Public Policy and Administration Review
June 2018, Vol. 6, No. 1, pp. 1-6
ISSN: 2333-5823 (Print), 2333-5831 (Online)

Published by American Research Institute for Policy Development
DOI: 10.15640/ppar.v6n1a1
URL: https://doi.org/10.15640/ppar.v6n1a1

The Development Process and Efficiency Enhancement of the Modernization of Government Governance Driven By Big Data

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Abstract

The development of government governance modernization driven by big data is a further development and advance on the basis of e-government. The driving effect of big data on the modernization of government's governance capacity is reflected in the government's wisdom in public services and government services, and the improvement of social governance capabilities. However, the current government's attitude towards the use of big data is not as active and effective as that of the market and scientific research, and there are some phenomena that control is better than interaction in the internal application of the government. It needs to be self-adaptive in terms of institutional innovation, functional change, and multi-participation.

Keywords: Big Data; Government Governance; Governance Modernization; Adaptive Enhancement

The new round of science and technology revolution with big data as its main content covers the whole world. After bringing about new social changes in thinking and technology in the Internet and communications fields, it quickly spreads into the field of government governance, forcing changes in government functions and formulating policies for government departments. Public orderly and civilized participation, social issues discovery and conflict resolution have increased administrative efficiency and social credibility. The establishment of a new management mechanism "Use data to speak, use data to make decisions, use data management, use data innovation." [1] has become the focus of government development in China for a long time to come.

1、 Big data advances the development course of our government modernization

In 2015, the State Council issued " Action Outline For Big Data Development", which requires all government departments to gradually realize the government data of the relevant areas of the people's livelihood guarantee service by the end of 2020 [2]. The development of the modernization of government governance in China with big data construction is based on the further development and promotion of e-government. Big data is the current background, technology tools and "booster" for the new development of e-government. The history of the Chinese government's development from e-government to big data governance can be roughly divided into five stages:

1.1Office automation phase

Early in the reform and opening up, the government began to use computer technology to carry out some of the most basic administrative processing, such as file storage, statistical calculation and so on. This stage is simply the use of computers to replace some of the manual work to improve the efficiency of simple work such as drafting a document.

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Although limited to this, the enormous power that the computer has shown as a new thing in China has created a hot stream of computer learning both in government departments and even across the country. This wave of office automation has laid the foundation for the development of China's later e-government.

1.2 Gold Projects implementation stage

After the appearance of the information superhighway in the 1990s, the government stepped up the pace of informatization and the construction of the portal site. The characteristics of government information presented in a single and unidirectional manner are classified and published. The public can view government information on government websites and also download relevant forms of public service matters. At this stage, the government used information management systems and automated office systems to bring simple and convenient online services to the public. The landmark event was the "two networks, one station, four libraries, and twelve gold" project that was implemented in 1993. Its original intention was to promote the transmission and sharing of national economic data. As a result, the informatization development of e-government in China has been greatly promoted to a level. According to the "Statistics Report of the 36th China Internet Development" published by the China Internet Network Information Center (CNNIC), China has 57923 domain names with suffix of gov.cn, 31,667 government websites, and the government's main e-government coverage at all levels reached 81.3%.

1.3Vertical Information System Integration Stage

With the sudden emergence of the Internet, the government has achieved the integration and construction of a unified information platform at all levels of government information systems of the same department through the establishment and integration of back-end databases. Various levels of departments can make full use of multi-level networks and central databases. In January 1999, more than 40 ministries and commissions jointly launched a great significance of government online project, which required government departments at all levels to use computer and Internet technologies to implement relevant government functions on the Internet and provide all kinds of information resources to the community. At this point, the government's information governance has changed from quantitative to qualitative change, and China's government affairs have begun to integrate deeply with the Internet.

1.4 Cross-sector government information and data resource sharing and government coordination

In the 21st century, our government has entered the integration stage of e-government information system, and the cross-departmental government information and data resource sharing and government cooperation. During this period, e-government began to bring about substantial changes in government functions, from one-way dissemination of government affairs information to online services, and to efficient administrative offices, entering the organic development sequence with overall layout, planning, promotion, implementation, feedback and improvement. The combination of the electronic technology, internet technology and various government affairs has provided powerful tools for the reform of government agencies' reform and governance capabilities.

1.5 The stage of big administration of big data governance

With the advent of big data era, the government has entered the stage of modernization of governance capability. The government began to actively analyze and mine data, and the traditional authoritative, one-dimensional government service model turned to provide more intelligent and customized government services to citizens and corporate users, achieving the stage of "big government" ,combined with big data and e-government services [3]. At the same time, through the big data platform for data integration, openness, and sharing, actively protecting citizen participation and government coordination, the government has achieved mobile network services, optimized government work processes, promoted government process reengineering, and innovated public management and service models. It has formed a "one-stop, one-network, integrated" government service mode with "technology as the support, business as the core, data as the foundation, and service oriented".

2、 The impetus effect of big data on the modernization of government governance

The modernization of government governance is a combination of institutional modernization and human modernization. It is not only a concept but also a practical and measurable practice. Modernization itself is a dynamic product. The modernization of governance capacity must have a self-organizing system to balance the economic development. That is to say, self-governance capacity can increase with the development of local economy, society, politics, culture, and ecology.

2.1 The improvement of government administrative decision-making level

Compared to the era of small data, the attributes and laws of social development that big data can exhibit are unprecedented. It has a large body mass, various types and fast processing speed. It can analyze massive data in a short period of time, and focus on the overall control of the object. In addition, the characteristics of low value density of big data can allow people to approach the truth from the macroscopic and microscopic level infinitely, which can greatly improve the scientific and accuracy of decision making.

2.2 Government public service and government service intelligence

Different from the small data era, the big data era can realize the accurate perception of public demand, and help to transform the public service of government to refinement and personalization. In addition to analyzing all kinds of macro data, big data can also tap into the subtle behavioral characteristics of the public to achieve a precise grasp of the needs of the public, so as to rationalize public service resources and push personalized public service products. In addition, big data boosted the transformation of government public services from closed inefficient to collaborative, efficient, and energy saving. The horizontal and vertical information exchange within the government has become more convenient and quick. The public can access government information more easily, and the government's office efficiency is obviously improved, the operating cost is constantly reduced, and the information island is greatly reduced.

2.3 The improvement of government's social governance capabilities

Internet has low cost, fast transmission and wide scope, interactive and fragmentation characteristics, more and more people choose network voice to express their own interest appeals and the need to participate in political discussions, but disorderly network participation has increased the difficulty of government social governance[4]. The use of big data can screen and filter illegal and false information on the Internet, and guide citizens to move from disordered requests on the Internet to standardized and rationalized legal procedures. While enhancing the government's ability to manage social affairs and cohesion, it also enhances the public's faith in the pursuit of social justice and creates a positive, healthy and uplifting governance environment.

2.4 The improvement of ability of the government responds to social risks

Big data has its unique advantages in dealing with social risks. In ecological environmental protection, through the elements of ecological environment monitoring and the historical data, the government can build a quick emergency response of comprehensive disaster reduction and risk management information platform, comprehensively assessing environmental quality and risks. In dealing with the modern risk, big data can effectively prevent or resolve network mass incidents, terrorist attacks and other non-traditional risk, also can predict the change of the public mood or reaction in advance, accurate warning such contradictions. It stifles the possibility of mass incidents in the cradle.

3、 Big data drives the bottleneck of modernization of government governance.

Although the value of big data is indubitable, the current status of the application of big data is still in the process of exploration and practice. The government faces many new challenges in the application of big data governance.

3.1 The constraints of conservative thinking

Since the development status of each field is different, there are gaps in the breadth and depth of application of big data in different fields. The imperfect development of big data technology itself has increased resistance and obstacles to further promote the application of big data to government governance.

Although these resistances also exist in enterprises and society, they will be amplified in government departments. The economic development has enabled the government's achievements to be affirmed, but the modernization of the government's governance capacity has failed to achieve such significant results and quantitative assessments. Many uncertainties brought by big data to government governance have led to which the government's center of gravity can not be transferred to the comprehensive capacity building of government governance.

3.2 The inclination of government preference

In the e-government carried out by local governments, the construction of internal collaborative office and electronic prevention and control platforms is more . For big data technology, the government actually uses more aspects of supervision and assistance for its own work. For example, the "3+1" office automation system deployed by the Changsha Municipal Government Office is not only used to improve the efficiency of the administrative office of the Changsha Municipal Government, but also to promote the transformation of the Changsha Municipal Government Office into an informatization; The State Administration of Taxation has promoted the improvement of national tax inspection capabilities through the application of big data technology, and has transformed from traditional inspection methods to modern inspections. These are the driving forces for the modernization of local government governance capabilities of big data, but most of them are limited to government offices or supervision and control, and there is very few open interactive communication platform for the two-way communication between big data and government governance.

3.3 Technical limitations

Compared with the developed countries, China's big data technology started late, and the technology of master has a large gap with the developed countries. In China's domestic, there are large gaps in the mastery of big data technologies between different regions. For example, Beijing, Shanghai, Shenzhen, and other cities with advanced economies in economy and science and technology are superior to the inland in the mastery of big data technology. In addition, Guizhou has established a national big data center due to its importance and strong support for big data.

The big data in the modernization construction of local government governance capacity usually has insufficient technical support in two aspects. One is the infrastructure for big data construction. Due to insufficient input, etc., the construction of information network facilities such as broadband networks, Internet of Things, and triple play networks is not yet complete, and the construction of public service platforms such as cloud computing centers and government databases is difficult to meet the demand for the development of big data era. Local government governance still lacks sufficient data analysis tools to support work. On the other hand, for data processing, the government also does not have perfect technology to ensure its security, which has led to great restrictions in further promoting the modernization of government governance capabilities. Take Changsha Municipal Department of Homeland Security as an example, the e-government information system of the Changsha Municipal Bureau of Land and Resources has put forward three security requirements analysis in the "Proposal of CA Security Certification Scheme for E-government Project of Changsha Land and Resources Bureau." due to lack of technical support : Ensure the authenticity of the system user account in the document approval and file upload process; Ensure data integrity and confidentiality in transmission and non-repudiation of data; Realize visual and graphical electronic signature function. Guarantee the authenticity of the system user account during the process of registration and document uploading; safeguard the integrity and confidentiality of the data and the non-repudiation of data during the transmission process; and realize visual and graphical electronic signatures. The three security requirements put forward by the Bureau of Homeland Security of Changsha are common technical problems faced by many local governments in the e-government CA certification platform. The electronic platform cannot provide sufficient security for the whole paperless office.

3.4 Outsourcing cost is high and self -support effect is low

Since there is no corresponding big data technology and there are not enough big data resources, many local governments have adopted the practice of purchasing big data information and scientific research technologies from large-scale Internet companies or research institutions. The government is faced with the difficulty of purchasing and the high purchase cost. The hidden cost increase in the purchase process cannot be ignored. The government faces huge costs in the purchase and increases the financial burden.

Therefore, some governments set up special funds to support the training of local Internet companies to obtain quality big data technologies and resources. However, the actual situation is that some local governments pay high financial subsidies each year, and these small new big data companies do not have an advantage in competition with large-scale Internet giants, and they cannot meet government demands neither in terms of technology nor resources.

3.5 Policies and laws are imperfect.

The use of big data to promote the modernization of government's governance capabilities requires sound laws and regulations to ensure that the legal constraints and protections are brought into play. However, the legal protection of big data in China is hidden in various legal provisions, and there are no special provisions for big data. Local laws, regulations, and system construction only include the "Application Regulations for Big Data Development in Guizhou Province (Draft)". Some local government departments have issued privacy protection statements. And some local governments have already promoted government and public data disclosure policies. However, the government's open data and information are still in a general and ambiguous phase. There is no clear definition of how to open and open up. What is missing is to regulate government data and information. Open systems and mechanisms. However, the government's opening up of data and information is still in a general and ambiguous phase. There is no clear definition of how to open and open up. What is missing is the system and mechanism for regulating government data and information disclosure.

4、 The adaptive enhancement of the improvement of government governance promoting by big data

According to IDC, a market-research firm, China will account for 21% of the world's total data in 2020, and big data will usher in a golden opportunity for rapid growth. More than 80% of China's data resources are in the hands of government departments at all levels[5]. Under the conditions of big data environment, the government should realize adaptive transformation from the following three aspects:

4.1 Institutional innovation to adapt to big data development

Hierarchy and departmental governance structure is the traditional organizational form of the Chinese government. After many government agency reforms, overstaffed institutions are still a common problem of the government. Uploading issued layers of institutions consumes the timely value of data information, and the partitioned departments block the value of data aggregation, and timeliness and linkage are just the life and value of the data. Therefore, we must reduce the number of levels of data transmission in government governance, open up channels for the flow of data among government departments, and create an unimpeded environment for Big Data to promote the modernization of government governance.

To create this environment, first of all, the government's core leadership must pay enough attention to big data, and can open up "green cards" for the flow of big data between government levels, and reduce the actual loss in its upload and release. Secondly, through the introduction of relevant policies, laws, and technical standards, we must open up the "data islands" between various government departments and link data resources among various government departments to create government big data aircraft carriers. In addition, it should be normalized through relevant institutional settings and personnel arrangements. Many local governments do not have independent big data departments in their current governance mechanisms, leading to a series of problems such as unprofessional use of data, unscientific processing effects, and insignificant results. Therefore, an independent Big Data Authority should be set up to strengthen the overall data management authority's coordination and coordination functions. At the same time, a committee of experts should be set up to provide advice and suggestions for the business operations of the Big Data Authority; To ensure that Big Data is advancing the development of the modernization process of the Changsha government.

4.2 Functional transformation to accommodate big data trends

In the traditional process of government governance, the process of providing public services by the government is often arranged from the perspective of the supply side. However, such government service thinking and the current rapid economic and social development, the increasing diversity of citizen needs and the goal of service-oriented government are Incompatible. The government should make full use of big data technology to transform government governance function, and realize the transformation from management to service, supply side to demand side.

First, the government should make full use of big data mining technology integration citizens demand information, from the demand on the supply of public services, broadening the channels for public expression of demand, to provide more accurate comprehensive public services for the public. Secondly, we must publish and share information on the interests of citizens in a timely manner.

The government should issue relevant rules and regulations, stipulating that related departments should disclose relevant data and information in order to respond to the concerns of society and the public. The modernization of government governance capacity is the core of the modernization of government governance[6]. Traditional government governance tools are dragging down the process of government governance modernization. The core of the modernization of government governance capacity is the modernization of administrative capacity of public officials. Using big data thinking and technology to improve their administrative level is an important issue in the government's modernization process.

4.3 Multi-party participation to meet the characteristics of big data

In the traditional assessment of government governance, due to the opacity of the government governance process and the lack of access to citizens, there is often an embarrassing situation in government self-assessment. Therefore, first of all, we should incorporate the use of big data into the performance evaluation of various departments and related personnel, and enhance the awareness of government departments and related staff in performing their duties. Second, it makes full use of big data technology to collect and analyze the assessment opinions and results of citizens and their social organizations so as to ensure the authenticity and objectivity of government governance assessment. Finally, the process and results of government governance evaluation should be made public to the society and the public in a timely manner.

It can be foreseen that maximizing the use of big data is an inevitable trend in the modernization of government governance. The increasingly mature big data analysis technology can make the various functions of government governance effectively utilized and play a greater role, and it also has the influence of technology, thought and system on the modernization of government's governance ability. On the one hand, these impacts will bring positive and beneficial impetus. On the other hand, challenges such as the lack of quality data, hidden security risks, and lack of government big data talents have constrained the development and breakthrough in the modernization of government governance capacity in the era of big data. It requires us to adopt a more intelligent vision, and propose solutions to these challenges in a targeted manner, and find suitable paths and outlets.

This paper is a periodic result of Natural Science Fund of Hunan Province" Research on Cultivation of Intelligent Manufacturing Industry in 'China manufactured 2025"'(2018JJ2541) and Hunan social science fund project "Technology resource allocation and optimization strategy(14YBA168)" .

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