"Construction Requirements for Multi-Level Linked Command Platforms in Smart Cities"

Compilation Instructions

1. Work Summary

**(1) Source of the task**

To implement the "Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area," the "National Standardization Development Outline," and the relevant requirements of the "Action Plan for Implementing the National Standardization Development Outline," the Provincial Market Supervision Administration has vigorously promoted the construction of the "Bay Area Standards" system, incorporating this work into the "14th Five-Year Plan for Modernization of Market Regulation in Guangdong Province." The construction of smart cities is a strategic initiative to advance new urbanization, enhance urban governance, and develop the digital economy. President Xi Jinping has placed great emphasis on the development of smart cities, providing important instructions on multiple occasions. On October 9, 2016, during a collective study session of the Political Bureau, President Xi emphasized, "By promoting e-government and building new smart cities, and through data centralization and sharing, we will establish a nationally integrated national big data center, promote the integration of technology, business, and data, and achieve collaborative management and services across levels, regions, systems, departments, and businesses." On October 31, 2018, President Xi Jinping stated, "We should promote the construction of smart cities, encourage the deep application of artificial intelligence in the field of public safety, strengthen the use of AI in ecological areas, and utilize AI to improve the level of public services and social governance." On October 24, 2019, President Xi Jinping emphasized, "We should integrate blockchain technology services with the construction of new smart cities, explore the application and promotion in areas such as information infrastructure, smart transportation, and energy power, and enhance the intelligence and precision of urban management." On March 31, 2020, President Xi Jinping visited the Hangzhou City Brain Operation Command Center to observe the progress of the "Digital Hangzhou" project and remarked, "The transition from informatization to intelligence and then to wisdom is the inevitable path for building smart cities, with a broad and promising future." In 2022, the report of the 20th National Congress of the Communist Party of China stated, "Strengthen urban infrastructure construction to create livable, resilient, and smart cities." In December 2023, during his inspection in Shanghai, President Xi Jinping emphasized, "Adhere to a consistent blueprint in urban planning and implementation, and accelerate the digital transformation of cities."

On May 20, 2024, the National Development and Reform Commission, the National Data Administration, the Ministry of Finance, and the Ministry of Natural Resources jointly issued the "Guiding Opinions on Deepening Smart City Development and Promoting Comprehensive Digital Transformation of Cities" (NDRC Data [2024] No. 660). The document explicitly proposes to "build a unified planning, architecture, standards, and operation and maintenance for the intelligent hub of urban operations and governance, create a city-wide support platform that integrates online and offline services and coordinates service management, establish an open, compatible, universally empowering, and secure comprehensive foundational environment, promote the integrated deployment of digital resources such as algorithms and models, and explore the establishment of shared collaboration mechanisms for common components and modules." By leveraging the strengths and best practices of Shenzhen, Hong Kong, and Macao in the construction of smart cities, we aim to establish a shared and interconnected urban support platform standard. This initiative holds significant practical importance for the in-depth advancement of smart city development in the Guangdong-Hong Kong-Macao Greater Bay Area, especially under the strategic framework of the Greater Bay Area and the overarching goal of collaborative development. In alignment with the "Bay Area Standards" development plan, this project was proposed by Huawei Technologies Co., Ltd. and the Shenzhen Institute of Standardization Technology. It was jointly initiated in June 2024 by the Smart City Industry Ecosystem and the Shenzhen Internet of Things Industry Association.

**(2) Drafting Unit and Division of Responsibilities**

This standard was drafted by a working group composed of 14 institutions, including Huawei Technologies Co., Ltd., Shenzhen Standard Technology Research Institute, Chengdu Smart City Information Technology Co., Ltd., China Electronics Standardization Institute, Shenzhen National High-Tech Industry Innovation Center, Hangzhou Xujian Technology Co., Ltd., Guangzhou Xinwei Smart Security Technology Co., Ltd., Shenzhen Xingwang Xintong Technology Co., Ltd., Autel Technology Co., Ltd. (Hong Kong), Longjie Technology Co., Ltd. (Hong Kong), Digital City Industrial Ecosystem Alliance (Hong Kong), China IoT Holdings Limited (Hong Kong), Macao University of Science and Technology (Macao), and Yanhuang Group Limited (Macao). The specific division of labor for the drafting is as shown in the table below.

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| --- | --- |
| Task Division | Preparing Unit |
| Standard project initiation, standard implementation coordination, standard development implementation plan, standard outline, standard objectives and drafting principles | Huawei Technologies Co., Ltd., Shenzhen Standard Technology Research Institute |
| Technical requirements, safety requirements, interface specifications, and other related content compilation | Chengdu Smart City Information Technology Co., Ltd., China Electronics Standardization Institute, Shenzhen National High-Tech Industry Innovation Center, Hangzhou Xujian Technology Co., Ltd., Guangzhou Xinwei Smart Security Technology Co., Ltd., Shenzhen Xingwang Xintong Technology Co., Ltd., Autel Technology Co., Ltd. (Hong Kong), Longjie Technology Co., Ltd. (Hong Kong), Digital City Industrial Ecosystem Alliance (Hong Kong), China IoT Holdings Limited (Hong Kong), Macao University of Science and Technology (Macao), Yanhuang Group Limited (Macao) |

2. The necessity of standard establishment and the issues to be addressed

**(1) The Necessity of Project Approval**

## China's smart city construction has entered a new phase of comprehensive digital and intelligent transformation, ushering in a new chapter of system restructuring and quality improvement. In August 2014, the National Development and Reform Commission and seven other ministries jointly issued the "Guiding Opinions on Promoting the Healthy Development of Smart Cities" (NDRC High-Tech [2014] No. 1770), aiming to address issues such as the lack of top-level design and overall planning, lagging institutional innovation, and prominent network security risks in China's smart city construction at that time. This document played a crucial role in standardizing and promoting the healthy development of smart cities in China. In May 2024, the "Guiding Opinions on Deepening Smart City Development and Promoting Comprehensive Digital Transformation of Cities" (NDRC Data [2024] No. 660) was issued, marking the entry of China's smart city construction into a new stage of deepened development.

**Firstly, the technological architecture is rapidly reshaping, comprehensively enhancing the support for urban digital transformation. In the new era of smart city construction, it is essential to emphasize the reconstruction of the urban digital foundation with a systematic approach, breaking through the traditional model of stacking single-point technologies. This involves a systematic layout and integrated advancement to accelerate the construction of a future-oriented urban digital foundation. This includes building a self-controlled computing power infrastructure, establishing a cross-departmental data integration system, and upgrading the creation of an AI-based integrated urban-wide perception and collaborative decision-making support capability.**

**Secondly, institutional innovation continues to deepen, optimizing the urban digital transformation ecosystem throughout the entire process. In the new era of smart city construction, it is essential to focus on the mutual promotion of institutional innovation and technological innovation, advancing both construction and operation in parallel. Through appropriate institutional innovations, a regulatory system compatible with digital development is established, continuously innovating the operational and maintenance models of smart cities. This optimizes the urban digital transformation ecosystem throughout the entire process, promoting process reengineering, model transformation, and method reshaping.**

**Thirdly, data-driven continuous enhancement empowers urban digital transformation scenarios across all domains. In the new era of smart city construction, it is essential to emphasize the integration and utilization of data throughout the entire process of urban digital transformation. This approach drives the comprehensive transformation and development of the city's economy and society, creating an upgraded version of smart cities that balances modern urban governance with modern industrial systems. It provides rich application scenarios for industrial agglomeration and digital economic development, and establishes practical and promotional platforms for the integrated innovation and application of new digital technologies and products.**

(2) Proposed Problems to Solve

Smart cities are the core carriers and significant components of the construction of Digital China. Currently, the development of new smart cities has become an important pathway for various regions to enhance their governance capabilities and the level of public services. Governments across different regions are proactively adapting to the digital era by comprehensively, systematically, and fundamentally reshaping their governance philosophies, methods, processes, tools, and means. Through the "three integrations and five crossings," they are achieving process reengineering, thereby advancing the modernization of the government governance system and capabilities. As smart city construction enters deeper waters, the ability for coordinated command has become a necessity. Major core cities are actively promoting the construction of integrated command systems. However, there are still numerous challenges in urban coordinated command, such as difficulties in risk prediction, command coordination, precise decision-making, efficient planning, and scenario deployment. Building a horizontal multi-department collaboration and a vertical multi-level integrated command system across city districts and streets has become a construction goal for various regions.

To address the challenging issues of urban coordinated command, promote the construction of a multi-level coordinated command system, enhance the efficiency of urban incident handling, and ensure urban safety, various regions have undertaken a series of platform developments. However, technical and operational barriers still exist, preventing the realization of cross-level coordinated command. Therefore, standardizing the overall architecture and functions of coordinated command is a crucial pathway to achieving the "Three Integrations and Five Crosses" objectives.

The research objective of this standard is to establish a three-tier linked command platform standard that spans across regions and various commissions and offices, aiming to create an integrated command system that extends horizontally to all commissions and offices and vertically to all streets. This system will enable the visualization of command elements on a single map, real-time situational awareness, and rapid early warning for hot events. It will also feature panoramic video presentation, full visibility of the command process, comprehensive on-site visibility, and the ability to issue dispatch instructions with a single click, pull up monitoring footage with a single click, share media resources with a single click, initiate video conferences with a single click, and display video footage on a wall with a single click.

3. Determination of Standard Development Principles and Main Content

**(1) Principles for Standard Development**

This standard is strictly prepared in accordance with the relevant provisions of GB/T 1.1-2020 "Guidelines for Standardization Part 1: Structure and Drafting Rules of Standardization Documents."

This standard serves as the specific technical basis for guiding the construction of multi-level linkage command platforms in cities, and it also forms the foundation for establishing quality evaluation standards, engineering standards, and application standards related to smart city platforms. It plays a crucial foundational supporting role in the planning and construction of smart cities. This standard should be consistent with relevant national standards.

Adopt a work approach that integrates theory with practice, actively carry out pilot verification of standards, solidify the experience of building a typical and effective multi-level coordinated command platform in cities into standards, and strengthen the application and implementation of these standards to enhance their applicability and practicality.

**(2) The main content of the standard**

The "Requirements for the Construction of Multi-level Coordinated Command Platforms in Smart Cities" outlines the overall architecture for the construction of multi-level coordinated command platforms in cities, and specifies the functional requirements, multi-level coordination requirements, and interface requirements for the platform.

This document applies to the planning, design, construction, and operation of the multi-level coordinated command platform for smart cities.

4. Analysis of Key Tests or Verification Situations

During the development of this standard, extensive reference was made to the practical experiences of constructing multi-level coordinated command platforms in relevant cities, and stakeholders involved in the construction of related platforms were also engaged in its formulation.

During the standard development process, research, verification, and analysis of the standard content were conducted simultaneously in regions such as Nanjing and Wuhan, with timely improvements made to the standard content.

5. The standard has undergone research, discussions, solicitation of opinions, and review by experts from the three regions of Guangdong, Hong Kong, and Macao.

The drafting organization of the standard was led by the Shenzhen Institute of Standardization and Technology. After establishing the task of formulating this standard, the drafting team developed a detailed project implementation plan, clearly defining the tasks, objectives, output products, and timeline requirements for each phase. The drafting team conducted meticulous data collection, research, and standard writing. The draft standard underwent multiple rounds of discussions and revisions for improvement. Throughout the stages of research, drafting, discussion, solicitation of opinions, and technical review, experts from the three regions were organized to discuss and confirm the content of the standard, standard modifications, and the handling of opinions, reaching a consensus.

**(1) Preliminary Research and Call for Participation in Drafting Standards**

The standardization team initiated the research and refinement of the draft standard from June to July 2024, clarifying the standard framework for "Construction Requirements for Multi-level Linked Command Platforms in Smart Cities" as well as the objectives and key points for each section. Additionally, the team solicited participating units for the standard within the smart city industry ecosystem and the digital city industry ecosystem alliance.

**(2) Standard Development Kick-off Meeting and First Workshop**

The standard development team held an inaugural meeting and the first discussion session via an online conference on October 21, 2024. The meeting was chaired by the Secretariat, during which the team engaged in in-depth discussions on the framework, content, subsequent work plans, and task assignments for the "Construction Requirements for Multi-level Linked Command Platforms in Smart Cities."

**(3) The second standard seminar was held.**

According to the project schedule, the standard development team held the second discussion meeting via an online conference on November 13, 2024. The team conducted an in-depth discussion on the technical details within the "Construction Requirements for Multi-level Linked Command Platforms in Smart Cities." Following revisions by the lead unit, a draft for comments was subsequently formed.

**(4) Drafting the Standard for Public Comment**

From January 2, 2025, to February 15, 2025, the Smart City Industry Ecosystem, Digital City Industry Ecosystem Alliance, and Shenzhen Internet of Things Industry Association respectively solicited public opinions through their WeChat official accounts, association websites, and the National Group Standard Information Platform. A total of 0 opinions were received.

7. The process and basis for handling significant divergent opinions

During the process of soliciting opinions, no significant divergences were encountered. The drafting team conducted thorough research and analysis on the differing opinions and suggestions raised by individual units and experts, and engaged in extensive communication and exchange with the contributors to reach a consensus. For certain technical details, reasonable solutions were determined through further experimental research and data analysis, ensuring that the standard content is scientific, reasonable, and feasible.

8. Standard Comparison and Analysis of Adoption Status

**(1) International Standard**

None

**(2) National Standard**

None

**(3) Industry Standard**

None

**(4) Other provinces' equivalent standards**

After research, it has been found that other provinces currently do not have specific standards for the construction of multi-level linkage command platforms for smart cities. The formulation of this standard fills a gap in this field. It integrates the characteristics of the Guangdong-Hong Kong-Macao Greater Bay Area in its technical content, providing a comprehensive, systematic, and locally distinctive technical specification for the construction of multi-level linkage command platforms in smart cities. This standard also offers valuable reference for lightning protection work in similar projects in other regions.

**(5) Adoption of Standards**

In the process of formulating this standard, advanced technologies and concepts from relevant domestic and international standards were fully referenced. However, the standard does not directly adopt or cite international or foreign standards. Instead, based on the actual conditions of the multi-level linkage command platform construction for smart cities in the Guangdong-Hong Kong-Macao Greater Bay Area, independent innovation and optimization were carried out to ensure that the content of the standard meets local practical needs, thereby enhancing its relevance and applicability.

9. The situation involving patents in the standards

The standard does not address patents.

10. Expected Economic Benefits

In terms of promotion and application, several typical cities and regions will be selected for demonstration and market promotion. Firstly, a number of cities will be chosen to establish a three-tier command platform application demonstration project based on the business scenarios of coordinated command, to validate the implementation of this standard. Secondly, cities of different types will be selected to promote the use of this standard, driving its application in various scenarios within the field of urban governance, thereby achieving multi-departmental business collaboration and integrated scheduling coordination in smart city command operations.

The construction of a multi-level coordinated command application demonstration project for cities is expected to yield significant economic benefits. The release and implementation of this standard will reduce the integrated investment required for the construction and operation of multi-level coordinated command platforms by relevant organizations and units, thereby promoting the large-scale deployment of related platform systems and scenario applications.

11. Other matters that should be explained

None.

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Standard Writing Group

June 2025