National audit under the big data environment

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The integration of information technology and economic social leads to the rapid growth of data, data has become a national basic strategic resource, big data is increasingly influencing the global production, circulation, distribution, consumption as well as the mechanism of economic operation, social life and national governance. National audit is regarded as an important part and a main tool of national governance. It is a creative and practical challenges that how to play the role of supervision and control of national governance under the big data environment, so as to promote the healthy operation and scientific development of the national economic.

The twenty-first session of the INTOSAI adopted the *Beijing declaration* calling on the supreme audit institutions throughout the world to fulfill their duties in national governance and global governance in accordance with the law".

1. Big data has become a new way to enhance the ability of national governance.

It is a worldwide trend that using big data to promote economic development, improve social governance, enhance government

services and regulatory capacity. It becomes inherent need and inevitable choice to accelerate the deployment of big data and deepen the big data applications, which brings steady growth, promoting reform, adjusting structure, improving people's livelihood and promoting national governance capacity modernization.

Big data applications can reveal the relationship which could not be shown by traditional technology and methods. Promoting government data opening and sharing, social data fusion and resources integration can greatly enhance the overall ability of data analysis, and provide new methods to deal with complex social problems. The government could establish a mechanism, that is, speak with data, make decision through data, data management and data innovation, to achieve scientific decision-making based on the data. It will promote the concept of government management and social governance progress, accelerate the construction of legal government, innovative government, honest government and service-oriented government, and gradually realize the modernization of national governance capacity. Therefore, big data has become a new way to enhance the ability of national governance.

2. Big data is a new way of national audit serving for national governance

National audit is an important part of national governance, which

legally restrict the power via supervision. The essence of national audit is an "immune system" with endogenous prevention, reveal and resist functions within the national governance system. Its core is to promote national democracy and the rule of law, realize good governance, promote the healthy operation of national economy and scientific development, so as to protect the fundamental interests of the people better.

In the big data environment, in order to ensure the national audit to serve the national governance better, promoting the audit informatization construction with the core of big data is not only the significant means to cope with further challenge, but also the necessary way to achieve full coverage of audit. In order to play the role of audit and supervision better, bid data analysis can be applied to do multi-dimension scanning and data mining, grasp the macro characteristics and trend, and focus on micro doubts, which becomes an important procedure of digital audit approach including overall analysis, discovering doubt, decentralized verification systematic research, meanwhile, impels the implementation of modern and comprehensive audit model. It is as well beneficial to build big data audit mode, improve the quality, efficiency and ability of audit, and expand the breadth and depth of audit supervision, to ensure that the national audit to serve the national governance better.

3. The mode of big data audit in Chinese audit

Big data audit mode is developed on basis of system construction, with the core of data collection, depending on auditors, with the direction of audit analysis. It can expand the breadth and depth of audit supervision through allocating audit resources scientifically as well as improving the audit ability, quality and efficiency.

On the basis of system construction. The relevant departments, financial institutions and state-owned enterprises should legally provide correlated electronic data information and necessary technical documents according to the audit needs, and shall not make restricting rules to provide resources and open query access to information system. Audit Offices have established the system of data regularly submission to increase the intensity of data concentration.

Regard data collection as the core. To meet the needs of rapid development of information technology, accelerate the construction of audit information based on big data. Increase efforts to promote the implementation of relevant system and regulation, promote the regular submission of electronic data legally, increase the classification of data from multi-industry and multi-division, build audit data center in CNAO and provincial audit institutions gradually. It is critical to improve the national audit data center to adapt the

needs of big data audit.

Relying on auditors. Audit institutions at all levels focus on the analysis of big data, scientific configuration of audit force, the formation of audit team full of combat effectiveness. In order to strengthen the integration between different domains, break the boundaries of labor division, pay attention to the complementary advantages of auditors' capacity and structure, make efforts to build the audit team with strong ability of checking problem, analyzing and researching, computer application and audit management.

In the direction of audit analysis. Audit institutions actively use big data technology to increase the comprehensive comparison and correlation analysis among business data, financial data, industry data and data cross industries and domains, so as to improve the ability of checking problems, judgment and macro analysis via information technology.

4. An example of big data audit mode in national audit

In 2015, The Auditor General of CNAO made a report in the 12th session of the standing committee of the National People's Congress on 15th meeting, referring to audit of the land transfer payments and arable land protection.

In this audit example, in order to solve the field auditing difficulties because of various points, large length and width, the audit groups innovated the audit mode, separately collected the remote sensing image data from the department of land, the planning data from the planning department, business data map from the forestry sector, relevant data from the agricultural sector and the development and reform department, as well as the industrial, commercial and tax data. They fully analysed and correlated the structured data and unstructured data cross domains and industries. It effectivly takes the advantage of concentration analysis of big data, expands the coverage of audit, and enhances the breadth, accuracy and efficiency of audit.

5. The "six transformations" of National Audit under the big data environment

Big data audit mode brings profound changes to National Audit Office of the People's Republic of China. The characteristics of big data application in our audit are shown below.

Increased data concentration and integration efforts. By establishing and perfecting the system specification and working mechanism of data collection and management, National Audit Office of the People's Republic of China will realize the full collection of all

kinds of main information data in 2020. Complete the measures of electronic audit data management. Some strategies like the establishment and perfection of the national audit data center and the provincial audit data center, vigorous promotion of the integration and standardization of data, and centralized management of the collection of electronic data from local audit institutions according to the audit standards and requirements, are executed to information sharing among all audit institutions at various levels and audit fields, and to improve data utilization value. Besides, establish the audit data disaster recovery center.

Strengthen the use of big data technology. Audit institutions actively apply the cloud computing, data mining, intelligent analysis and other emerging technologies to improve audit efficiency. Positively explore multi-dimensional and intelligent data analysis methods. Strengthen the correlation analysis between the data in various fields, levels, and systems, and enhance the ability to judge and evaluate the macro economy and percept the economic risk.

Enhance the ability of digital audit command. National Audit Office of the People's Republic of China will basically complete the audit digital command platform, big data comprehensive analysis platform, integrated audit working platform, simulating lab and comprehensive service support system in 2020. Accelerate the

document processing, file management and other informatization on work, and gradually achieve the audit plan, resource allocation, organization management, quality control, achievement utilize during the whole process of digitization. Build integrated information service support system.

In summary, our audit work is facing comprehensive transformations under the big data environment, which includes six outstanding areas. (1)Transformation from single point discrete audit to multi-point linked audit,(2)Transition from partial audit to full-coverage audit. (3)Change from static audit to combination of static and dynamic audit. (4)Change from post-audit to combination of post-audit and concurrent audit. (5)Transition from on-site audit to combination of on-site and off-site audit, (6)Transformation from micro audit to combining micro audit with macro audit.

The "six transformations" will accelerate the construction of audit information with the core of big data, which greatly enhance the digital audit and data correlation analysis, play full role of national audit, serve the national governance direction, promote and improve national governance.