Asia Pacific Science Press

Critical Humanistic Social Theory
ISSN(O):3005-9291
ISSN(P):3005-9283
Vol. 2 No.4 (2025)

A Differentiated Approach to Cross-border Data Flows in the Hainan Free Trade Port: A Comparative Perspective with the Guangdong-Hong Kong-Macao Greater Bay Area

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Abstract: In the process of constructing a data governance system with Chinese characteristics for free trade ports, Hainan faces the dual challenge of balancing national data security with the highest level of openness. Unlike the Guangdong-Hong Kong-Macao Greater Bay Area (GBA)—which operates under the "one country, two systems, three legal jurisdictions" framework and centers its cross-border data strategy on "data crossing the river" (i.e., data flows among Guangdong, Hong Kong, and Macao)—Hainan's island-wide customs closure and the legislative authorization granted by the Hainan Free Trade Port Law of the People's Republic of China enable it to pioneer a more holistic and flexible regulatory model characterized by a "data customs" regime. Through comparative analysis, this paper examines the fundamental differences between Hainan and the GBA in institutional foundations, regulatory units, and core policy objectives. It argues for the legal legitimacy and practical feasibility of a differentiated path for Hainan—one grounded in a robust data classification and grading system, centered on a "certified data processor" regime, and piloted through a "cross-border data regulatory sandbox." This approach aims to provide a systematic legal blueprint for Hainan to develop a secure, free, and efficient "Free Trade Port Model" for cross-border data flows.

Keywords: Hainan Free Trade Port; Cross-Border Data Flows; Guangdong-Hong Kong-Macao Greater Bay Area; Data Customs

Published: Dec 31, 2025

DOI: https://doi.org/10.62177/chst.v2i4.902

1.Problem Statement: Why Does Hainan Need a Distinct Path from the Greater Bay Area?

The promulgation of the Hainan Free Trade Port Law (hereinafter the "FTZ Law") marks a new phase of "integrated institutional innovation" in Hainan's data governance. Its provisions authorizing secure yet liberalized data flows offer a legal foundation for Hainan to transcend the existing national data export control framework[1]. Meanwhile, the Guangdong-Hong Kong-Macao Greater Bay Area (hereinafter "the GBA"), another national strategic initiative, is also actively exploring its own "GBA solution" for cross-border data flows[2]. Although both regions represent China's frontier of openness, their institutional logics and implementation pathways necessarily diverge due to fundamentally different conditions.

Current domestic scholarship often discusses cross-border data initiatives across various pilot free trade zones and ports

within a single analytical framework, failing to recognize Hainan's unique institutional endowments and path dependencies compared to the GBA. Blindly emulating or simplistically analogizing the GBA's "data crossing the river" model—which focuses on data flows among Guangdong, Hong Kong, and Macao—may cause Hainan to overlook the systemic advantages conferred by its island-wide customs closure and miss critical opportunities for high-level regulatory stress-testing.

Thus, this paper's central proposition is to clarify Hainan's distinctive positioning and comparative advantages in cross-border data regulation through a systematic comparison with the GBA, and on that basis, construct a differentiated regulatory pathway aligned with its island-wide customs closure and capable of fully leveraging the legislative empowerment granted by the FTZ Law.

2.Divergent Models in Comparative Perspective: Fundamental Differences Between Hainan and the GBA

Three core dimensions distinguish Hainan from the GBA in cross-border data governance, necessitating distinct regulatory strategies.

2.1 Institutional Foundation: "Stress Testing" Within a Single Jurisdiction vs. "Rule Alignment" Across Multiple Jurisdictions

Hainan, as a unified customs territory and regulatory unit under a single legal system, can proactively design and implement systemic top-down reforms through local legislation authorized by the FTZ Law. This resembles a controlled laboratory environment for "stress testing"—exploring how a sovereign state can establish, within a designated zone, a data import/export regime that is more open than national standards while effectively managing risks.

In contrast, the GBA spans three distinct legal jurisdictions—Mainland China, Hong Kong, and Macao—each with its own data protection laws. The GBA's primary task is not to create a new unified legal regime but to achieve "alignment" and "cooperation" among existing rules. Initiatives such as cross-border credit reporting pilots and mutual recognition of digital identities aim to unblock data flows while respecting jurisdictional differences. Landmark instruments like the Implementation Guidelines for Standard Contracts on Cross-border Personal Information Flows between Mainland China and Macao/Hong Kong in the GBA exemplify this "point-to-point" approach to facilitating specific data transfers[3].

2.2 Regulatory Architecture: "Data Customs" Under "Frontline Liberalization" vs. "Categorized Management" Across Complex Borders

Upon full customs closure, Hainan will feature a clear "frontline" interface with overseas territories and a "second line" connecting it to the mainland. This spatial clarity enables the conceptualization of a "data customs" system at the frontline—akin to physical customs—where inbound and outbound data flows are classified, declared, inspected, and cleared based on risk levels. This represents a geographically anchored, holistic regulatory approach.

The GBA, however, lacks a unified border or centralized data checkpoint. Data flows occur in a decentralized, multi-node network. Regulation thus relies on scenario- and entity-based "categorized management," such as establishing sector-specific channels for finance, healthcare, or transportation, or granting special access to qualified enterprises. The emphasis is on "building channels," not "erecting customs."

2.3 Core Objectives: A Testing Ground for "Highest-Level Openness" vs. an Engine for "Regional Integration"

Hainan's ultimate goal is to serve the broader Free Trade Port agenda by attracting global high-end resources and fostering a competitive digital economy. Its regulatory design must be forward-looking and internationally benchmarked—daring to experiment with high-standard digital rules from agreements like DEPA and CPTPP.

By contrast, the GBA's primary objective is to enhance the seamless flow of people, goods, capital, and data within the region to deepen economic integration. Its regulatory innovations prioritize solving real-world business bottlenecks and promoting socio-economic convergence.

3.Constructing Hainan's Differentiated Pathway for Cross-border Data Flows

Building on these distinctions, Hainan should move beyond imitation and leverage its advantages as a single-jurisdiction,

fully enclosed free trade port to develop the following differentiated approach.

3.1 Foundational Pillar: Enact the Hainan Free Trade Port Data Classification and Grading Management Regulations

This is the prerequisite for all subsequent innovations. Within the framework of China's Data Security Law, Hainan should develop more granular, industry-tailored local standards:

Core data must strictly follow the national catalog and remain prohibited from export.

Important data should be precisely defined through a Hainan FTZ Important Data Identification Guideline, incorporating sector-specific considerations (e.g., aerospace, deep-sea exploration, tropical agriculture, duty-free retail) to avoid overbroad classifications.

General data should be further subdivided. A new subcategory—"FTZ General Data"—could include non-sensitive information such as international trade documents, logistics status updates, and publicly available commercial promotions, thereby enabling freer cross-border flows.

3.2 Core Mechanism: Implement a "Certified Data Processor" System

This institutional innovation shifts the regulatory focus from "controlling data" to "governing enterprises"—the heart of Hainan's differentiated model.

Under this system, enterprises registered in Hainan that establish robust data governance and compliance frameworks may apply for "Certified Data Processor" status. Once certified, they would enjoy streamlined procedures—such as exemption from mandatory security assessments or standard contractual requirements—when transferring "FTZ General Data" and limited volumes of personal information abroad within their approved business scope[4]. This approach enhances commercial efficiency while ensuring security through dynamic oversight and the threat of certification revocation. Compared to the GBA's project-based "whitelist" approach, this system is more scalable and institutionally coherent[5].

3.3 Experimental Platform: Establish a "Cross-border Data Regulatory Sandbox"

Leveraging the FTZ Law's explicit mandate for experimentation, Hainan should launch regulatory sandboxes in designated zones (e.g., Yazhou Bay Science and Technology City, Fuxingcheng Internet Information Industrial Park) or sectors (e.g., cross-border telemedicine, e-commerce). Participants in the sandbox could test more liberal data flow rules in real-world commercial contexts under temporary regulatory waivers or liability exemptions. These pilots would generate empirical evidence on the efficacy and risk profile of innovative rules, informing future island-wide legislation.

3.4 Enforcement Tool: Develop a "Data Customs" Smart Supervision Platform

In alignment with island-wide customs closure, Hainan should build a Hainan FTZ Cross-border Data Flow Management Platform as the technological backbone of its "data customs." This platform would support functions such as registration, submission of self-assessment reports, traffic monitoring, anomaly detection, and post-audit reviews. Crucially, it would not impose blanket pre-approvals but serve as a transparent, traceable infrastructure for ex-post supervision of certified entities and facilitation of low-risk data flows.

4.Conclusion

Due to fundamental differences in institutional foundations, regulatory architectures, and strategic objectives, Hainan and the GBA must pursue divergent paths in cross-border data governance. While the GBA excels in "rule alignment," Hainan's mission lies in "institutional innovation." Rather than following the GBA's lead, Hainan should fully harness its unique position as a unified legal jurisdiction under full customs closure. By envisioning a "data customs" system, piloting regulatory sandboxes, and pioneering a risk-based, enterprise-centered governance model, Hainan can forge a new paradigm for cross-border data flows that balances security with efficiency. The success of this "Hainan Path" will not only accelerate the Free Trade Port's high-quality development but also provide China with a vital "national testbed" for shaping global digital governance rules.

Funding

No

Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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