Contingency Management in Big Data Era

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Abstract: The emergence of big data technology has completely changed people's understanding of natural and social thoughts, views and accuracy. Many past research hypotheses, management models and methods have been re-recognized or even overturned. Guided by the related theories of contingency management and big data, this paper points out the basic connotation of big data, analyzes the impact of innovation management and big data on social governance environment in the era of big data, and constructs the basic application of big data in contingency management. The framework presents new challenges for government contingency management in the era of big data. The wide application of big data technology in the field of contingency management will effectively enhance the data capacity of China's contingency management system, and even reshape the system, mechanism and process of contingency management.

1. Introduction

Big data refers to very large data sets that can be captured, stored, managed, and analyzed beyond conventional database software tools. Big data is the source of new insight, new value, and the way to change markets, organizations, and government-citizen relationships. Contingency management refers to the government and other public institutions adopting a series of necessary measures to ensure the safety of the public life and property, and promote social harmony in the process of ex ante prevention, incident response, disposal and after-care management of contingency. The effect of contingency management is related to social stability, economic development and people's happiness. It is also one of the important criteria for assessing government management capabilities. Seize the opportunities in the era of big data and achieve innovation-driven development. The contingency management capability of the Chinese government needs to be improved, and it is necessary to resolve the contradiction of the "supply and demand" of public contingency.

China's contingency management theory research is still in its infancy. How to deal with the challenges of crisis to public management, how to improve the government's contingency management capabilities has become an urgent problem to be solved. Especially since the beginning of the new century, the world economy and political situation have undergone great changes. Various global crisis problems have emerged in the period of social transformation. They have put forward new requirements for contingency management theory research. Big data technology provides A new solution of government contingency management. "The essence of the world is data", making management more precise, data create value, and management thinking change will be an inevitable result. On the one hand, big data has changed the pattern of the occurrence, development and evolution of contingency, increasing the uncertainty of contingency; on the other hand, big data technology provides new tools and instrument for contingency management. Make scientific decision possible.

The emergence of big data technology has completely changed people's understanding of natural and social thoughts, views and accuracy. Many of the past research hypotheses, management models and methods have been re-recognized or even overturned. In the era of big data where

people can master all the data, the explanatory efficiency similar to sampling statistics and related theories will be greatly reduced. The era of big data has spurred management innovation and achieved the governance innovation. As an organic operation whole, all aspects of government contingency management, including early warning, decision making, command, coordination and disposal, are inseparable from comprehensive and accurate data support. The wide application of big data technology in the field of contingency management will effectively enhance the data capacity of China's contingency management system, and thus reshape the system, mechanism and process of contingency management. This paper analyzes the current situation of contingency management at home and abroad in the era of big data, points out the new challenges of government contingency management in the era of big data, and builds the basic framework for the application of big data in contingency management.

2. Basic Connotation of Big Data

Big data, also known as massive data or massive data, is the collection of data consisting of a large number of complex and numerous types of data. It is a cloud-based data processing and application model, through data integration and cross-multiplexing. Form intellectual resources and knowledge service capabilities. "Big data" is not just large-scale data, but the unity of objects, technologies and applications:

(1) From the view of object, big data is the collection of data that exceeds the capabilities of typical database software for collection, storage, management, and analysis. Big data is not a simple accumulation of large amount of data, and the large amount of data does not necessarily have application prospects. Since the ultimate goal is to obtain valuable information from big data, and there is a correlation between the data, it has the value of analysis and excavating. Whether the data is structural and relevant is an important difference between "big data" and "large-scale data".

(2) From the view of technology, big data technology is the integration that quickly obtain valuable information from various types of data. The biggest difference between "big data" and "large-scale data" is that "big data" contains the processing behavior of data objects. You need to quickly excavate more valuable information from big data objects to make big data "live". Big data technology is an important tool for discovering and presenting the value of big data.

(3) From the view of application, big data is the behavior of collecting specific big data, integrating big data technology, and obtaining valuable information. The ultimate goal of big data analysis processing is to discover new association rules from complex data sets, and then perform deep excavation to get new information that is effectively used. Relying on the existing basic data analysis and processing technology cannot be regarded as complete "big data", but only the primary development stage of "big data".

3. Management Innovation in Big Data Era

Management innovation refers to the process of creating a new and more effective resource integration paradigm and effectively using resources to achieve goals. It can be full process management or detail management. In the era of big data, the series of technologies associated with big data are constantly evolving, integrating with changes in the commercial, public, and life fields, stimulating more and more management models, marketing models, and lifestyle models, thus stimulating management innovation.

(1) More accurate management: create a new management model. The emergence of every new information technology has laid the technical foundation for the birth of a new management model, making management innovation possible. The era of big data has provided technical support for better collection, analysis and management of various information. The significant improvement in management accuracy in the era of big data will definitely extend from the e-commerce field to other fields, creating more and newer management models, bringing great changes to people's lives.

(2) Data creates value: trace economics. In the era of big data, data itself can create value, even renewal and greater value. With the ability to capture and analyze all data, managers can track and

grasp the traces of the target population and individuals, and analyze the big data associated with these traces, thus making many neglected value blind zone. It has been found that many neglected virgin land has been reclaimed, creating new value.

(3) Changes in management thoughts: more pragmatic and close to real needs. In the era of big data, for solving specific problems or creating commercial value, it is not too much value to pursue the so-called "cause-effect relationship", but it is easy to make thoughts and cognition into misunderstanding. In connection with this, it tends to be more pragmatic, emphasizing the achievement of realistic performance and benefits, and the discovery of the correlation between data is far more important and more realistic than the exploration of causality between data.

4. Social Governance in Big Data Era

The impact of big data on the development trend of social governance mainly focuses on two aspects of governance environment and governance methods, and shows the following characteristics:

(1) Big data makes the social governance environment unprecedentedly open and free, and requires the government to establish an open social governance conception. The way to query data depends not only on the official website, but also the government must achieve true openness and transparency. Citizens' opinions and comments are very simple and easy to collect. In the past, strong political participation gradually evolved into a universal participation, guiding the government's future decisions. Expanded the scope of social governance and made social governance more accurate. Due to the two-way communication of information and the wide participation of the public, the social management model has evolved from square to network, which makes the policy formulation more personal.

(2) Big data helps to form the unified and efficient social governance method, so that public policies in the field of social management can be refined and scientific. The impact on the government's philosophy is tolerant. There are so many types of data in big data that the government needs to integrate. The biggest change is to abandon the desire for causality and focus on the relationship. Make social governance more timely, diversify social governance, and form a new model for more people to manage themselves. Social governance is faced with greater constraints, especially the modernization of social governance. It is necessary to build an e-government platform and application system, and apply a new model of social governance.

5. Basic Framework for Big Data Applications in Contingency Management

According to the time sequence of emergencies, contingency management can be divided into three stages: before, during, after, including preventive preparation, monitoring and early warning, contingency response and rehabilitation. Due to current big data is in the technical application stage in contingency management, and there is no strict classification for the application of big data in contingency management, this paper discusses the big data in contingency management before, during and after the contingency management according to the time series of contingency management. The basic framework of the application is shown in Fig.1.

(1) Preparation period before. Need to manage and prepare the infrastructure for big data applications. Management preparation is a personnel preparation and management improvement that matches big data management and big data methods. Facility preparation is the hardware and software facilities required for big data applications. The hardware facilities mainly involve data collection under the background of new technologies. The software facilities not only involve the collection of new data, but also analyze and mine the old data.

(2) Response period in the during. Big data applications can greatly facilitate contingency response for governments, third-party organizations or individuals. For the government, big data contingency management means integration and collaboration based on technical support, which not only facilitates collaboration, but also balances the continuity of daily business and the

timeliness of contingency response; for third-party organizations or individuals, data can provide a more convenient and flexible means for contingency management.

(3) Recovery period after. Big data is mainly in rescue and recovery after the contingency management. The current novelty in contingency management applications is the use of the "Crowd Sourcing" approach. "Crowd Sourcing" is a way in which the public distributes their work tasks through the network and provides services on the network through integration. The sources of information used in this process are scattered, massive, and use information in a machine-driven or semi-machine-making way.
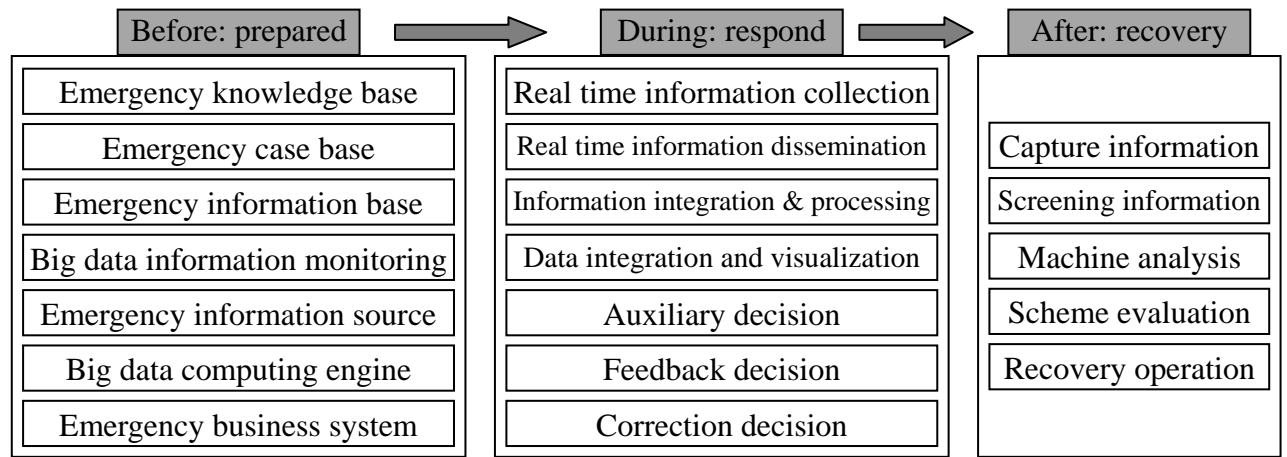
Before: prepared	During: respond	After: recovery
Emergency knowledge base	Real time information collection	
Emergency case base	Real time information dissemination	Capture information
Emergency information base	Information integration & processing	Screening information
Big data information monitoring	Data integration and visualization	Machine analysis
Emergency information source	Auxiliary decision	Scheme evaluation
Big data computing engine	Feedback decision	Recovery operation
Emergency business system	Correction decision	

Fig. 1. Basic framework for big data applications in contingency management

6. New Challenges for Government Emergency Management in Big Data Era

Looking at the development of the era of big data, automatic data collection, dynamic integration, efficient integration, deep mining, and constantly innovating big data thoughts and technology, leading to all-round changes in public safety contingency management. The changes in the basics of contingency management technology requires that public safety management adapt itself through innovation and require the government to make timely adjustments to the contingency response process. However, China's existing public security contingency management methods and models are not suitable for the big data era, and it is difficult to cope with the impact of massive data in the contingency process. Big data poses new challenges for contingency management.

(1) The lack of the comprehensive platform for urban contingency management big data. The ability of big data to monitor and warn of contingency puts higher demands on data information processing capabilities. It is not simply to introduce big data technology into the field of contingency management, and it can realize the big data of contingency management. The real data processing capability of urban contingency management needs to be enhanced through multi-dimensional support functions such as early warning, forecasting and decision-making through a comprehensive big data platform. At present, a relatively comprehensive comprehensive contingency platform is rare, often limited to a certain field, and the application of big data monitoring and early warning effects is not ideal.

(2) The level of application technology of government contingency management big data is backward. Big data has spawned national governance model innovation, bringing path breakthroughs and mechanism innovation to national governance. The government department is the largest unit for the production, collection, use and distribution of information data. However, the reality is that numerous data is scattered in various departments and at various levels, forming an "lonely information island", which is seriously inadequate for the society and the public. A large amount of government data is "dormancy", and the big data technology and computing power owned by enterprises are the useless land has led to the backwardness of the government's big data application technology and the lack of data urgency.

(3) The contingency management mechanism cannot adapt to the requirements of the big data era. The current contingency management mechanism is based on the level of urban administrative management power. The same level of government and the different departments of the government are in a fragmented state of "segmentation" and cannot adapt to the liquidity characteristics of big data. The effective management of accuracy and digitization has not been achieved for different monitoring areas such as hazard sources, communities and key monitoring areas. Although different industries have accumulated the wealth of data, these data are basically in a state of segregation, and data integration between departments is insufficient, which affects the collection and decision-making effect of contingency data.

(4) The lack of big data thought consciousness leads to incomplete data. Due to there is no long-term and effective accumulation, the data has the characteristics of non-systematic and non-continuous, it is difficult to find the law from the historical comparison. The current government contingency managers do not have big data thinking consciousness. Contingency decision-making relies on the experience and intuition of managers. It fails to raise the opportunities and challenges brought by the big data technology revolution to the national strategic level, directly causing data incompleteness and sudden the data excavate and analysis in the early stage of the event is in the passive situation, lacking the awareness of using data to describe facts and using data to make decisions, thus affecting the effective implementation of contingency decision-making.

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