Big Data Empowers High-Quality Construction of Smart Cities

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Abstract: In this paper, we sutdy the issue of big data empowers high-quality construction of smart cities. The intelligent function of big data is not simply the sheer volume of data. It is the immeasurable economic value generated by people sharing and analyzing massive amounts of data. A modern city is a highly complex open complex giant system. Ideal urban planning must design a scheme that coexists physically and virtually and obeys the laws of complex giant systems, taking into account the joint effects of space and society. In reality, the urban system is often fragmented, resulting in various contradictions and conflicts. This paper gives the novel suggestions for the high-quality construction of smart cities taht will promote the further development.

Keywords: Smart cities; high-quality construction; big data; data mining

I. INTRODUCTION

Accelerating the construction of the urban digitalization and informatization is the basis and necessary prerequisite for building a smart city. Only when the city's informatization develops to a certain stage can the development of a smart city be carried out. Otherwise, the construction of a smart city will face great difficulties and is not in line with the development of the urban economy and technology. A modern city is a highly complex open complex giant system. Ideal urban planning must design a scheme that coexists physically and virtually and obeys the laws of complex giant systems, taking into account the joint effects of space and society. In reality, the urban system is often fragmented, resulting in various contradictions and conflicts.

At the same time, a city is a living body that is constantly evolving. Different cities have different agglomeration and diffusion functions, and the process and direction of development are different. For the smart cities, listed aspects should be considered:
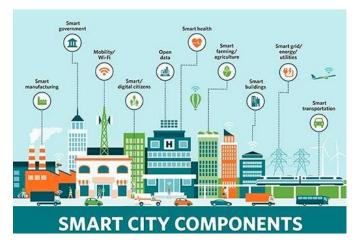
(1) Smart cities use a new generation of information and communication technology to achieve full-area coverage of broadband access and build a multi-level, wide-coverage wireless broadband network. Realize the integration of the telecommunications network, radio and television network and the Internet, and provide broadband application services that can be accessed anytime, anywhere.
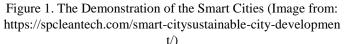
(2) As a complex system engineering, in order to realize the supervision of the whole process of smart city construction and ensure the forward-looking and rational construction of smart city, smart city requires not only planning, construction, operation management and other links, but also evaluation, optimization and adjustment.

(3) Comprehensive and thorough perception, ubiquitous broadband connectivity, intelligent fusion applications, and people-oriented innovation are the four main characteristics of smart cities. Smart cities have stronger dynamic perception capabilities, sharing and collaboration capabilities, intelligent decision-making capabilities, and public participation capabilities.

In the figure 1, the demonstration of the smart cities are presented.

Figure 1. The Demonstration of the Smart Cities (Image from: https://spcleantech.com/smart-citysustainable-city-development/)

II. THE PROPOSED METHOD

A. The Overview of the Smart Cities

The spatial support of the smart city is a digital city. The geographic information spatial framework of the digital city and the geographic information sharing service platform for the various industries are important foundations and components of smart city construction. In the process of smart city from concept to application, all walks of life and relevant scholars have made different definitions of smart city from different perspectives. Among them, the definition of the smart city from the perspective of the enterprises, scientific research and government management is representative. The construction of smart cities should continuously improve people's quality of life, enhance people's capacity for sustainable development, and maintain the virtuous cycle of the environment, which is the basis of human life. The construction of smart cities should focus on promoting the transformation of economic development mode, vigorously promote the innovation and development of general technology, application, management and institutional mechanisms, explore new models, cultivate new formats, continuously improve the efficiency of urban operation and public service levels, and promote coordinated economic and social development. The smart cities should be studied from following aspects.

(1) The environment refers to the space for urban intelligent construction and development, including the natural environment, social environment and humanistic environment.

(2) Our country's smart city construction has made positive progress in recent years, but some problems have also been exposed, such as fragmented construction and lack of top-level design, and some cities have even shown signs of blind construction. The reason is that there is a disconnect between smart city construction and actual urban development, as many cities consider smart city as a simple information construction and do not organically combine smart city construction with urban development stage, urban problem solving and urban planning management.

(3) The industry is the link that connects the various components of a smart city and the chain that drives the intelligent operation of a smart city, including all the industrial fields that are related to the intelligent operation of the city.

B. The Big Data Empowers High-quality Construction of Smart Cities

Advances in information technology have accelerated time-space exchanges of knowledge, technology, human resources and funds, so that urban production and residents' activities continue to expand in the scope and become more complex in type, promoting industrial restructuring and the spatial reorganization, and changing regional and urban space. With the construction and application of smart cities, the amount of data has increased rapidly, and big data has become ubiquitous, covering various areas of smart cities, such as smart transportation, smart medical care, and smart living. After a series of intelligent processing such as collection, storage, classification, reorganization analysis and reuse of big data, the results can be used as a reference for decision makers.

Then, we provide th e following suggestions:

(1) An important role in the widespread application of the big data technology in the management field lies in its powerful data collection and analysis capabilities, which can enable managers to discover potential relationships and problems in complex and fragmented massive data. This can lead to the following management actions.

(2) With the goal of big data urban planning transformation, it can intelligently adjust and build various industries, service systems, and transportation in the city from the data statistics, spatial distribution analysis, and system analysis of urban big data.

THE SUMMARY

In this paper, we sutdy the issue of big data empowers high-quality construction of smart cities. The planning of a smart city not only involves the life of the residents of the city, but also involves the development speed of the entire city. Therefore, my country's urban planning should actively introduce big data analysis models, use big data to scientifically and reasonably plan urban layout, and develop scientifically with industry linkage. In the future, we will apply the proposed model into the real applications to consider the more applications.

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