



# Problems and Countermeasures in the Construction of Intelligent Government Under the Background of Big Data

ZhaoBin Pei and Ying Wang(✉)

College of Marine Law and Humanities, Dalian Ocean University, Dalian 116023, China  
1003085023@qq.com

**Abstract.** With the rapid development of new generation of information technologies such as big data, cloud computing and the Internet of Things, the traditional government governance model has been unable to effectively cope with the changing social environment and new challenges. The development of big data has made significant progress and breakthroughs in government's modern governance ability, which has become a new path of government data governance. The construction of smart government and the realization of smart government governance model are based on the rule of law as the basic guarantee, big data and other science and technology as the basic conditions, and smart decision-making as the core to build a dynamic network collaborative governance mechanism among government, market and society, so as to realize the efficient governance mode of smart government and promote the modernization of government governance ability. Starting from the construction of smart government, this paper mainly analyzes the mode concept, challenges and countermeasures of smart government construction in the era of big data.

**Keywords:** Data sharing · Smart cities · Rule of law government

## 1 Introduction

Since the 21st century, with the rapid development of science and technology and information technology, the economic and social environment of each country has become increasingly complex and changeable. The traditional governance mode of each government is facing many problems, and the traditional governance means alone cannot effectively deal with the complex and changeable social development environment [1]. At present, big data, with its unique nature and way, is gradually influencing and changing human life, working mode and thinking mode, affecting the development of economy and society, as well as the modern governance mode and modern governance ability of the government. It has become another new era of information technology after the computer and Internet era, namely the era of big data [2]. In today's big data era, the development of science and technology leads the great change of human society. Global informatization and digitization affect people's lives in all aspects. The new generation of information science and technology, such as big data, cloud computing and Internet,

has accelerated the mutual integration and penetration of the network virtual world and the human real world, and realized the ‘interconnection between people’ and ‘interconnection between people and things’, which has greatly increased the volume of data, catalyzed ubiquitous data, networking and intelligent services, promoted social change, and had a significant impact on the modernization of the governance system and governance capacity of the national government. Big data has brought new challenges and opportunities to government, society and enterprises in various industries, especially in the transformation of thinking mode and innovative decision-making mode, which has made significant progress and inspired the new model and new ideas of government governance based on big data. The development of big data has made great progress and breakthroughs in government’s modern governance ability, which has become a new path of government data governance, which has a significant impact on improving government governance model, improving government supervision services, realizing government intelligent decision-making, building intelligent government and building intelligent city. As early as 2015, Prime Minister Li Keqiang considered and adopted the Outline of Action for Promoting the Development of Big Data (hereinafter referred to as the Outline) at the State Council’s executive meeting held under the chairmanship of Prime Minister Li Keqiang. The Outline was officially released on September 5, which clearly pointed out that establishing a management mechanism of “speaking with data, making decisions with data, managing data and innovating with data” and realizing scientific decision-making based on data will promote the progress of government management concepts and social governance models [3]. Through the innovation of big data services, government management and public governance will be improved, and then the precise governance of the government will be promoted [4].

Building a smart government is the key to building a smart city. The construction of smart government is to establish a communication platform between citizens and the government through information science and technology. By understanding the smart city model established by G. Perboli et al. [5], it can be seen that the construction of smart government is an important part of the model. Therefore, with the gradual and in-depth development of smart city construction, the construction of smart government has been paid more and more attention by the state. Smart government is often constructed based on the environment of smart city, aiming to solve how to make the city maintain stable economic growth and sustainable development through the construction of smart government [6]. Information science and technology can effectively help the government face challenges and better manage the city. The new information science and technology can help the government make more reasonable and intelligent decisions and better serve the people, such as making citizens more convenient to handle related affairs [7]. Building smart government has become one of the important contents of smart city construction.

## 2 General Theory of Smart Government

### 2.1 The Concept of Smart Government

Smart government is a derivative concept of e-government. The so-called derivative is not native. The theoretical and practical circles give a higher level of e-government the

word “wisdom,” meaning that it chooses the smart government as the new development direction. This purpose is to emphasize that the e-government of “wisdom” is better than other e-governments before. The construction of smart government should have a clear value goal, establish the technical path and technical model of construction, and determine the basic way of its development and construction. At present, many scholars have different views on the concept of smart government. According to Gil-García scholars [8], smart government is based on the context of the development of a new generation of information science and technology to describe the government’s innovative decision-making and creative strategies, thus making government management activities more flexible. Z. Lv [9] and other scholars pointed out that smart government is a key part of the smart city construction model, and that intelligence is essentially a link to intelligent networks. Therefore, the government realizes data sharing among departments through information and communication technology, and uses information science and technology such as big data to achieve more open, transparent and sustainable government services. H. Alenezi [10] and other scholars define smart government as an advanced stage of e-government and a more open and innovative government. Howard and Maio [11] scholars believe that smart government adopts integrated governance for cross-regional or cross-state and local governments through the use of modern information technology and communication technology, and then continuously innovates and generates certain social value through the vertical perspective on all levels of government (cities, federations or states) or the horizontal perspective on cross-regional or cross-state and local governments. The above are the views and understandings of some foreign scholars on smart government. In China, scholars in the theoretical circle generally believe that smart government is developed from e-government, which is a higher stage of e-government development and the only way to develop e-government. For example, Shang Shanshan and Du Juan scholars [12]’ definition of smart government is to make full use of advanced information science and technology, such as REID, sensors and other new hardware technologies for real-time data collection, and realize data communication between government departments and break the phenomenon of information island between government departments. At the same time, big data and artificial intelligence are used to process and analyze relevant data information, so as to realize public service oriented, provide more accurate, more convenient, more efficient and higher quality public government services, and ultimately promote the harmonious and sustainable development of cities. The scholars of Fei Jun and Jia Huizhen [13] believe that the smart government is the government organs at all levels of the country. It mainly relies on modern information science and technology and intelligent electronic sensing equipment, adheres to the concept of people-oriented administration according to law, constructs a service-oriented smart government, effectively protects the relevant system, makes full use of big data, cloud computing and Internet and other information science and technology, carries out reasonable, efficient and open and fair social collaborative governance, and then provides intelligent and high-quality public services to citizens, so as to realize the “smart” decision-making and build a smart government; Scholars from Song CongLin and Lu Min [14] believe that smart government is the advanced stage of the development of e-government. Compared with e-government, smart government can provide more optimized management, service and better decision-making.

Through information science and technology such as big data and cloud computing, smart government can create the overall process of government work, integrate government data resources, optimize the structure and organization, realize the rationalization of government work arrangement, and meet the many needs of the public from multiple perspectives and levels, thus forming an efficient, convenient and scientific management mode. In summary, scholars at home and abroad mainly understand smart government from two aspects. One is the perspective of information science and technology, and the other is the perspective of public management services [15]. The research of the above scholars reflects the integration of information science and technology and e-government, and then develops the concept of “smart government,” which provides a useful reference for the construction and governance of smart government.

## 2.2 Value Orientation of Smart Government

### Open and Transparent Governance Environment

Wisdom government is constructed through network technology with other organizations or citizens, which means that other organizations or citizens also communicate and cooperate with wisdom government through network technology. In an alternative way and with increased opportunities, to ensure good governance, smart governments need to fully balance the interests of all parties, while requiring fair competition and cooperation in this environment. Due to the complexity of various factors, it is necessary for smart government to take the concept of openness as the principle. And because of the competition and cooperation between the various organizations, it is necessary for the smart government to supervise it and create a good transparent management environment. Because of the new information science and technology makes the social environment and thinking mode has undergone great changes, the government for all kinds of organizations in society and citizens to manage the way also will change, keep pace with the times, not only to make them by the common goal and value pursuit, but also to maximize the public interest, encourage their fair and effective competition and cooperation, to protect their legitimate interests. This is bound to require the smart government network technology structure diversification, flexible management system, better safeguard the government and social organizations and other citizens' own rights and interests and common interests, so that all subjects in today's social environment to work for common goals. Thus, the construction of open and transparent governance environment is the basic principle and value goal of the construction of smart government. In practice in other countries, the United States proposes that building an open and transparent government should be based on the basic principles of transparency, participation and collaboration [16], The British government, Australia, New Zealand, Canada and other countries have successively built big data open platforms (data. gov. uk, data. gov. au, data. gov. nz, open. canada. ca). In 2012, China launched the first open data portal, Shanghai Municipal Government Data Service Network. Since then, Beijing, Foshan, Wuhan and other cities have built open data portals [17].

### **Cooperative Atmosphere of Consensus**

Consensus refers to the policy of major disputes or projects involving the interests of the public, before making decisions to actively communicate with the public, through joint negotiations to reach a decision. Can expand the scope of public participation, through the relevant channels of thinking, taking into account the rights and interests of all parties, combined with the creativity and wisdom of all parties, choose the method and path to solve the problem. If the government wants to discuss, it requires that it has a solid and broad public foundation and a positive sense of participation. Taking it as a prerequisite, it can better achieve equal communication, listen to opinions, widely absorb the masses' words and wisdom, and then form a basic consensus. From the perspective of management, the cooperation referred to in smart government should take 'co-construction and sharing' as the basic principle, and emphasize win-win and symbiosis as the atmosphere of cooperation. The consensus and the construction of smart government are interrelated and will affect each other. Building a cooperative atmosphere of consensus can provide good conditions and foundations for the construction of smart government, help to improve the development model of smart government, improve the governance system of smart government and enhance the modernization of governance capacity of smart government, and promote the healthy and efficient development of smart government.

### **Basic Resources of Co-construction and Sharing**

The basic resources of smart government mainly include infrastructure such as network, data, platform, system and related technologies, and of course also include thinking, decision-making, theoretical basis and laws and regulations. The governance model of Chinese government has changed from "single center" to "multiple centers", from "organization-centered" to "public-centered", from organizational governance to universal governance, and from partial governance to comprehensive governance. Such change means that more citizens and organizations, organizations and organizations should cooperate with each other and actively participate in governance through network technology. Therefore, taking "good governance" as the goal and increasing public value will inevitably put forward relevant requirements for the co-construction and sharing of basic resources. Co-construction and sharing of basic resources is the basic requirement of realizing 'good governance', the core requirement and basic principle of building and developing government affairs system, and the prerequisite for orderly and efficient construction of smart government, avoiding related risks and maintaining social benign development. Insisting on the goal and principle of co-construction and sharing requires the government to share the right to use basic resources and the right to know with the public by relying on laws, policies or the actual needs of the public.

### **Efficient and Accurate Government Service**

The rapid development of information science and technology such as big data, cloud computing and the Internet provides an endless stream of new tools for human society, the continuous development and accumulation of electronic intelligent products, and a large number of basic resources such as data, information technology and scientific knowledge. At the same time, it also brings a variety of information systems that can deal with these resources, including government service systems, etc., and thus provides

a realistic and feasible science and technology for smart government to have wisdom and use wisdom. The existing practical experience of e-government and smart city has created a certain practical foundation and rich time experience for the construction of smart government. They have established perfect infrastructure, databases and big data platforms, as well as government affairs systems. They also provide relevant resources, information technology, management and service foundations for the construction of smart government.

### **Equal and Inclusive Partnership**

President Xi Jinping pointed out that “the realization of the Chinese dream must follow the Chinese path, carry forward the Chinese spirit and unite the Chinese power”, which is mainly reflected in the practice of the smart government. In the construction and development process of smart government and its government affairs system, we should make full use of wisdom based on cooperative consciousness and governance concept, rely on information science and technology to build a platform for communication with the public, and establish the most extensive and equal partnership with the public, so as to better use the wisdom of the public, rely on the power of the public to achieve the purpose of building a smart government. In November 2012, the UK government launched the “UK government digital strategy,” which plans to unify the services of various government departments to the GOV. UK website, transfer a large number of government services to the network platform after restructuring, and develop the “digital default” service standard. The standard requires that online services provided by all platforms must be simple and convenient, so that any citizen who can use these online services can take the initiative to choose relevant online services, and also ensure that people who cannot use these online services are not excluded from these services [18].

## **2.3 Governance Framework of Smart Government**

### **The Governance Concept of Smart Government**

Dwight Waldo once said, ‘Our well-being, well-being and real life for all depend to a large extent on the performance of the executive authorities that influence and sustain our lives [19]. Therefore, in the era of big data, the governance concept of smart government should not only reflect the external characteristics of wisdom and efficiency, but also have the internal concept of serving the people’s livelihood. First, follow the concept of intelligent and efficient. Through the use of information technology, smart government deals with public administrative affairs online and integrates management functions offline, which ensures the interconnection between government decision-making and implementation, and makes the organizational structure networked and intelligent. At the same time, the smart government uses advanced information science and technology to analyze a large number of data, to understand and master the relevant situation, and to manage internal and external affairs accurately and efficiently with scientific theoretical knowledge. Secondly, pay attention to follow the concept of collaborative governance. With the help of modern science and technology, smart government integrates and optimizes the information mastered, from the original traditional governance

mode to collaborative opening, so that various regions, departments and levels communicate with each other and coordinate governance. Again, promote people-oriented concept. Wisdom government should take ‘people’ as the standard, adhere to ‘people’ as the center, be good at building modern technology platform, widely solicit citizen opinions, and listen to voices from different levels. To provide personalized modern services for citizens, make decisions more in line with the vital interests of most citizens, and ultimately build an open, fair, just, transparent, efficient and intelligent service-oriented government.

### **Governance System of Smart Government**

The governance system of smart government mainly includes organization system, procedure system, management system and operation system. Firstly, the networked organizational system makes the basic framework of smart government governance. Traditional organizational structure is a narrow structure, government organizations and decision makers are in a closed framework for resolution. However, with the development of information science and technology, the traditional organizational structure has changed, so that there is a good division of labor and cooperation between decision makers and executives, and then make the organizational structure flexible and cooperative. The procedural system of smart government refers to the process system of solving problems and dealing with government affairs. Smart government provides personalized services for citizens through online, while using offline integration between various departments can only optimize the administrative examination and approval workflow to achieve efficient and convenient purposes. The management system of smart government is to maintain the whole dynamic mode in the process of smart government management. In daily management, the smart government pays attention to the antecedents and consequences of public events, uses big data to collect and analyze, perceives social dynamic changes at any time, predicts the development trend of events, and integrates pre-warning, in-process monitoring and post-management to realize the dynamic management of the whole process. The operation system of smart government refers to the government’s compliance with the principle of service priority, taking itself as a service provider, adhering to the concept of “above citizens,” adhering to the criterion of “serving the people,” providing relevant services for the public, and solving the needs of citizens with efficient wisdom.

### **Governance Mechanism of Smart Government**

The governance mechanism of smart government mainly includes two aspects. On the one hand, in the development mechanism, the smart government builds a diversified collaborative development mechanism through the integration of information and technical resources of various departments and the coordination of internal and external and upper and lower levels, which is the only way to adapt to the trend of social common governance by convening social forces to jointly maintain network security and order. Que Tianshu scholars once said: ‘Only through multiple participation, multi-directional interaction and multi-system state governance intervention, can we eliminate the risks and problems of cyberspace to the greatest extent [20].’ On the other hand, on the regulatory mechanism, smart government governance combines information science and technology and various departments platforms, and is committed to building a smart

government regulatory mechanism by constructing a technical regulatory system, a citizen satisfaction system and a result-oriented social evaluation mechanism. For example, Guizhou, as a comprehensive experiment of big data in China, took the lead in carrying out local legislation on big data, and formulated the “Regulations for the Promotion of the Development and Application of Big Data in Guizhou Province” and the “Regulations for the Sharing and Opening of Government Data in Guiyang”. Through legal supervision of the development and application of big data, it is committed to protecting the rights and interests of the public, and comprehensively constructs the “Guizhou Model” in line with the development of government affairs in the western region [21].

### **Governance of Smart Government**

Building a smart government is a revolution in innovative management, advocating the concept of ‘talking with data, making decisions with data, managing data and innovating with data’. First of all, in terms of “speaking with data,” smart smart government pays attention to the governance value of research data, and takes the data as the result of recording and quantifying the reality of the objective world. It is a silent speech record of social multiple subjects, a hotbed for political issues and major policies, and also represents the direction and trend of future social development. Secondly, in the aspect of ‘data decision-making,’ the smart government uses big data, Internet and other emerging information science and technology as a means to help decision makers think more scientifically and efficiently through intelligent data analysis and optimization of decision-making process, so that the government can move from ‘decision by experience’ to ‘scientific decision-making.’ Again, in the ‘data management’ aspect, the smart government through real-time monitoring data, find out the common points from the data and optimize the integration, the static data into dynamic data, so as to realize the analysis and application of data and realize the purpose of precision management. Finally, in terms of ‘data innovation’, smart government provides better innovative solutions for future social governance by integrating and configuring data resources among various functional departments to achieve online and offline communication and data interconnection and sharing.

## **3 Problems in the Construction of Intelligent Government Under the Background of Big Data**

### **3.1 Inadequate System Construction of Smart Government Governance**

To build a smart government, we should first establish a governance system of smart government, and the establishment of governance system should clarify the boundaries between the government and society, and give full play to the initiative, enthusiasm and innovation of relevant social forces. However, the boundaries between China’s government and society are still unclear. The government’s governance focus still focuses on social stability. The government makes administrative orders according to laws and regulations, which interferes with social administration too much and controls are not flexible, so it is easy to cause low vitality of social organizations. Moreover, the governance standards of smart government are not perfect, and the newly developed information science



and technology are constantly interacting with government governance. However, there is no unified evaluation standard for the internal and external governance. In addition, the legislation on smart government governance is relatively backward. In recent years, with the increasingly wide range of fields involved in the process of government governance, new problems continue to emerge, and the requirements for laws and regulations on how to govern are bound to increase rapidly. Governments at all levels lag slightly in the legal construction of smart government governance [22]. For example, in terms of the management and service of the floating population, China currently lacks a strong and high-level legal system. Especially in terms of smart government governance, there are still some blanks of laws, regulations and policies [23]. In addition, in terms of information disclosure system, China's government information disclosure work is still based on 'information disclosure regulations' (hereinafter referred to as 'regulations'), lack of legal norms and constraints. The lack of precision and prudence in 'regulations' relative to the law, and the necessary external oversight of the information disclosure system is not perfect, easily resulting in government inaction. In the era of big data, the governance of smart government is more dependent on data. The continuous development of information science and technology makes the decision-making of government departments more dependent on the analysis and use of data. The government collects data in various fields, and then analyzes and stores them. Each step is a new challenge for the government. Faced with important data resources, Governments need to make information public while ensuring their security [24].

### **3.2 Big Data Core Technology is Still Lacking**

By observing the development trend of foreign countries, it can be seen that the government, as the producer and processor of a large number of information, as well as the largest owner of public information and even personal privacy information, needs more information science and technology to improve its governance level in all aspects of information data collection, extraction, analysis and storage [25]. Using big data technology and new tools to improve the processing speed and efficiency of information data is an important part of improving the government's social governance ability and creating a harmonious society atmosphere. However, in the field of information science and technology such as big data, China's government still lacks relevant technical personnel, and the technical level is not high. In the face of the challenges of emerging new situations, the technical requirements for China's big data core mastery are getting higher and higher.

### **3.3 Lack of Necessary Technical Supervision Mechanism**

Big data information resources are not only one of the three major production factors in today's society, but also the core strategic resources. Therefore, it is necessary to supervise them [26]. However, at present, China lacks hard laws and regulations that rely on the national coercive force to protect it, and also lacks soft law constraints on security and confidentiality. Thus, there is a serious security risk of privacy data information, and it is prone to leakage or infringement of citizens' privacy information. In the stage of data collection, smart government lacks legal and effective authorization

mechanism and effective constraint system; in the data storage phase, there is no security encryption system maintenance and related institutional constraints for the preservation and retrieval of data information; in the stage of data transportation, there is no reasonable personal accountability mechanism and archiving system; in the stage of data analysis and processing, there is a lack of specified original support. Due to the lack of necessary regulatory mechanisms for the smart government at all stages of information data, there is a conflict between the smart government and the protection of personal information, which cannot protect the legitimate rights and interests of citizens, and ultimately slow down the protection of citizens' legitimate rights and interests and the construction of public service system. Moreover, smart government builds a legal system to ensure the effectiveness of data information. However, in the process of practice, the "personal information protection law" for the protection of data information is small, unable to prevent the occurrence of data information violations from the root causes, so that the legitimate rights and interests of citizens have been destroyed [27].

### 3.4 Failure to Construct Dynamic Network Collaborative Governance System

The concept of 'collaborative governance' was first proposed at the Fourth Plenary Session of the Sixteenth Central Committee of the CPC in 2004. After more than ten years of exploration and development, some achievements have been made, but some challenges remain. For example, with the continuous development of information science and technology, collaborative governance is not closely related to science and technology such as big data, and the dynamic network collaborative governance system is not fully perfect. Dynamic network governance is a social governance mode that builds a cloud platform for intelligent governance through new information science and technology such as big data, cloud computing and the Internet, and promotes the network governance of basic information, so as to realize networking, intelligence, precision, dynamic and collaborative. But at present our country has not yet established the effective dynamic network governance system, some government departments coordination degree is still low, administrative organs at all levels still exist 'information isolated island' phenomenon. Smart government governance is a complete and efficient governance system. In this system, all departments need close collaboration to maximize the effectiveness of resources [28]. However, in practice, government departments at all levels build smart government governance platforms, which makes it difficult to achieve cross-regional information sharing between governments at all levels and departments, and it is also difficult to achieve high coordination between governments, governments and departments, departments and departments.

## 4 Countermeasures and Suggestions

### 4.1 Perfecting the Legislation of Open Government Big Data

The better construction of smart government in China is to pay attention to the institutional construction of smart government governance. System construction first needs to establish and improve the corresponding laws and regulations, but also need to formulate

unified norms and standards of smart government governance. China can refer to the experience of other countries, such as big data disclosure should be strictly improved system security system, the core is to improve the relevant laws and regulations as soon as possible [29]. Law is the embodiment of the state's coercive force, the rigorous expression of the system, and the disclosure of information by the smart government through the network platform, which makes the public really enjoy the right to know and the right to supervise, which is an effective means of supervising government behavior. The construction of the legal system of government information disclosure is an effective means of administrative control, and also the guarantee and path for the public to supervise the government [30]. Information disclosure and sharing should have perfect corresponding legal requirements or policy management methods, and should be constrained from legal and policy provisions to ensure data security and privacy protection. To build a smart government, it is necessary to continuously improve and perfect a series of laws and regulations such as big data openness, technology, standards, security, application and supervision, accelerate the interoperability, co-construction and sharing of government public data resources, create a good new environment for big data governance of big data openness, cooperation and sharing, and realize the scientific, humanistic and accurate management, decision-making and service of government public administration.

#### **4.2 Shared Development of Big Data and Related Technologies**

Big data has a large number of data size, a variety of data types and rapid data flow characteristics. To build a smart government, it is necessary to ensure that the data information received by the government in front of a large database and the data information relied on for making decisions are accurate, and the decisions made should be reasonable and timely and effective. This requires the government to realize the classification and induction of data information on the basis of data sharing, and construct different data systems, which has strict requirements and standards for science and technology. For example, cloud computing technology under big data can process data quickly and accurately. In addition, core technologies such as irreversible distributed ledger system, asymmetric encryption technology, and complex mathematical algorithms of blockchain technology provide the possibility to solve problems that are difficult to solve such as openness, security, and authenticity of data [31]. Combining big data technology with blockchain technology has obvious advantages in data management of smart government. Therefore, it is necessary to improve the combination of big data and its related information science and technology with big data technology, which has obvious advantages in government data governance. Therefore, it is necessary to upgrade big data and related technologies to continuously promote the development of smart government construction.

#### **4.3 Perfecting the Supervision System of Smart Government Governance System**

In the era of big data, improving the supervision system of smart government governance system helps to strengthen the internal and external supervision, thereby protecting the legitimate rights and interests of citizens and preventing the abuse of government power. To strengthen the internal supervision and supervision system of the smart government

governance system, it is necessary to formulate the power list system and actively develop the network supervision platform. It is necessary to take the combination of online and offline supervision, and integrate the functions and powers of various government departments into the network comprehensive evaluation and supervision platform from a series of processes of granting power, exercising subjects, operating processes and corresponding responsibilities, so as to effectively link up various execution links and achieve supervision in each link. In addition, to strengthen the external supervision system of the smart government governance system, we should fully integrate the national conditions and establish a sound social three-dimensional network supervision system. On the one hand, social enterprises actively cultivate new regulatory technical talents in the era of big data, improve the hard power of dealing with technical loopholes, and effectively maintain network security; China should also combine the national conditions, the legislation should be implemented to the details, so as to improve the social three-dimensional network supervision system. On the other hand, social organizations and citizens should give full play to the collective power, make full use of the network supervision of public opinion, and supervise the unreasonable behavior of the government, so as to achieve the combination of internal and external coordination, and conduct comprehensive supervision of government behavior.

#### **4.4 Governance Mode of Innovation Dynamic Network Collaboration**

With the continuous development of information science and technology, various elements of social economy flow in space at a faster speed, and social development becomes more and more challenging and uncertain. Therefore, to construct smart government and promote smart government governance, it is necessary to innovate the mode of dynamic collaborative governance of network in order to be more suitable for the increasingly complex social environment. First of all, the governance body multiple coordination. Based on big data technology, it integrates the power of various organizations, various strata and various teams in society to participate in government governance, and forms a pluralistic collaborative governance model with government-led, departmental joint, enterprise support and social participation. Secondly, promote online and offline collaborative governance. On the one hand, online information interaction platform is constructed through Internet technology to achieve information and data exchange, build social governance database, capture dynamic focus in real time, accurately understand and effectively respond to problems and challenges in society. On the other hand, online and offline through the existing grid, the active participation of all kinds of subjects is brought into play, and social pluralistic cooperation is promoted to achieve social coordination. Finally, the governance mode is dynamically coordinated. The use of law, market, administration and other governance methods, and with the help of big data, cloud computing, Internet and other science and technology all-round dynamic perception of social focus, timely adjustment of government governance, in order to more efficient response to complex changes in the social environment.

## 5 Complimentary Close

Under the background of big data, in order to realize the modernization of government governance system and governance ability, it is necessary to reshape the government, build smart government and realize the smart governance of the government. Information science and technology such as big data not only triggered technological and industrial revolutions, but also led to changes in government governance methods. At present, the development of information science and technology to promote government reengineering and governance reform has become a global trend. Therefore, promoting the construction of smart government governance with the help of emerging information science and technology to effectively deal with and solve the increasingly complex social environment is an urgent problem that contemporary government management researchers and practitioners must pay attention to. Due to the important role of big data technology in government governance, governments at all levels in China should pay attention to the R&D and in-depth integration of the application of information science and technology in government governance, so as to promote the development of smart government governance and the modernization of government governance capacity.

## References

1. Hu, S., Wang, H., Mo, J.: Research on smart government governance innovation based on big data. *Exploration* (01), 72–78+2 (2017)
2. Smart Government Governance: The way of government governance reform in the era of big data. *E-government* (05), 85–92 (2018)
3. Chinese Government Website: ‘Notice of the State Council on the Issuance of Action Plan for Promoting Big Data Development [EB/OL] (2015). [http://www.gov.cn/zhengce/content/2015-09/05/content\\_10137.htm](http://www.gov.cn/zhengce/content/2015-09/05/content_10137.htm). Accessed 10 Mar 2015
4. Wu, T.: Research on ‘precise’ decision-making of smart government from the perspective of big data governance. *J. Yunnan Univ. Adm.* **19**(06), 110–115 (2017)
5. Boli, G., De Marco, A., Perfetti, F., et al.: A new taxonomy of smart city projects. *Transp. Res. Procedia* **3**, 470–478 (2014)
6. Huo, L.: Willow. Research on smart government service mode under cloud architecture. *Mod. Intell.* **36**(7), 3–6 (2016)
7. Wu, J.: Countermeasure research on promoting the development of smart city by smart government construction. *China Inf. Ind.* **5**, 24–26 (2011)
8. Gil-Garcia, J.R., Helbig, N., Ojo, A.: Being smart: emerging technologies and innovation in the public sector. *Gov. Inf. Q.* **31**, 1–18 (2014)
9. Lv, Z., Li, X., Wang, W., et al.: Government affairs service platform for smart city. *Futur. Gener. Comput. Syst.* **3**, 21–33 (2017)
10. Alenezi, H., Tarhini, A., Sharnas, K.: Development of quantitative model to investigate the strategic relationship between information quality and e-government benefits. *Transform. Gov. People Process Policy* **9**(3), 324–351 (2015)
11. Howard, R., Maio, A.D.: Hype cycle for smart government, 2013 [EB/OL]. (2013–07–22). <https://www.gartner.com/doc/2555215/hype-cycle-smartgovernment>. Accessed 10 Mar 2015
12. Shang, S., Du, J.: Analysis and path design of smart government function construction under the background of big data. *Intell. Theory Pract.* **42**(04), 45–51 (2019)
13. Fei, J., Jia, H.: Path selection of government APP providing public service platform from the perspective of smart government. *E-government* **09**, 31–38 (2015)

14. Song, L., Lu, M.: Review of domestic research on smart government (2005–2015). *Mod. Econ. Inf.* (11), 122–123+125 (2016)
15. Zhang, J., Zhu, J., Shang, J.: Summary of research status and development trend of smart government at home and abroad. *E-government* **08**, 72–79 (2015)
16. Xia, Y.: International comparison of open government data strategy and China's countermeasures. *E-government* **7**, 45–56 (2017)
17. Geng, Q., Sun, Y., Liu, X.: *China Government Information Development Report - Smart Government, Government Data Governance and Data Opening*, p. 107. Beijing University of Posts and Telecommunications Press, Beijing (2017)
18. Yun, Q., Suo, Z., Huang, S.: Report on internet development and governance (2017). *J. Shantou Univ. Human. Soc. Sci.* **33**(11), 20–23 (2017)
19. Waldo, D.: *The Study of Public Administration*, p. 55. Doubleday, New York (1955)
20. Que, T.: National governance in China's cyberspace: structure, resources and effective intervention. *Contemp. World Social.* (02), 158–163 (2015)
21. Shen, F., Zhu, J.: Smart government governance in the era of big data: advantage value, governance limit and optimization path. *E-government* (10), 46–55 (2019)
22. Zhang, L.: *Smart City Governance Research*. CPC Central Party School, Beijing (2015)
23. Hu, S., Wang, H., Mo, J.: Research on smart government governance innovation based on big data. *Exploration* (01), 72–78+2 (2017)
24. Cao, L.: Big data innovation: EU open data strategy research. *Inf. Theory Pract.* (4), 118–122 (2013)
25. European Commission: *Open Data: An Engine for Innovation, Growth, and Transparent Governance* [R/OL]. <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0882:FIN:EN:PDF>. Accessed 05 Dec 2015
26. Li, Z.: *Internet + Government Services, Open a New Era of Intelligent Government*, p. 101. China Railway Press, Beijing (2017)
27. Shen, F., Zhu, J.: Smart government governance in big data era: advantage value, governance limits and optimization path. *E-government* **10**, 46–55 (2019)
28. Zhang, L.: *Research on Smart City Governance*. CPC Central Party School, Beijing (2015)
29. Shen, G.: Data sovereignty and national data strategy in the era of big data. *Nanjing Soc. Sci.* **6**, 113–119 (2014)
30. Su, Y., Ren, Y.: Construction and improvement of government information disclosure system under the background of big data - and on the enlightenment of the frontier development of foreign transparent government practice to China. *Libr. Inf.* **02**, 113–122 (2016)
31. Han, Y.: Research on the problems and countermeasures in the construction of rule of law government under the background of big data. *Legal Syst. Soc.* **35**, 102–103 (2019)