

## Your Research on Smart City Data Governance Based on Data Center Platform

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### Abstract

With the strong development of the Internet, driving the development of 5G, broadband and network operation, the amount of data involved is also increasing, the city information level is constantly improving, the construction of smart city should be born at the right time.In order to solve the problem of data island in the field of smart city, the data middle platform system is introduced into urban governance.Through metadata collection, data pre-governance, data in-governance, digital blood, data Value and heat.We will collect metadata classification integration, import system, form data management directory, with the data management directory, convenient data maintenance and management personnel maintenance wisdom city data center, formed in the unit of database, we set the audit standard in advance, convenient data import is easy to manage the data.Combined with the specific business of data governance, we design the relevant data hierarchical architecture and analysis model, deeply mine the value of data, and improve the data service level of various urban services.

### Keywords

Data governance system, data center, smart city.

### 1. Introduction

Along with City Internet of things sensor data accumulation, big data, artificial intelligence, block chain technology in the wisdom city application depth of deepening, data exchange, data exchange platform, time and space-time information platform and other wisdom city application support level gradually expand, intelligent city public key function gradually integration, realize the unification of intelligent city application authorization.It can be aggregated into data center area, capacity center area, application center area and business center area, connecting intelligent infrastructure down, and driving industrial applications to intelligent operation center up.The City Brain Center supports cross-departmental, cross-departmental data flow and business flow based on big data sharing for business Technical support for collaboration and effective networking.Eliminating data islands and supporting networking for top services has become a inevitable [1].

When a city reaches a certain stage of development, there are several public operations departments.Each business unit has its own data, and the data between the business units is usually stored and defined separately.The data of each business department is like an island, unable to directly connect and interact with other departments in the service system, wasting a lot of resources on data governance.Data from various departments lacks relevance, and information cannot be shared quickly.This situation can cause the A lot of inconvenience.This situation is called a data island, which is also a common data governance phenomenon in the traditional urban construction.

There are two types of data islands in the city: physical islands and logical islands.Physical data island means that data is stored and maintained independently in different departments and

isolated from each other, forming a physical island. Logical data island means that different departments understand and define data from their own perspectives, resulting in some of the same data having different meanings, actually increasing the communication cost of cross-departmental data collaboration. Especially in the current urban information demand management: huge workload. Each demand management is n to 1, unified A centralized management makes it extremely inefficient. In addition, the data requirements are difficult to control: the data needs to change repeatedly as the business changes. Moreover, it is difficult to be responsible for data requirements that have non-peer-to-peer communication and spend a lot of time on the underlying data building. Because the demand list is not shared, it is difficult to fully leverage the value of existing resources because the existing resource list does not move to the demand page. In addition, demand management processes are opaque and difficult to monitor, leading in inefficiency and slow urban business development.

## 2. Introduction of the innovation points of urban data governance

Data governance products should be divided into three stages, respectively: Pre-event, standard driven governance; lean operation; post, system consolidation and optimization.

### 2.1. Governance capacity in advance

Use the metadata; the metadata is used to define the data and form the basis of the data system. The development of data standard system, in the governance is mainly divided into two links, one is the layer quantity, the other is the increment. Volume mode is a passive way of governance and maintenance. Increment is a way to strongly control the data. What we need to do is to manage the increment well and deal with the amount of layers within a specific time. For the standard system modeling, the current standard master To be divided into several kinds of protection. There are mainly field standard, root standard, hierarchical domain standard, prefix and suffix standard, terminology standard, index standard, and dimension standard. These standards all have different roles for data governance. Field standards as an example, when creating table data, we use them to name against the database, rather than modify the naming format by their own set of standards. There are several advantages in using this way to integrate the data. Use the same standard to facilitate the data integration and facilitate the data management and correlation processing. Use the same set of standards simultaneously It will also be easier for you to understand what the data means. Through standards, we can form the same set of data language, convenient for managers and developers for data integration and management communication, which can avoid obstacles to communication difficulties and reduce data ambiguity. At the same time, our managers can also plan the data according to their own set of data standard system.

Data standard audit, an inspection mechanism before data release, and provides a standardized inspection mechanism before the task is put online. It is divided into the following parts to score the data, table naming specification, field naming specification, whether there is a large table scan in the task release, and so on. The situation of the rules, the temporary table has no cleaning check, in a strong control check in advance before the data governance check action [2].

### 2.2. GIn-process governance ability

Provide automatic collection ability of data kinship, support automatic collection of data kinship influence through database operation log, database execution script, ETL tools, automatically identify table logic, improve the automation degree of metadata kinship influence collection, reduce the difficulty of data governance; support the collection of data processing kinship influence, task dependence and task model dependence; and provide visual analysis ability to facilitate operation and maintenance personnel Line problem analysis and fault location. Data audit rule configuration, more from the data quality guarantee, the system

provides many provision rules, such as whether the data is associated, data tables are consistent, between tables and tables, between files and files. Normative inspection, to check whether the data is not empty, whether the super long inspection. Volatility inspection, mainly to view the trend of fluctuations, accuracy inspection and so on. In a certain audit, you can use the prescribed audit script template to audit the data. Another way is to use the self-written script fragments for the audit, to splice the audit system [3].

### 2.3. Blockchain-based data security service mechanism

1. Data for demand Both parties rely on the blockchain; 2. The data provider releases the data asset catalog on the chain; 3. The data application obtains the data asset information from the blockchain; 4. The data application selects the data information to obtain and applies for the data authorization request; 5. The data supplier obtains the data authorization request from the blockchain, authorizes the standard, and publishes the authorization results to the blockchain; 6. The data demand gets the authorization result and initiates the access request and access Request the agent sent to the data center data; 7. The data reviewer can join the network as a blockchain node, synchronize all blockchain data blocks, and supervise [4] for big data network security.

## 3. Smart City-related cases

Data center platform solves the problem of data island in smart city management. By the end of December 2020, Hefei Smart City had collected 31 billion pieces of data from 63 municipal departments and 96 districts and county departments. It covers government data, social data and economic data. Through the big data platform, the traditional network data exchange mode has been changed. Based on the unified government information resource directory, the city has established a data sharing and exchange mode. By constructing a unified enterprise data asset catalog, provide a variety of classification methods, gather enterprise data assets; including 1153 departments, 199 basic capabilities, 496 theme capabilities, 21 provincial and ministerial level capabilities. In providing data asset services, data use application, approval, authorization and management process, unified data use entrance; for more than 60 government departments in the city. More than 400 business application scenarios provide more than 8.59 million enabling services.

Unified data authorization control, sensitive data identification and data desensitization; establish data traceability system; and build data standard system to help data exchange system; One is Guizhou City Smart Center. He also builds the city data center system, through data governance ability, establish the smart center data asset catalog, data assets into unified management, provide data asset map, data knowledge base capabilities; through Data standards and audit inspection ability to promote data standardization and form a unified data language; 1. Centralized registration management of data assets, form smart middle platform data asset catalog; 2. Build data map, form global view of data assets and asset management; 3. Build data asset standards, form unified data language to support sharing interaction; 4. Audit ability, timely discover non-compliant data, and guide repair and form data map.

## 4. Conclusion

In the transformation from traditional city to smart city, the construction of data center is an essential bottom architecture, and it is the link of data sharing and exchange of each business system in the city. In the era of big data, all urban departments need to establish citizen-centered self-service big data governance. Information sorting, data control, connection of citizen information, and intelligence are the core stages of self-service big data governance. Mastthe key technology of the core module is the key to the construction of smart city data center.

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