Study on Smart Government Construction of Big Data-oriented

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Abstract. With the development of smart mobile information technology, governments in all countries are actively building smart cities and smart governments, and have achieved some results, accumulated some experience and gained many lessons. The biggest problem is that there is no unified framework and method. The principles, conditions, overall framework and evaluation methods of building a wise government based on big data are put forward. The purpose is to improve the efficiency of government work, improve the ability of government service, improve the level of government management, enhance the credibility of the government, increase the participation of the masses, improve the portability of the masses, and improve the satisfaction of the masses to the government. The principles, frameworks and methods proposed in this paper can serve as a reference for the construction of a wise government.

1. Introduction
Intelligent government is the advanced form of e-government development and the inevitable requirement of the development of intelligent society and intelligent city. All countries in the world are accelerating the construction of intelligent government. The implementation plan of smart government construction was first proposed by California government in 2011, which played an important role in improving government performance and providing high-quality and efficient services to the society; the Korean government also did it in 2012; so did the Singapore in 2014; the E-government level of these local governments has played a leading and influential role in the world[1-8]. Since Alpha Go defeated World Go Champion Li Shishi in 2016, a new generation of AI based on big data has gradually entered various industries, and the construction of intelligent government will face new opportunities and challenges. Leading countries in e-government are facing technological upgrading, while underdeveloped countries are facing the choice of technological solutions and the determination of system architecture. At present, there are many problems and difficulties in building a wise government. For example, the local people are unwilling to use the network system, preferring to see people and do things; the operation and maintenance funds and maintenance forces cannot adapt to the development of business; the large amount of investment in the early stage cannot achieve the desired results, resulting in a lot of waste of manpower, material resources and financial resources; the thinking of government staff cannot keep up with the development of technology, resulting in the inadequate development of the functions of the system. How to overcome the problems and shortcomings in the implementation of traditional e-government when choosing and utilizing the current advanced technology?

Because of the differences in political, economic, cultural and social traditions in different countries and regions, there should also be differences in the process of choosing a plan for the construction of a wise government. Instead of copying and forcibly replicating the same plan, each country should deal with it according to its own actual situation. It is relatively easy for a small,
technologically and economically developed country like South Korea and Singapore to unify. China, the United States, Russia and other big countries, if we want to carry out the construction of a wise government in an all-round way, there will be great difficulties. Even in the economically and technologically advanced United States, states are very uneven in building smart government. The unified deployment, guidance, step-by-step and pilot development mode proposed by China is a very good plan. In recent years, the construction of government halls and the encouragement of government units to work centrally have not only improved office efficiency, but also provided more convenient services for the masses. At the same time, it has laid the foundation for data aggregation and resource sharing. Take the lead in accelerating the construction of intelligent government in Beijing, Shanghai, Guangzhou, Shenzhen, Hangzhou, Nanjing and other economically and scientifically developed cities, providing one-stop, high-quality services for government's own office, people's food, clothing, transportation and other activities. Big data of urban life has gradually become a powerful support for government management decision-making, service recommendation, daily life assistant of the masses and early warning of social and public safety. This paper discusses the construction of intelligent government big data-oriented from four aspects. (1) Principles for building a wise government; (2) Conditions for building a wise government; (3) Reference framework for building a wise government; (4) Evaluation methods for building a wise government[7-9].

2. Principles and Purposes of Building a Smart Government
The basic function of the government is social public management and public service. Whatever information technology is used, the purpose is the same which is to better play the government's functions, continuously improve work efficiency, save office costs, ensure the normal formulation and implementation of laws and regulations, and promote the management and rational allocation of social resources. Therefore, the core of intelligent government is not how advanced information technology is used, but the upgrading and transformation of the government's own system, mechanism, work flow and work mode. The operation mechanism of the government has a great relationship with the local economic and cultural traditions. It is in this sense that the construction of intelligent government in various countries cannot be unified in format, nor can it be promoted synchronously. Rather, they should act according to their own political system, economic conditions and cultural habits, step by step, and gradually advance. However, the principles and purposes should not be changed, whether in the initial stage of e-government construction or in the stage of intelligent government construction. Among them, it involves the integration and optimization of the work flow of government departments, and the continuous upgrading of the work content, work flow and work mode of government staff. In-depth study of the role of the government, the role of government staff, the work flow and the composition of the structure system under the background of modern intelligent society is an important task of the construction of intelligent government. The purpose of building a wise government is to continuously hand over the complicated and repetitive work of the past to the computer. The duty of government staff is to deeply study and analyse the law of social development, the law of informatization, the change of social needs, and the evaluation means of the efficiency of government work in order to better serve the society.

3. Basic Conditions for the Construction of Smart Government
The government and its staff are required to change their concepts from Business-Oriented to Data-Oriented, to manage big data and let data speak. It is the development and progress of science and technology that can exert the most effective fundamental force in the construction of wise government. Whether the construction work can be smoothly promoted or not, the importance of management, the understanding of management and the change of management concept play a key role. How to ensure fairness, openness and impartiality in management, how to make the management process scientific and transparent, how to evaluate the quality of management, how to avoid and reduce corruption in management are all hard injuries in management. To solve these problems thoroughly, we must rely on intelligent information technology and big data technology. General Secretary Xi Jinping proposed that power should be kept in a cage of the system, which must be knitted with modern science and
technology. Managers need to have a clear understanding of this, to have noble feelings of serving the people, and to have political courage and boldness to reform the past.

Cloud computing capabilities, Using cloud computing technology framework, the government can concentrate high-quality computing resources on the basis of cost saving, maximize the utilization of computing power and computing resources, reduce the input of office terminals, and provide high-quality services for the community. On the one hand, virtualization technology can be used to reduce the requirements of office terminals and facilitate the realization of mobile office through software authentication.

Team building, with the deepening of the construction of intelligent government, the business involved is more and more complex, the information equipment used is more and more, and the intelligent technology used is more and more complex. How to ensure the normal operation of information technology and continue to deepen has become an urgent problem for intelligent government to solve. First, the government needs to build its own operation and maintenance team. The operation and maintenance of the system cannot be completely contracted to the software company. In this way, on the one hand, it is difficult for a software company to undertake this task, and many software and hardware companies will increase office costs and reduce office efficiency; on the other hand, all government information work will be handed over to enterprises and companies, which will also pose a great threat to national security. The government's own operation and maintenance team participates in the whole process of system development and is responsible for the operation and maintenance of the equipment after the system is delivered and used; secondly, it needs to establish its own planning and development team, which is responsible for the combing of government work, the design of work flow and the research and design of intelligent structure; it needs to establish its own large data analysis and decision support team, which is responsible for government workers. Business data analysis and modelling, algorithm design optimization, data mining and performance evaluation, and regularly provide data analysis and performance evaluation reports to provide technical support for government decision-making.

In the past, government departments paid more attention to the investment of planning and construction costs, but neglected the later operation and maintenance costs. In fact, this is a large sum of money, which will gradually become a decisive part of office expenses. Therefore, in planning and construction, consideration should be given to co-budgeting.

4. Reference Framework of Intelligent Government Construction Oriented to Big Data

From the perspective of informatization, the construction of intelligent government facing big data is a process of continuous optimization, upgrading and informatization of government workflow. It is a system engineering of endless iterative evolution. The ideal state is that the work of the government should be operated in an unmanned or less manned way. In this process, we should not only pay attention to the study of the functions and roles of the government, but also neglect the increasingly important role of intelligent machines. Nor can we blindly exaggerate the role of intelligent machines and reduce the study of social laws. We should continue to study and explore a better mode of human-computer integration. To achieve the government's keen perception of social needs social problems, accurate positioning and accurate service purposes. From a technical point of view, the construction of a smart government big data-oriented is a data-centric process, focusing on the collection, transmission, storage, processing, analysis and decision-making of big data. To this end, a technical framework for building and operating a smart government is proposed, as shown in the Figure 1.

According to the technical framework, it includes basic network, high performance computing, distributed storage, and decision support and search engine. Decision support includes database, data warehouse, data mart, case base, arithmetic model base, business process template base and so on. It provides on-line analysis and data decision support for the internal work of government departments. Search engine is a very important part of intelligent government system to provide one-stop service for various users. The use of search engine technology can overcome the shortcomings of the traditional business process-oriented system in terms of scalability and maintainability. Combining process-oriented, object-oriented and data-oriented programming technology, a highly cohesive, loosely coupled, scalable and maintainable system is built for government work. Advanced distributed storage
technology is adopted to improve the utilization rate of storage devices and reduce the failure rate. Cloud computing technology is used to continuously improve the utilization of computing equipment and the computing performance of the system, and to reduce the failure rate. Online analysis and data mining technology is used to provide data retrieval and analysis decision-making services for internal staff. Machine learning and artificial intelligence technology are used to provide comprehensive information consultation, business assistant, cultural publicity, safety alarm, administrative participation and life recommendation services for the public.

![Figure 1. Technical Framework of Intelligent Government Service Platform.](image)

5. Evaluation methods

Establishing an evaluation system based on big data is indispensable for building a wise government. In the past, it was often neglected. Even if some government departments have realized this point, they cannot give scientific, objective and reasonable evaluation because of the difficulty in quantifying indicators and strong subjectivity. With the progress of society, government departments should also strengthen the evaluation in this regard, so that the public can understand the operation of the government more clearly, strengthen the public's understanding and support of the government work, improve the public's participation in the government work, and enhance the credibility of the government. The intelligent government based on big data can give an objective quantitative evaluation of its service quality. The evaluation index system can be established from two aspects: (1) the evaluation of the input-output benefit of the wise government. The evaluation of the efficiency of management department is different from that of enterprises, which pursues maximum benefits, but pays attention to the simplicity and efficiency of management work, mainly in reducing the complexity of the organization, reducing the number of personnel, reducing the office expenses as much as possible, and improving the utilization rate of office equipment as much as possible; (2) the evaluation of public satisfaction of intelligent government work. Traditionally, many questionnaires have to be designed for public satisfaction, which is laborious and enthusiastic. From the following aspects, we can use the large data of public evaluation texts to conduct emotional analysis, the large data of public social media to conduct emotional analysis; of course, we can also design some electronic satisfaction questionnaires. We believe that emotional analysis using large data is the main method of future satisfaction evaluation.
6. Discussions
Intelligent government construction based on big data is a sign of social progress and an inevitable trend of social development. All countries should plan and advance step by step according to their own level of economic and technological development, guided by the needs of the masses, based on the principles of saving management costs and providing high-quality public services. It is the precondition to change the management service concept and thinking mode of the government and its staff. Supported by the comprehensive perception of the Internet of Things, broadband mobile Internet, cloud computing and the application of artificial intelligence, it provides a strong technical guarantee for the collection, transmission, processing and use of large data. Intelligent government construction is system engineering with the main contents of service process reengineering and redistribution of human and financial resources. It will inject inexhaustible momentum into the harmonious progress of all peoples and the common development of society. It is also the only way to promote democratic decision-making process and reduce corruption.

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