Research on Management Model of Network Public Opinion Based on Big Data Technology

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Abstract. The national big data strategy not only provides policy support for economic development transformation and technical guidance for social management reform, but also brings opportunities and challenges to the management of network public opinion for the government. In order to systematically guide the practice work of the government to manage network public opinion, this work first analyzed the challenges faced by network public opinion management under the background of big data, and then proposed the mechanism and technology of network public opinion management based on big data.

1. Introduction

From the perspective of the network public opinion management model based on big data technology, the existing research mainly analyzes the network users, management measures of government and network media, characteristic meanings and technical means, but lacks a management strategy with multiple elements and whole-process integration [1]. Therefore, it is necessary to make full use of the opening and sharing of information, resources and technology based on the national big data strategy, and to realize systematic management of network public opinion through network thinking, method and technology, institutional mechanism, talent construction and legal management from the overall perspective of combining data and public opinion [2].

2. Challenges Faced by Network Public Opinion Management Under the Background of Big data

2.1. Analysis technology of network public opinion based on big data needs to be enhanced, and data quality is uneven

Big data technology is conducive to innovating the management method of online public opinion, improving the accuracy of public opinion management, and optimizing the management mode of public opinion. The network public opinion in modern society often presents the characteristics of multiple carriers, massive information, direct expression, rapid dissemination and distracting discourse [3]. The update speed of information technology such as big data and cloud computing in China is still relatively slow, and the security is not enough. Big data technology is not yet widespread nationwide, and the utilization rate is relatively low. The phenomenon of data dispersal, public opinion data monopoly and data barriers is still serious. Furthermore, monitoring technology of network public opinion is relatively backward, technical monitoring process has yet to be improved, and timeliness is not strong [4]. At the same time, the bursting point of network public opinion is often unstable, but its fermentation speed is fast and scope of influence is wide, so the time left for the government to monitor, warn and response is very short, which makes it limited to use big data technology to deal with online public opinion.
2.2. Data disclosure and sharing of network public opinion is insufficient, and the ability of managing public opinion data and guiding public opinion is not strong.

The disclosure of government data is a deep development of government information disclosure, which can eliminate the imbalance caused by information asymmetry. The circulation of data is the basis for realizing the sharing of information resources. Data interflow, application interaction and sharing of results are conducive to eliminating information islands. China mainly manages network public opinion through using legal regulation and technical means. This government-led mode conforms to the basic laws of network development and can also effectively safeguard national sovereignty. However, the comprehensiveness of information disclosure in China is obviously insufficient, the accuracy and timeliness of information need to be improved, and the analysis technology of government websites is backward, so it is impossible to achieve accurate analysis and quantitative management [5].

2.3. The legal system of network public opinion management is not perfect, and the rights protection of network public opinion data is insufficient.

At present, the network legislation level of network public opinion management is relatively low, and the relevant laws and regulations of network public opinion management are not rigid, lacking pertinence, systemicness, authority and harmony. The mechanism for collecting and judging the network public opinion is not perfect, and the system of network public opinion response and effective management of public opinion is not perfect. At the same time, the administrative accountability and return mechanism of illegal and derelict duty officials are relatively vague, general, and arbitrary [6]. The phenomenon of penalized officials reappearing happens occasionally, and it is difficult to play the necessary warning role. Big data technology "quantifies the world" through intelligent terminals, Internet of Things, cloud computing and other technical means, and it forms a data footprint for the formation and development of online public opinion. These data footprints often bring data rights and data privacy protection and other related issues while providing support for network public opinion.

3. Management Mechanism of Network Public Opinion Under the Background of Big data

3.1. Improving the organization and implementation mechanism of network public opinion management

Firstly, guaranteeing the mechanism of public participation in decision-making. The government should believe in the self-discipline and judgment ability of netizens, industry organizations and network managers, respect the expression rights of netizens and industry organizations, change the traditional administrative command-making methods and establish a participatory decision-making mechanism that absorbs public participation. Secondly, improving the government information disclosures mechanism. Governments at all levels should make full use of the national big data platform to disclose government information to netizens, so as to enhance the credibility and legitimacy of the government, such as improving the spokesperson system and broadening the information disclosure channels through the network platform. Thirdly, establishing a resource guarantee mechanism [7]. Under the background of big data, online public opinion management faces problems such as high initial cost and modest short-term benefits. Although some public funds can be saved through shared platforms such as data and information, it is still necessary to establish a resource guarantee mechanism to ensure resources input such as capital, technology, materials, and manpower.

3.2. Improving the response and processing mechanism of network public opinion

Firstly, improving the early warning and emergency response mechanism of network public opinion. For example, it can make early warning of negative network public opinion information and sudden incidents, establish a normalized early warning mechanism, change from passive response to quick attack, actively guide the trend of network public opinion, and reduce the frequency of crisis public opinion. Secondly, reforming the institutional setting of network public opinion management. In the practice of network public opinion management, not only the emergency management after the outbreak
of the crisis needs to be emphasized, but also the normalization and institutionalization construction of the public opinion work should be strengthened [8]. It is necessary to change the passive mode of responding to the public opinion crisis through forming leading group and office temporarily, and to make the network public opinion management specialized, intelligent and precise through the setting of normal institutions and professional staff, so as to achieve the transformation of "fire fighting" management to "fire prevention" management.

4. Technology of Network Public Opinion Management Under the Background of Big Data

4.1. Building a fundamental platform of network public opinion based on big data
Data can only produce value if it is integrated. At present, it is urgent to build a unified and efficient fundamental platform based on big data to achieve unified storage and exchange of data in various industries and fields. The Action Plan for Promoting Big Data Development clearly states that "Big data is a collection of data characterized by large capacity, multiple types, fast access speed and high application value, which has become a kind of national strategic resource. It needs to form a cross-sectoral data resource sharing pattern before the end of 2017, and to achieve full coverage of the data unified sharing and exchange platform at the central government level by 2018". Therefore, the two-wheel drive of public opinion and data as well as the mutual support of the digitalization and public opinion can provide a broad platform and technical support for the "digitalization management" and "precise management" of the government network.

4.2. Strengthening big data technology support of network public opinion
Big data has advantages of comprehensiveness, dynamics and openness, but also difficulties such as low value density and fast propagation speed. Therefore, it is necessary to speed up technological research and improve data analysis technology and capabilities. First, data monitoring technique. It needs to achieve comprehensive capture and recording of data on various network platforms such as media, forums, blogs, Weibo and WeChat, in particular, to improve the ability of automatically identifying images, audio and video. Second, data storage technique. It needs to build a big data platform with massive storage capacity to achieve efficient reading, writing and exchange of large-scale data [9]. Third, data mining technique. It needs to quickly identify valuable data from massive data and to explore the hidden laws behind the data. Fourth, data analysis technique, including correlation analysis, cluster analysis and semantic analysis. It should automatically analyze the opinions tendencies and interrelationships among online views, and reveal the development trend of public opinion. Fifth, data security technique. It includes identity verification, intrusion detection and network security, and can ensure data security.

4.3. Innovating analysis method of network public opinion
Since the data of human society is mainly generated by survival operations, equipment detection and human original creation, and these data including reflections, discoveries, work dynamics and policy recommendations can be further expressed as explicit and implicit public opinion. Therefore, it should break through the limitations of traditional semantic analysis or sampling analysis, and use the big data method to analyze network public opinion: first, it can analyze implicit public opinion based on search engine data, click data and other network logs for data mining; second, it can discover the social network public opinion relationship based on interpersonal relationship and personal characteristics of netizens; third, it can analyze the public opinion correlation effect based on different social data associations; fourth, it can conduct public opinion trend and rheological analysis based on network opinion survey. As a result, it can more specifically meet the needs of modern social management for network public opinion, and also more accurately grasp the network public opinion trends [10].
4.4. Improving the ability of early warning and judgment of network public opinion

On the one hand, it should improve the ability to manage public opinion synergistically with multiple subjects. It needs to strengthen the close correlation of party and government organs, enterprises and academic institutions, coordinate to formulate scientific and standardized early warning mechanism and judgment process of network public opinion, and improve the ability of early warning and collaborative analysis from information screening, analysis and arrangement, research interpretation and report writing. For example, the public opinion monitoring office of People's Daily has provided practical and sensible response plans for many local governments and achieved good results [11]. On the other hand, it should strengthen the construction of thinktank for public opinion management. For example, the Southern Public Opinion Data Research Institute is a complex thinktank that focuses on the research of "public opinion management modernization" from the perspective of professional media. It develops public opinion data business in the form of "data and public opinion", enhances public service capabilities and public opinion early warning capabilities, and innovates new method for media to participate in the government public opinion management.

5. Summary

The combination of big data and China's social and economic development is getting closer and closer. It not only provides policy impetus for the economic development revolution, but also provides technical guidance for social management reform. It also brings opportunities and challenges to government network public opinion management, and makes more and more research pay attention to this area. Therefore, it is necessary to make full use of the opening and sharing of information, resources and technology based on the national big data strategy. From the overall perspective of combining data and public opinion and with the help of network thinking, method and technology, institutional mechanism, talent construction and legal management, systematic management of network public opinion can be realized.

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