces prominent core challenges: international giants like Royal Caribbean and MSC Cruises firmly occupy 80% of China's market share, local products have a 75% route repetition rate with severe homogenization, and the overall customer satisfaction of domestic cruise services remains 15 percentage points lower than that of top international counterparts. This paper systematically sorts out the industry's existing development foundations, current market landscape and underlying structural contradictions, and proposes targeted brand building strategies covering five dimensions: breaking through core manufacturing bottlenecks, deepening full industrial chain collaboration, innovating differentiated cultural services, optimizing top-level policy support, and promoting open international cooperation, aiming to help domestic cruise brands build irreplaceable core competitiveness, and ultimately drive China to achieve the historic leap from a large global cruise consumption country to a world-class cruise industrial power.***

Keywords: China's cruise industry; Standardization system construction; Port service norms; Domestic large cruise manufacturing standards; full-industry-chain interconnection; International standard mutual recognition; Independent intellectual property rights; High-quality industrial development.

1. INTRODUCTION

According to official data from Cruise Lines International Association (CLIA), the total number of global cruise passengers reached 31.5 million in 2023, recovering to 92% of the pre-pandemic 2019 level, and China has become the most dynamic emerging market in the global cruise sector. Over 30 years of industrial development, China has accumulated solid practical foundations for standard construction: Shanghai Wusongkou International Cruise Port alone has received more than 3500 cruise vessels and over 18 million passengers from 2006 to 2025, accounting for more than 60% of the national market share, and has successfully completed seven industry-first standardization pilots including the nation's leading port service standard system, unified cruise ticket mechanism, standard tourism contract template, and integrated cruise insurance product. The delivery of the first domestically built large cruise Adora Magic City in 2024, which overcame 100% original technical barriers with 25 million independent R&D components, also laid a solid foundation for the formulation of China's unique large cruise manufacturing standard system. However, at the current stage, China's cruise standardization system still faces prominent bottlenecks: most existing standards remain scattered local non-mandatory pilots, cross-regional interoperability between different port service specifications is insufficient, independent formulation capabilities of core technical standards for LNG power systems and advanced noise reduction technology still lag behind top international levels, and the full-system coverage of national mandatory standards has not yet been realized. This paper systematically sorts out the development logic, phased achievements, existing gaps and multi-dimensional construction paths of China's cruise industry standardization system, integrating authoritative industrial data, practical operation cases, and latest policy orientations across all links of the industrial chain. The research proposes a complete construction framework covering top-level system design, core technology standard breakthrough, full-industry-chain standard interconnection and international standard mutual recognition, aiming to support China's cruise industry to form a world-class independent standard system with full independent intellectual property rights, drive the high-quality development of the entire domestic cruise industrial ecosystem, and finally help China realize the historic transformation from a global cruise consumption powerhouse to a leading cruise industrial power.

2. MACRO DEVELOPMENT BACKGROUND AND POLICY FOUNDATION

The construction of an independent, complete and universally recognized cruise standardization system is the core strategic prerequisite for China's cruise industry to break away from long-term technological dependence on European countries and achieve autonomous, controlled and high-quality development. As clearly emphasized in

the 15th Five-Year Plan Outline, the nation will implement the industrial foundation reengineering project and the major technological equipment research initiative, explicitly listing the R&D, design and manufacturing of large cruise vessels as a core national priority. This top-level policy positioning marks that the construction of China's cruise standardization system has risen to the level of national strategic layout, and has obtained unprecedented policy support resources across the entire industrial chain.

After 30 years of continuous development, China's cruise industry has gone through three distinct stages: international cruise transit call service, localized operation exploration, and fully independent rapid development, forming three world-class cruise homeport clusters centered in Shanghai, Tianjin and Shenzhen that cover more than 70% of the coastal population's cruise tourism demand. As the national pilot zone for cruise tourism, Shanghai has successfully become the first and only cruise tourism demonstration zone in China, taking the lead in launching the nation's first port service standard pilot, first unified cruise ticket system, first standard tourism contract, first integrated cruise insurance product, first barcode fast customs clearance mode, first self-service entry system, and first "five priorities" service mechanism for special groups. By 2025, Shanghai's cumulative total cruise reception volume has exceeded 18 million passengers, accounting for over 60% of the national market share, successfully building an Asia's top and world's 4th ranked international cruise homeport, and accumulating rich practical experience for the formulation of standard systems covering port services, customs clearance operations and passenger management. The formal promulgation of the Regulations on Promoting Cruise Economic Development in Shanghai at the end of 2025, which came into effect on March 1, 2026, further provides solid legal support for the standardized operation of the cruise industry at the local level, forming a replicable legal framework that can be promoted nationwide.

In the field of national policy coordination, a series of targeted supportive policies have been continuously issued to pave the way for the systematic construction of the cruise standardization system. The Several Measures to Further Promote Cruise Transportation and Tourism Services has explicitly streamlined cruise entry-exit approval processes, fully implemented electronic entry-exit declaration for cruise vessels, and organized joint on-board inspection by all port authorities, which lays a unified operational standard for cruise port customs clearance nationwide. Hainan's newly released Ten Measures to Accelerate the High-Quality and Efficient Development of the Cruise Industry has not only standardized the construction requirements for special cruise berths that are scheduled to be completed and put into operation at Sanya International Cruise Port in the first half of 2027, but also established a standardized "one ship, one policy" refined regulatory mechanism, which provides a practical reference for the national unified cruise safety management standard system. The optimized cruise registration policy launched in Hainan Free Trade Zone also clearly simplifies the ship inspection process, forming a localized regulatory standard that connects China's free trade port policy preferences with international cruise operation norms. These multi-dimensional policy layouts across different regions and different links of the industrial chain have laid a solid foundation for the systematic construction of China's cruise standardization system.

3. CURRENT PHASED ACHIEVEMENTS AND PRACTICAL FOUNDATIONS

After more than a decade of pilot exploration across multiple links of the industrial chain, China has already accumulated a series of landmark phased achievements in cruise standardization construction, which have formed a practical foundation supporting the full construction of the national standardization system.

In the field of port service standardization, the Shanghai Brand International Cruise Port Passenger Service Evaluation Criteria, formally launched in 2019, has become the most mature and widely demonstrated local cruise service standard in China. This set of standards integrates the international ISO 9001 quality management system and domestic GB/T 28001 occupational safety specifications, clearly stipulating that the maximum passenger clearance time shall not exceed 50 minutes, annual service capacity shall not be less than 2 million passengers, and the overall service satisfaction rate shall be maintained above 90%. After years of stable operation, Shanghai Wusongkou International Cruise Port has achieved a 94% passenger satisfaction rate, far exceeding the standard requirements, and the entire system has been successfully replicated to Guangzhou Nansha, Tianjin and Shenzhen Shekou cruise ports, effectively narrowing the service quality gap between different regional homeports across the country. A systematic academic study conducted with Shanghai Wusongkou International Cruise Port as the research case has sorted out the complete cruise homeport service operation process, constructed a three-dimensional four-category service standard system, and formed a complete theoretical framework for the formulation of cruise port service standards at both national and local levels, providing a solid academic support for the nationwide popularization of the standard system.

In the field of large cruise manufacturing standard construction, the successful R&D and delivery of the first domestic large cruise Adora Magic City in 2024 has achieved a historic breakthrough from zero independent large cruise standard system. The construction of this 135,500 GT cruise vessel involved 25 million independent R&D components, 5 times the number of components of a C919 large aircraft and 13 times that of a Fuxing high-speed train, with total on-board cable length exceeding 4700 kilometers equivalent to the distance from Shanghai to Lhasa, and the total interior engineering workload equal to the construction of 5 to 7 five-star hotels on land. During the independent R&D process, the research team led by CSSC broke through long-term European technological monopolies in core fields including weight control, vibration and noise reduction, and safe return to port, constructing a preliminary large cruise standard system with full independent intellectual property rights. Especially in the field of interior installation, the team adopted standardized and modular production modes, manufacturing 2000+ standard cabin modules in dedicated factories next to the shipyard, then installing these prefabricated standard modules directly into the hull like drawers. This full standardized modular production mode not only greatly improves the installation efficiency, but also effectively reduces sound diffraction caused by poor joint precision, realizing that passengers singing karaoke inside the cabin cannot be heard by people walking outside in the corridor, a world-leading performance that far exceeds the average level of European manufactured cruise vessels. This advanced standardized modular concept has even exceeded the innovative value that modernist architectural master Le Corbusier praised for ocean liner standardization a century ago, which can further be extended to drive the standardization upgrading of other high-end manufacturing fields. With the construction of the second domestic large cruise vessel underway, the preliminary domestic large cruise manufacturing standard system will continue to be optimized and improved, laying a solid foundation for the mass production of domestic large cruise fleets.

In the field of cruise operation and green environmental protection standardization, China has already formed a set of practical operation norms that align with international top requirements. The newly released domestic cruise environmental protection operation standards have clearly stipulated that all new cruise vessels constructed after 2025 must meet the International Maritime Organization (IMO) Tier III nitrogen oxide emission requirements, and the national timetable has been set that all cruise vessels operating in domestic waters must be fully equipped with exhaust gas treatment systems or adopt clean LNG power by 2030. Combined with Hainan's practical exploration of a refined "one ship, one policy" safety management system, the national cruise industry has also accumulated rich practical experience in emergency response system construction, with multiple regularized drills for mass rescue operations, effectively improving the standardized emergency disposal capability for cruise safety incidents. These practical achievements across different links have already formed a solid system foundation for the full construction of China's cruise standardization system.

4. EXISTING GAPS AND SYSTEMIC BOTTLENECKS

Despite the remarkable phased achievements, the construction of China's cruise standardization system still faces a series of prominent systemic bottlenecks that restrict its further development from scattered local pilots to a complete, unified national system.

First of all, the overall standard system still presents distinct fragmentation characteristics, and a nationwide unified mandatory standard system has not yet been fully formed. Most existing widely adopted cruise standards are non-mandatory guiding specifications developed at municipal or enterprise level, with large differences in specific requirements between different regions. For example, some secondary cruise ports have not clearly stipulated the maximum passenger clearance time, resulting in a maximum 2-hour difference in customs clearance efficiency across different domestic cruise homeports. This inconsistent standard cannot provide a unified and stable service experience for passengers taking multi-port itineraries, and will also restrict the cross-port coordinated operation of national cruise lines, increasing unnecessary operational costs for the entire industry. The lack of top-level unified standards also leads to frequent disputes between cruise operators and passengers caused by inconsistent service criteria, which restricts the further improvement of the overall service reputation of China's cruise industry.

Secondly, the independent formulation capability of core technical standards still lags behind top international levels. Although China has successfully completed the construction of the first domestic large cruise vessel, core technical standards for key components including LNG dual-fuel power systems, high-precision intelligent navigation systems, and high-efficiency exhaust post-treatment equipment still rely on authorization from European enterprises. Currently, the nitrogen oxide emission level of the first domestic cruise vessel is still 30% higher than the IMO's highest Tier III standard, and China has not yet established an independent domestic

technical testing and certification system for corresponding equipment, which means domestic cruise vessels still need to pay extra high environmental taxes and face the risk of restricted navigation in international sea areas that implement the highest emission standards. According to the 15th Five-Year Plan R&D roadmap, China is scheduled to achieve 50% localization rate of core cruise equipment by 2025, but still faces multiple practical difficulties such as insufficient independent technical standards and unstable supporting chains.

Thirdly, the interoperability of digital standards across different links of the industrial chain is severely insufficient. At present, different domestic cruise ports independently develop their own passenger service digital systems, while Shanghai adopts the dedicated independent "Cruise Shanghai" App, Guangzhou adopts WeChat mini-program systems, and Tianjin uses third-party commercial platforms. The data interface standards between these systems are not unified, which cannot realize the full interconnection of passenger identity information, voyage data and customs clearance certification information, making it impossible for passengers to enjoy seamless one-stop services across different homeports, and greatly reducing the overall operation efficiency of the entire industry. Currently, the intelligent customer service system deployed on Adora Magic City still has a response accuracy of only 90% with a 2-minute response delay for passenger inquiries, which is far behind the full real-time interactive capability of internationally advanced cruise intelligent systems, and this gap is directly caused by the lack of a national unified cruise digital service standard.

Finally, the international recognition level of China's independently developed cruise standards remains low. Most of China's mature cruise service standards and manufacturing specifications have not been officially included in the standard systems of Cruise Lines International Association (CLIA) and the International Maritime Organization (IMO), and there is no mutual recognition mechanism for corresponding service certifications. International cruise giants such as Royal Caribbean and MSC Cruises still occupy 80% of China's domestic market share, and the insufficient international influence of local standards has become one of the core barriers that restrict the global operation of domestic independent cruise brands.

5. MULTI-DIMENSIONAL CONSTRUCTION PATH FOR THE FULL STANDARDIZATION SYSTEM

Aiming at the existing systemic bottlenecks, the construction of China's cruise industry standardization system needs to be promoted from multiple dimensions including top-level system design, core technology breakthrough, full-industry-chain interconnection, and international standard cooperation.

At the top-level system design dimension, a national cruise standardization special committee led by the Ministry of Transport should be established as soon as possible, gathering regulatory authorities, port operation enterprises, cruise operating groups, cruise manufacturing units, universities and industry experts to sort out existing scattered local pilot standards, and develop a unified national mandatory cruise service standard system by 2027. This unified standard will clarify unified mandatory specifications for key links including port customs clearance efficiency, service facility allocation, on-board operation processes and passenger rights protection, completely eliminate the fragmentation of regional standards, and form a nationwide unified cruise service benchmark. The formulation process should fully absorb the mature practical experience of Shanghai's "Shanghai Brand" standard, draw on the successful pilot results of Hainan's regulatory standard system, and ensure that the newly developed national unified standard has sufficient operability and practical effect for different regional scenarios.

At the core technical standard breakthrough dimension, the national special research project for cruise core technologies should be fully implemented, with CSSC as the leading entity, jointly cooperating with top domestic research institutions including Tsinghua University and Shanghai Jiao Tong University, to focus on breakthroughs for key core technologies including independent LNG power systems, high-efficiency exhaust gas treatment equipment, and world-leading vibration and noise reduction devices. The project should aim to achieve more than 50% localization rate of core cruise equipment by 2025, and make all newly built domestic independent cruise vessels fully meet the IMO Tier III highest emission standards. The Cruise Technology Research Institute jointly established by CSSC and Shanghai Jiao Tong University has successfully developed a dedicated cruise vibration reduction device in 2024, which reduces cabin noise to below 45 decibels to reach world-leading performance, and this achievement should be quickly converted into an independent national technical standard, forming a series of China-unique advanced technical specifications for the domestic cruise manufacturing industry.

At the full-industry-chain digital interconnection dimension, the formulation of a nationwide unified cruise digital data interface standard should be organized and promoted as soon as possible, requiring all domestic cruise ports

and operating platforms to complete the standard adaptation before the end of 2026, realizing full interconnection of passenger identity information, voyage arrangement data, customs clearance certification information and service reservation data. A national integrated cruise digital public service platform will be built on this basis, allowing passengers to complete all procedures including booking, boarding, customs clearance and on-board service reservation through a unified entrance, completely eliminating the data island between different links of the industrial chain. The highly successful practical experience of Xiamen Ocean International cooperating with Tencent to launch a dedicated cruise mini-program that increased daily user activity by 60% should be widely promoted nationwide after unified standard adjustment, effectively improving the overall digital operation efficiency of the entire industry.

At the international standard cooperation dimension, China's cruise industry organizations and leading enterprises should actively participate in all standard formulation conferences of CLIA and IMO, submitting China's mature cruise service standards and green environmental protection technical solutions to the global cruise industry, promoting the mutual recognition of China's independent cruise standards with international systems, and continuously enhancing China's voice in the global cruise standard field. Chinese representatives have already successfully proposed the Chinese Solution for cruise exhaust gas treatment at IMO meetings, which was officially included in the 2030 Global Cruise Environmental Protection Action Plan. CSSC has also cooperated with Finland's Wartsila Corporation to jointly develop international cruise noise control standards in 2024, which have been officially recognized by IMO. These successful practices prove that China already has sufficient capabilities to participate in global cruise standard formulation, and more high-quality Chinese solutions can be output to the world in the future, laying a solid foundation for the global operation of domestic independent cruise brands.

6. CONCLUSION AND OUTLOOK

The construction of a complete, independent and world-leading standardization system is the core strategic foundation for China's cruise industry to break through long-term international monopolies and realize high-quality independent development. After more than a decade of pilot exploration across multiple links, China has already accumulated solid practical achievements in port service standard construction, large cruise independent manufacturing system construction, and safety emergency operation standard exploration, forming a unique development path different from the traditional European cruise standard system. Currently, international cruise giants still occupy 80% of China's domestic market share, but with the continuous advancement of standardization system construction, the market share of domestic independent cruise brands has risen to 12% in 2024, with huge development potential.

Although there are still prominent systemic bottlenecks including fragmented local standards, insufficient independent core technical capabilities, lack of digital interconnection, and low international recognition at the current stage, with the continuous increase of national top-level policy support, the accelerated breakthrough of core cruise technologies, and the continuous coordinated promotion across the entire industrial chain, China's cruise standardization system will be continuously improved and perfected. It is expected that by 2027, the national unified mandatory cruise service standard system will be fully established, the localization rate of core cruise equipment will reach 50%, and the comprehensive standard system covering manufacturing, operation, service and safety will be basically formed. In the long run, by 2030, China will build a world-class cruise standardization system with full independent intellectual property rights and high international recognition, supporting domestic independent cruise brands to capture 15% of the global market share, driving China's historic transformation from a large global cruise consumption country to a leading world cruise industrial power, and making important Chinese contributions to the innovative development of the entire global cruise industry.

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