

# Research on the Development of International Functions in the Guangdong-Hong Kong-Macao Greater Bay Area

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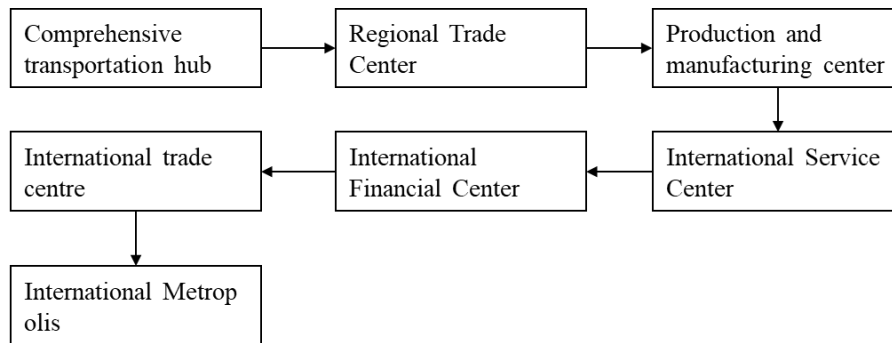
**Abstract.** International function refers to the system of urban functionalities that transcend national boundaries and exert a distributive, radiating, and influential role globally in the fields of economics, hubs, culture, communication, and services. The Guangdong-Hong Kong-Macao Greater Bay Area, one of the most open and economically vibrant regions in China, holds a significant strategic position in the national development framework. The development of international functions in the Greater Bay Area bears considerable strategic value to the nation's advancement. This research analyzes the development of the international functions in the Greater Bay Area from the perspectives of international economy, international hubs, international communication and culture, and international services. It explores new ideas for the development and layout of international functions under the backdrop of international cooperation and exchange, contributing to the refinement of the theoretical system and development models of international functions. Moreover, it offers significant reference value for the construction of international bay urban areas and world-class urban clusters.

**Keywords:** International functions, Development strategies, Guangdong-Hong Kong-Macao Greater Bay Area.

## 1. Evolutionary Characteristics of International Functions

With the deepening of global economic integration and increasing urban exchanges internationally, the flow of international developmental elements has been accelerated, significantly promoting the amalgamation and advancement of culture, transportation, and information technology. The depth and breadth of international cooperation are gradually expanding, with elements such as economy, trade, technology, information, and talent accelerating their flow in the global urban development network [1]. In this process, the space of international functions serves as the fundamental spatial carrier supporting the development of international metropolises and urban clusters [2-3]. The development of international metropolises and their functions is a dynamic process. Initially, the development of international functions started with the construction of transportation hubs, gradually evolving from solely maritime or terrestrial transport to a comprehensive three-dimensional external transportation system encompassing sea, land, and air. In the era of robust transportation systems, the enhancement of a city's comprehensive transportation level inevitably propels the development of foreign trade, facilitating international goods to transit and be distributed here, becoming international logistics and trade centers [4]. Furthermore, with the deepening of economic globalization and international cooperation, urban clusters have gradually emerged as new spatial developmental forms in the process of urban internationalization. Cities, leveraging the vast hinterland support and regional economic coordination, form economic communities. The radiating and clustering effects generated within urban clusters provide economically robust cities with a solid development foundation and more sustainable developmental impetus, enhancing the concentration of regional development resources, the primacy of cities, and the international competitiveness and influence of cities. This uplifts their functional status in regional and even global social divisions of labor, propelling their development into highly influential regional economic centers, manufacturing centers, and trade logistics distribution centers. Furthermore, rapid development in international trade of cities spurs financial innovation and the swift expansion of financial services, accelerating the flow of

international capital [5-6]. This forms the most direct functionality of international metropolises—the gradual establishment of international financial centers. Entering the 21st century, the development of international metropolises has gradually shifted from industry-focused to service-oriented, transitioning from emphasizing economic development to a comprehensive, coordinated advancement of economy and services, enhancing the level of international services in areas such as living, commuting, socializing, trading, network information, and human settlement (Figure 1).

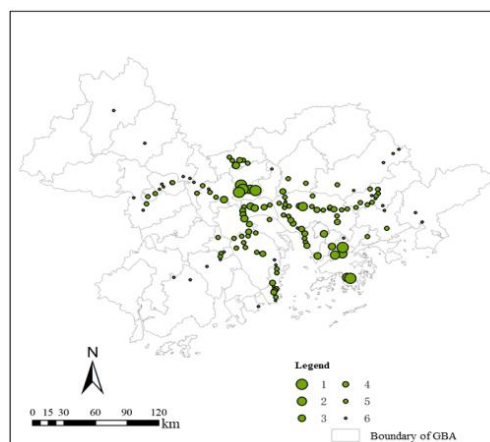


**Figure 1.** Evolution of International Functions

## 2. Current Status of the Development of International Functions in the Guangdong-Hong Kong-Macao Greater Bay Area

### 2.1. International Hub Functions

As a crucial economic engine and innovation center in China, the Guangdong-Hong Kong-Macao Greater Bay Area is rapidly evolving into an international hub. Presently, the urban and regional transportation construction level of the Greater Bay Area is at the forefront of China, gradually forming a global international hub pattern with Guangzhou, Shenzhen, Hong Kong, and Macao as the core hub nodes and the other seven cities as auxiliary (Figure 2). As of the end of 2021, the Greater Bay Area is home to seven airports, with the passenger throughput and cargo and mail throughput of the airports in the Greater Bay Area reaching 223 million people and 8.01 million tons respectively in 2019, ranking first among China's four major world-class airport clusters. Overall, the Greater Bay Area, with its unique advantages and diverse development models, is continuously enhancing its international hub functions, injecting new vitality into the economic development of China and the world.



**Figure 2.** Potential Development of Traffic Nodes in the Guangdong-Hong Kong-Macao Greater Bay Area

## 2.2. Economic Functions

The Guangdong-Hong Kong-Macao Greater Bay Area, as an important economic core zone in China and globally, is gradually developing into an internationally competitive economic region with its unique locational advantages and strong industrial agglomeration effects. This paper employs ArcGIS 10.2 to conduct spatial analysis on the economic data of the Greater Bay Area for 2010 and 2020, obtaining economic spatial distribution maps for these years (Figure 3). From 2010 to 2020, the high-value areas of economic density in the Greater Bay Area increased, displaying characteristics of agglomerated spatial distribution. High-density areas are mainly distributed in Guangzhou, Foshan, Shenzhen, Dongguan, Hong Kong, Zhongshan, etc. The core area is gradually transitioning from a "core-periphery" to regional economic integration, with increasing economic coordination and integration among cities. The spatial changes in economic density in peripheral areas are not significant. The Greater Bay Area boasts industries leading globally, such as finance, technological innovation, and advanced manufacturing. Hong Kong, as an international financial center, and Macao, as a world-class tourism and entertainment center, combined with the manufacturing and technological innovation in Guangdong Province, form a highly complementary and coordinated industrial layout. The international economic function of the Greater Bay Area is gradually enhancing, providing new growth points and sources of momentum for global economic development.

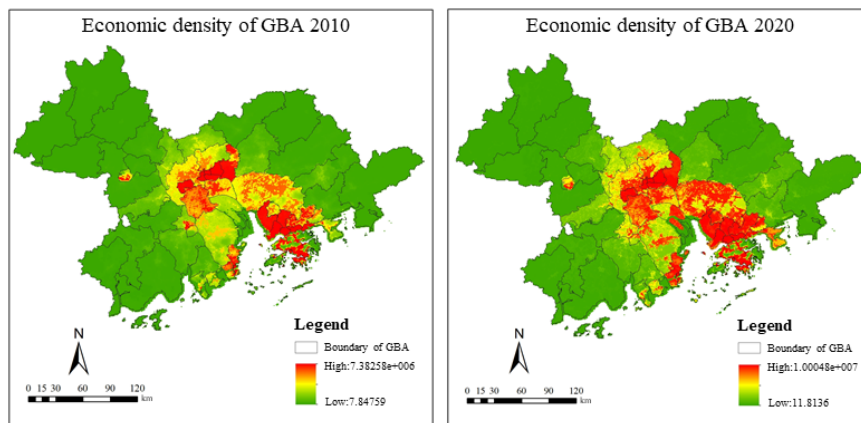
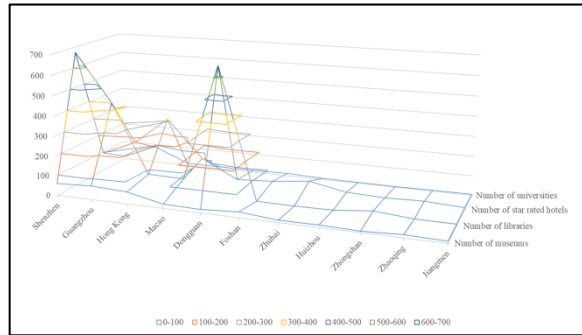


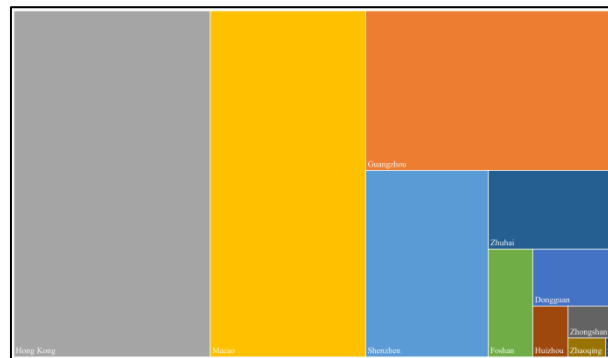
Figure 3. Economic Spatial Distribution in the Guangdong-Hong Kong-Macao Greater Bay Area

## 2.3. International Cultural, Communication, and Service Functions

The Guangdong-Hong Kong-Macao Greater Bay Area has unique advantages and vitality in the development of international cultural and service functions. Overall, Shenzhen, Guangzhou, Hong Kong, Dongguan, and Macao have better levels of international cultural and service function release, while Foshan, Zhuhai, Huizhou, Zhongshan, Zhaoqing, and Jiangmen have lower levels of international cultural and service function development. In terms of international communication functions, the development level of international communication functions in the Greater Bay Area is in the order of Hong Kong > Macao > Guangzhou > Shenzhen > Zhuhai > Foshan > Dongguan > Huizhou > Zhongshan > Zhaoqing > Jiangmen, with the number of cross-border tourists in Hong Kong and Macao roughly equal to the sum of the nine cities in the Pearl River Delta. With the support and investment of the government, the international cultural function of the Greater Bay Area is continuously improving, providing a broad platform and opportunities for promoting cultural diversity, transnational exchanges and cooperation, and cultural innovation. Driven by policy support and regional cooperation, the international service function of the Greater Bay Area is continuously enhancing, providing diversified and high-quality services to global customers, promoting in-depth development of international exchanges and cooperation, and accelerating international interactions and cooperative international communication functions, building a broader platform for regional and global mutually beneficial cooperation and development.



**Figure 4.** International Cultural and Service Function Indicators of the Guangdong-Hong Kong-Macao Greater Bay Area



**Figure 5.** Cross-border Tourism Numbers in the Guangdong-Hong Kong-Macao Greater Bay Area

### 3. Development Strategies for International Functions in the Guangdong-Hong Kong-Macao Greater Bay Area

#### 3.1. Accelerating the Construction of International Hub Cities

Modern urban collaborative development not only emphasizes the balanced, synchronized, and coordinated development of internal functional elements within cities but also stresses the coordinated development of functional elements within the scope of cities and regions. The aggregative effect of regional collaborative development is the best external support for the continuous increase in urban influence. The future development of the Greater Bay Area should focus on addressing the interconnectivity of transportation and information infrastructure in core cities. It aims to explore systems for organizing external transportation across the hinterland, regional transportation radiating to the periphery, internal urban transportation, and the connections between regional and urban transportation. The model of "airport + high-speed rail + subway + bus" weaves a comprehensive transportation hub system, enabling these hub stations to implement air transport, high-speed rail, subway, and bus services at the same location, significantly enhancing transportation efficiency [7]. This establishes a multifaceted, integrated, multi-scale, networked, and hierarchical development and connection model.

#### 3.2. Establishing International Economic and Communication Platforms

Optimizing the configuration of outward-looking economic elements, comprehensively promoting the integration of outward-looking service functional areas and facilities, and fostering the construction of outward-looking economic platforms such as free trade zones, outward-looking economic parks, and cultural exchange bases serving the Silk Road Economic Belt. The aim is to transform the Greater Bay Area into a "new economic height, new external platform, and new development base" for the Silk Road Economic Belt [8]. Advancing the adaptation of cities' existing functions to the demands of outward-oriented development, enhancing the capability of cities' existing functions to support outward-oriented development, establishing outward-oriented cultural

concepts and values, constructing mechanisms and systems to promote outward-oriented development of cities, propelling outward-oriented innovative development of urban economic elements, industries, and enterprises, creating a favorable "inward and outward" urban functional support platform and development environment, and advancing the construction of aggregation platforms for high-end talents and knowledge, transforming the Greater Bay Area into a hub for the convergence of internal and external socioeconomic development elements.

### **3.3. Committing to Optimizing the International Service Functions of the Greater Bay Area**

Accelerating the development of international comprehensive service functions is a crucial task in constructing an international metropolis in the Greater Bay Area. International services encompass information services, living services, educational and medical services, language services, and travel services. Innovating foreign information service methods, enriching the content of foreign services, enhancing the international information service environment of the Greater Bay Area, strengthening the sense of belonging among foreigners, and elevating the level of international information services in the Greater Bay Area. Surrounding spaces where foreign populations are concentrated (such as Sino-foreign cooperative industrial parks, international financial and business districts, international cooperation and exchange colleges, embassy districts, etc.), equipping international hospitals, international schools, sports facilities, multi-language traffic signage systems, and multi-language information inquiry platforms, and other supporting facilities. Developing high-level foreign medical services, high-quality infrastructure travel services, high-quality international community residential services, improving supporting services, optimizing the foreign service environment quality of the Greater Bay Area cities, and enhancing the overall service level.

### **3.4. Enhancing the International Humanistic Environment Quality of the Greater Bay Area**

The international human habitation environment consists of three parts: the humanistic environment, living environment, and working environment. The humanistic environment focuses on improving the natural landscape of the city and promoting the integration of nature and culture, carrying out technical rectification of aquatic ecosystems, strengthening management, ensuring the cleanliness of river water, enhancing ecological governance along river basins, constructing riverside green belts, riverside scenic areas, integrating walking activity spaces, and creating urban green spaces. As people's living standards improve, the integration and development of the living environment, life quality, and urban landscape are forming open urban ecological cultural leisure spaces that integrate culture, landscape, leisure, folklore, and art, becoming a material manifestation of enhancing urban taste, brand, quality, and the spiritual pursuits of citizens.

## **4. Conclusion**

With the continuous enhancement of urban internationalization and the development of the global knowledge-based economy, the functionality and structure of urban internationalization will continuously adjust and optimize. Urban international functions will gradually transition from basic services to specialized services, and from production-oriented to service-oriented, in response to the development needs of urban internationalization. The future elements constituting international functions will increasingly tend towards the development and optimization of modern functional elements such as finance, technology, innovation, and knowledge-intensive types. The Guangdong-Hong Kong-Macao Greater Bay Area, as an important international region, needs to formulate its development strategies in line with the advantages and characteristics of each city, aiming to enhance international functions, and deepen regional cooperation and coordinated development. Strengthening cooperation among cities such as Guangzhou, Shenzhen, Zhuhai, Hong Kong, and Macao, forming a good mechanism for coordinated development, achieving resource complementarity and mutual advantage enhancement, and jointly promoting the international development of the Greater Bay Area.

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