

Experience and Enlightenment of Data Sharing in Developed Countries under the Background of Smart City Construction

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Abstract: With the promotion and implementation of national information engineering projects, people have redefined the sharing economy, which has profoundly changed the urban space and formed a smart city with modern industry gathering. The so-called smart city, which integrates the Internet of Things technology, Internet technology, and application in new fields, is the product of urbanization of modern information. Although the smart city is still at the conceptual level, it has a positive significance for the city's information, dynamic and standardized management. It is as if the smart city will be a long-term engineering construction, involving various industries in the urban space, taking the government, enterprises, and organizations as reference elements, gradually entering the development trend of the smart city, and affecting the modernization of the city with rapid development and development. This paper takes water conservancy information engineering as the main research object, and proposes a new smart urbanization industry that integrates information technology and water conservancy services.

Keywords: Smart city; Developed countries; Data sharing; Water conservancy information engineering

1. Introduction

The development of smart cities should be based on all aspects of the urban spatial scale, using modern data sharing mechanisms to realize the diversified functions and needs of cities, in order to adapt to the rapid transformation of urban residents' modern life, and realize a shared urban space with mixed data and information. This article takes the water conservancy project construction project as an example. The problem that the water conservancy project inspection system urgently needs to solve is that the inspection system has not formed a standardized, unified, and data sharing standard specification, and the lack of corresponding theoretical guidance has caused serious resource repeated development and Waste, etc. In this regard, in order to implement the further construction of data sharing type in smart city, taking water conservancy project as an example, the paper puts forward theoretical suggestions on key water conservancy informatization projects [1].

2. Theoretical Connotation of Smart City and Sharing Economy

2.1. Theoretical connotation of smart city

In the process of urbanization, traditional projects and marginal effects have been strongly impacted, and they have gradually transformed into a new type of city construction that combines advanced concepts such as low

carbon, functional wisdom, and green ecology, and define it as a smart city. Smart city is a new representative of digital city and city informatization, and it integrates the new situation of city informatization based on Internet of Things technology and Internet technology. Smart cities integrate various Internet technologies, build intelligent services, plan construction, and upgrade management systems, which are important supports for effectively promoting informatization, agricultural modernization, and industrial industrialization [2-3].

2.2. Theoretical connotation of sharing economy

The sharing economy has an important impact on the production and life of urban residents, and promotes urban upgrading and reform. For example: ofo shared bicycles, water conservancy testing resources information construction, real-time bus station reporting, unmanned vending machines, automation industry, etc., a new definition of urban services and production. As discussed in this article, the functional integration of water conservancy testing resources and sharing platforms has realized an efficient, convenient and unified water conservancy testing information sharing platform, which can realize water conservancy resource integration, basic resource information sharing, cross-department resource sharing, and water conservancy testing resource data storage. Management and other functions. The sharing platform improves the utilization rate of urban space, reduces the living cost of urban residents and the production cost of

enterprises, saves land resources to a certain extent, and the utilization rate of resources tends to be more average, and gradually transits to a non single group. Therefore, the sharing economy and its derivatives give more development possibilities to cities in terms of urban production development, economic development, urban space and urban services [4].

Smart cities are integrated into the sharing economy and its model to meet the growing needs of urban residents to the greatest extent. The continuous rise of smart cities has also led to the development of various technologies, such as information and communication technology, Internet of Things technology, Internet technology, and information management technology. Relevant researchers are also making efforts to strengthen the development of urban data collection and analysis technology and ensure the quality of public services for urban development. As far as the current development situation is concerned, the coordinated development of the smart city and the sharing economy will be the new driving force for the development of Internet of things public products in the future. Data technology and its management will also be an effective way to rationally and scientifically allocate public resources. The use of data information processing platforms to achieve shared services in smart cities will lead to major breakthrough reforms in the development of smart cities. City goals [5].

3. Data Sharing in Developed Countries

Take developed country Singapore as an example. Singapore word launched a 10-year intelligent country information industry plan, which will be completed in four strategic steps. Strategic step one, vigorously develop the information and communication industry; strategic step two, implement the new information and communication foundation; strategic step three, vigorously develop the information and communication human resources system; strategic step four, the government-oriented society, important economic cities and fields Transformation. Realize the spatial transformation and extension of the process from the city government to the outside and serve the system, and further realize the intelligent city with the information industry as the main channel. In this regard, its national data sharing experience has a good reference value, which is embodied in:

3.1. Internal power concept

First, connect ideas. For the national urban development, the concept of connectivity fully combines the management and governance institutions or organizations at the social and vertical levels, and comprehensively implements the integrated strategy. The concept of connectivity of Singapore's smart city is to contact the problem of information island and data security data island, build a high-speed, safe and Economic Urban communication

infrastructure environment, and then make use of the smart city platform Complete data sharing and sharing connection [6]. Always around the urban communication network system, the "Unlimited @ Singapore" network connection environment, that is, WIFI coverage throughout the city, has been achieved. According to a survey, Singapore established a total of 7,500 "urban hotspots" in 2018. Residents can not only connect WIFI at home, but also connect signals in public areas. The wireless connection speed is up to 1Mbps. In addition, the Singaporean government has also set up a citizen network contact center to deeply implement the concept of internal power. This is a free internet connection tool for citizens, referred to as 3C. Through one-year upgrade, it is named 3C+. It effectively integrates the network interface and network resources, and urban data sharing is initially established [7]. The Singapore government has formulated a "10-year plan" for this. By 2025, it will fully implement the smart country plan, that is, a smart infrastructure and operating system for smart data connection, collection and analysis within the country, to achieve seamless data sharing, Always adhere to the "people-centered" national development concept.

Secondly, the data collection, that is, the national sensor networks are collected together to build a safe, comprehensive and accurate data network. Important sensors carry out the protection and management of key data, and appropriately share data. It is still oriented by government policy, and the sensors are installed uniformly throughout the country, with the same configuration parameters. These sensors are located in every corner of the city. The basis of smart city data sharing is the collection of data information and dissemination of these communication technology data to citizens' living places. And then form a national connection environment for data sharing [8].

Finally, data understanding. Data understanding refers to the second step taken after the data connection and collection management of the first step of smart city data sharing, mainly refers to the integration and analysis of data information to help the government make better high-level decisions. To put it simply, data understanding is to reasonably acquire, use and integrate communication technology information, and realize urban forecast management through a sharing mechanism. From different dimensions, provide citizens with more forms of humanized services. For example, urban traffic, through data sharing, establishes a contact network between communication technology information and traffic experience. People can choose a convenient way to travel according to real-time road conditions and vehicle information. In this regard, Singapore has created the first wave of cloud computing cooperation through "big data sandbox", that is, technical monitoring based on the actual environment, and then using guidance and traction

technology to realize the technicalization of social environment.

3.2. Smart sharing principle

First, concept innovation and technology innovation. Innovation is an inexhaustible driving force for the prosperity of a country. Singapore adheres to thinking externalization and technology transformation to build a capitalist country dominated by national government. Smart city is highly praised in Singapore. A city government oriented national innovation mode promotes the development of national science and technology innovation. It is mainly reflected in the following three aspects: the first aspect is to build a comprehensive government management system. The Singapore government conducts academic research and research in all aspects with the Ministry of Education as the leader. It combines the research and development system with the Ministry of Trade and Industry to carry out national R & D strategic tasks. Second, we should formulate macro strategic plans and carry out structural reforms for sustainable development. Third, invest a lot of human and material resources in the development and construction of Ali's scientific and technological innovation system. The Singapore government attaches great importance to the data sharing mechanism of smart cities, which will realize a virtuous technology cycle system and increase the information technology industry and output [9].

Second, government integration, the transition from electronic government to integrated government. The government should move from key technologies to public life, increase the public's awareness of e-government data sharing, and comprehensively coordinate the active role of the government-based multi-party collaborative coordination. For example, during 2015-2017, the Singapore government realized an internal systematic data sharing system across the government, using video voice and image integration technology, and multiple organizations realized online communication. As well as smart city and digital government services, build smart work groups, and coordinate the work of various organizations to accelerate the transformation of urban data technology achievements [10].

Finally, government information management. Singapore is one of the first developed countries in the world to propose and practice government informatization. The international principles it adheres to include the following three aspects: In the first aspect, the government supports the strategic transformation of small and medium-sized enterprises and encourages them to go out, enter the international strategic development pattern, and establish integrated departments to achieve data sharing of high-quality resources. The second aspect is the cooperation and integration of transnational corporations. The Singaporean government makes practical use of the charac-

teristics of urban development to establish orderly, loose and appropriate policy support and overall adjustment, such as the establishment of R & D base for cooperation projects of multinational companies, data sharing network platform, talent training base for multinational companies, etc. The third aspect is to innovate international brands. Taking advantage of the international development trend, Singapore has strengthened data sharing cooperation with local governments, improved the transportation environment through infrastructure construction, inter-city transportation construction, etc., and established a communication technology research and development base to build a wirelessly-covered urban living environment. Support smart technology research and development, such as: remote device detection, network base station service, wireless payment, online traffic reporting station, etc. At the same time, it also provides Singapore citizens with more opportunities for innovation and entrepreneurship.

4. Enlightenment of Data Sharing based on the Construction of Smart Cities in Developed Countries

With the implementation and implementation of a number of key national water conservancy informatization projects, the national water conservancy informatization process continues to advance, local information resources are gradually integrated, water conservancy engineering technology and information technology have been further integrated, the role of informatization has been significantly enhanced, and infrastructure has been basically realized, Business applications and the corresponding supporting technical standards and systems. Although the preliminary development of Water Conservancy Information Engineering in China, the working modules between water conservancy information engineering and other professional engineering, data resources and local business units are still one-way transmission, forming a kind of isolated island of departments, specialties and engineering systems with regional as the main line. Therefore, a collaborative data sharing model is established, which integrates data formats, interface standards, information resources, resource integration, and data sharing to build a smart information project to improve the operation efficiency and information management level of water conservancy information projects. Based on the experience of data sharing in the construction of smart cities in developed countries, the data sharing project of smart cities in water conservancy projects is designed according to the actual situation in China.

In this regard, in order to solve the problems of low-level tax burden construction, resource dispersion, systematization, and weak infrastructure construction in the development of water conservancy informatization, the overall coordination of all aspects of water conservancy informa-

tization has been formed to form a whole and relatively complete The collaborative structure of hydraulic data resource sharing and water conservancy administration management business, and then provide a realistic solution for improving the construction and comprehensive level of water conservancy informatization.

Driven by the huge demand in the field of water conservancy project detection and management and the development of information technology, information technology can provide more efficient, high-quality and high-level management benefits for water conservancy project construction. Its main content is to integrate the water conservancy detection resources and data sharing platform, to integrate the water conservancy detection data system across regions and departments, and to establish a collaborative data information sharing platform. Its target function includes three aspects: the directory service system of water conservancy testing data information, the sharing and exchange of data resources, and the storage and management of water conservancy testing data resources. The details are as follows:

First, the resource directory service system. Different regions and departments have certain differences between the water conservancy information resource processing rooms and their application environments. For units that can meet data needs through simple directory queries, resource directory services can meet their business needs. Therefore, in the management of water conservancy information, the supplier of water conservancy

information resources should take the form of data directory as the transmission intermediary to integrate and manage the data resources, so that the demander can use the data directory to realize the real-time positioning of resources. The catalogue realizes the registration, release, and maintenance of water resources information resources for intermediaries. These points are the main business requirements for the integration of water resources information resources and the sharing platform. Secondly, data sharing of basic resources. In the water conservancy information resource management, the equipment involved in the monitoring center is shown in Table 1. Data resources are mainly used for business data resources and basic data resources. Among them, the business data resource is the core business data that the water conservancy information department should invest a lot of resources in the administrative work, and the basic data resource is the auxiliary information resource for the water conservancy information department to carry out business office. Under normal circumstances, the relevant units of water conservancy projects have the greatest demand for basic data resources. The effective integration of water resources information resources and data sharing platforms can effectively meet this requirement. For example: in the water conservancy testing department, in the process of processing water conservancy testing materials, the sending unit needs to strictly check the data business, and the data sharing platform center integrates and shares the data information.

Table 1. Equipment management of monitoring center

Serial number	Device name	Quantity	Main technical indicators
1	Hydrological monitoring system software	1 sets	B / S web page, support remote access
2	The server	1 station	CPU: 2 above core; Memory: 4Gwith; hard disk: 500G; Broadband: 2M; operating system: undetermined
3	Database software SQL SERVER (version to be determined)	1 sets	
4	Mobile APP software	1 sets	Android

Finally, cross-departmental water resources data sharing. The advancement of water conservancy informatization projects has imposed new requirements on the administrative efficiency of departments. The administrative departments affect the establishment of unimpeded information resource sharing channels, such as: water conservancy testing unit, water quality supervision unit, water conservancy project construction unit, main business management department, etc., and the main body of each department works together. Therefore, in the management of water conservancy information resources, there is a great demand for data and information resources sharing between different departments and levels. According to the electronic water resources of different departments and different levels, the efficiency of integration and sharing should be effectively guaranteed, and the data sharing channels should be

widened to facilitate the multi-agent collaborative business operation of water resources information management in China's water resources administration.

5. Conclusion

All in all, this paper draws on the experience of data sharing in the construction of smart cities in developed countries, focuses on improving the quality of domestic water conservancy projects, and applies data analysis, data management, and data evaluation to promote the sharing and operation mechanism of engineering data and information. In order to provide some reference materials for the transformation of domestic water conservancy projects from the traditional structure to the field of information technology and water conservancy projects, the use of network data technology to comprehensively improve the level of smart construction of

water conservancy projects and other cities, and to protect the data development of China's urbanization process role.

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