

Research on the Optimization of Network Public Opinion Collaborative Governance System in the Era of Big Data

Rong Wang^{1,*}

¹ College of Public Finance and Administration, Harbin University of Commerce, Harbin China

Abstract. With the rapid development of information technology and the continuous improvement of citizens' online participation, the rapid dissemination of public opinion through new media platforms has led to frequent incidents of online public opinion. The governance of network public opinion is difficult to achieve the desired effect only by relying on the power of the government, and the coordinated governance of network public opinion can become a realistic path to break the situation. This paper is based on the practical dilemma faced by network public opinion governance in the era of big data: big data information collection and processing are independent; The governance subjects are complex, and the rights and responsibilities between the management entities are not clear; Insufficient motivation to participate among governance subjects; Issues such as insufficient legalization of public opinion governance, and proposing to establish a government-led network public opinion data management optimization system; Improve the collaborative governance mechanism of multiple subjects of network public opinion; Implement the construction of network public opinion common interests and value system; Adhere to suggestions such as legalized collaborative governance of network public opinion to optimize the collaborative governance system of network public opinion.

1 Introduction

The rapid development of science and technology will be the Internet, new media and big data technology deeply integrated together, the Internet in the field of production and life, economic development, social life plays an increasingly important role, it is profoundly affecting the national governance system and the realization of the modernization of national governance capabilities. In recent years, under the influence of Internet technology in China, new media have developed rapidly, which makes everyone a disseminator and recipient of information. Due to its low threshold, low cost, strong virtuality and other characteristics of the network world, it is slowly changing the relatively closed public opinion ecological environment of China's mass media, and people strongly express their various opinions, emotions, attitudes and views in the virtual world, conveying a variety of voices, reflecting the unique value of the network world. However, the massive data generated by the new media of the Internet has also brought about the occurrence of network public opinion, and the uncertainty, risk and complexity of network public opinion have also plagued the healthy development of social life. The effective application, development and innovation of big data technology is the key to promoting big data to empower social network public opinion governance. In the era of networked and informationized big data, all people's production methods and life behaviors have been highly digitized, and the

whole society has entered a digital era [1]. How to govern network public opinion with extremely fast transmission speed in a short period of time, how to use big data technology to improve the governance ability and governance level of network public opinion, and realize the modernization of governance system and governance capacity have become another new topic in the field of social governance.

2 The current situation and shortcomings of network public opinion collaborative governance in the era of big data

In recent years, with the deepening of the importance attached by governments at all levels to network public opinion in China, the response mechanism of network public opinion has gradually developed, but there are still many problems in today's frequent occurrence of network public opinion events and the continuous fermentation of sudden hot spots. The traditional way of responding to network public opinion mainly depends on the collaborative linkage under the vertical governance model, lacks horizontal collaborative cooperation between various subjects, lacks the awareness of horizontal coordination and cooperation between various public opinion participating entities, and lacks the necessary initiative of collaborative participation among various subjects. Each subject of the network public opinion

* Corresponding author: 3167894913@qq.com (Rong Wang)

governance system is independent of each other, and it is impossible to form a synergy of effective governance.

2.1 The collection and processing of big data information on network public opinion is independent

The network public opinion of emergencies is similar to big data, and its key content is not the massive data released on the network itself, but the conclusions of practical significance obtained based on the research and analysis of a large amount of data, so it is more convenient to use big data to analyze the network public opinion of emergencies. [2] By using big data technology to analyze and process relevant information about network public opinion, it has become one of the key points to solve the problem of network public opinion governance. As a kind of social data, network public opinion related information data has typical interactivity, rapid change, suddenness and other characteristics. The overall and boundary of the collection of network public opinion data is difficult to define, and due to the complexity of network information, the accuracy of relevant information is also limited, so higher requirements are put forward for the collection and analysis of network public opinion information. It is precisely because of the low threshold, strong virtuality, low cost and other characteristics of the network world, when the network public opinion event occurs, it often leads to frequent information islands due to information asymmetry, and there is a conflict of interest in data resources between the relevant departments of the government and the social network public opinion release and collection platform. After the occurrence of the network public opinion crisis, due to the untimely update of the data of all parties involved in the governance of network public opinion, the relevant government departments cannot effectively monitor the development of the network public opinion situation in a timely manner, and the social sector cannot obtain accurate and effective information in a timely manner to resolve the network public opinion crisis. At present, the collection and analysis of public opinion information in China is difficult to classify and reasonably logically process a large amount of data related to network public opinion, the information inside the network public opinion information system is relatively complex, and the efficiency of information use is low, which greatly affects the judgment of decision-makers on the development of network public opinion; At the same time, the communication and cooperation between relevant government departments and social opinion data subjects is not close, which makes it difficult to achieve a unified and efficient network public opinion data management system.

2.2 The main body of collaborative governance of network public opinion governance is complex, and the rights and responsibilities between management entities are unclear

Although there is a horizontal cross-departmental coordination relationship in the relevant government

departments of network public opinion governance, this collaborative relationship lacks a clear mechanism guarantee and has the characteristics of temporary and random. The functions and powers of relevant government departments in the pre-prevention stage of network public opinion are obviously in a state of dispersion, and the powers and responsibilities of public opinion governance are still unclear; In the processing stage after the occurrence of public opinion, there will often be a crossover of relevant powers and responsibilities, and the phenomenon of multi-head management and over-the-level management occurs frequently. In the case of cross-decentralized governance functions, the relevant governance subjects often only pay attention to their own power jurisdiction in the process of public opinion governance, and once the new public opinion crisis requires the coordinated handling of various governance subjects, each subject is unwilling to intervene due to its own interests; When an emergency occurs, it will cause the phenomenon of mutual blame between the relevant governance entities.

2.3 There is insufficient motivation to participate among entities in the coordinated governance of network public opinion

The Fifth Plenary Session of the Nineteenth Central Committee of the Communist Party of China proposed to promote the modernization of the national governance system and governance capabilities, and to promote the modernization of social governance, it is necessary to improve the social governance system, innovate social governance methods, and optimize the hierarchical functions of social governance. To improve the social governance system, it is necessary to build a social governance system in which party committees lead, leaders are responsible, mass organizations are promoted, social organizations are coordinated, and the people participate, build concentric circles of co-governance, create a chain of command for good governance, and establish a social governance pattern of co-construction, co-governance, and sharing. The governance of online public opinion requires the joint participation of multiple entities such as the government, the media, network social organizations, and netizens, giving play to the different roles of each subject in the governance of public opinion. [3] However, due to the long-term governance model of strong government and weak society, the enthusiasm of the public to participate in governance is not high. In response to the crisis of network public opinion, the social forces involved in governance are often only Internet companies to monitor and track network public opinion data in real time; The analysis and summary of changes in online public opinion carried out by the network public opinion observation center set up by departmental media organizations, and the lack of enthusiasm for participation of the remaining social subjects, such as network opinion leaders, industry associations, content providers, etc. In terms of the collection of online public opinion related data, the collection of network public opinion data by social Internet enterprises mainly comes from the

monitoring of public opinion, and does not analyze and process the relevant content of public opinion. The relevant departments of the government lack the assistance of social forces in the development and tracking of online public opinion events, and the governance subjects of network public opinion have not yet formed a governance mechanism for the coordination of the main body governance business, it is difficult to govern and cooperate, and there is a lack of effective mechanisms to encourage social forces to participate in social governance.

2.4 The degree of legalization of coordinated governance of network public opinion is insufficient

"The essence of the crisis of network public opinion is the instantaneous breaking of the levee and the collapse of the dam caused by the silting of the public opinion channel and the lack of the government response mechanism"[4] The legalization of online public opinion response refers to the laws, regulations, institutional arrangements and policy documents on the government's response to online public opinion [5]. Judging from China's existing legal system, there are currently about 172 laws, administrative regulations, departmental rules, relevant judicial interpretations and other documents related to regulating Internet behavior. Among them, 3 special laws, 11 relevant laws, 18 relevant judicial interpretations, 10 administrative regulations, and about 130 relevant departmental rules and other normative documents have been promulgated. The following table is the main legislative statistics table of China's network public opinion, and the provisions of the law provide the prerequisites for the governance of network public opinion according to law, but due to the complexity of the network world, the legalization of network public opinion is facing some new difficulties and deficiencies.

Table1 Statistical table of the main legislation of online public opinion

Serial number	Type	Represents the law
1	Network information security	Cybersecurity Law of the People's Republic of China, Data Security Law of the People's Republic of China
2	Citizens' privacy protection	Law of the People's Republic of China on the Protection of Personal Information, Criminal Law, Civil Code
3	Intellectual Property Protection	Copyright Law of the People's Republic of China
4	Emergency response	Emergency Response Law of the People's Republic of China

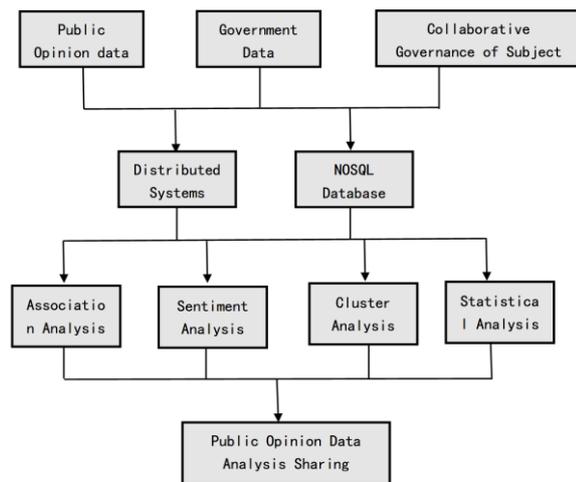
From the above table, it can be seen that China's current legislative direction mainly revolves around the Internet, and the lack of specialized laws and regulations improperly regulate the behavior of causing public

opinion crisis. At present, China's network public opinion related laws mainly focus on network information security, citizen privacy protection, intellectual property protection, and emergency response, in the face of emerging new problems, the current laws and regulations are even more lagging behind.

3 The optimization strategy of network public opinion collaborative governance in the era of big data

3.1 Establish a government-led network public opinion data management optimization system

The establishment of a government-led normalized network public opinion monitoring mechanism is the basis for resolving data coordination barriers and resolving the crisis of online public opinion in government departments. With the help of powerful big data technology, multimedia technology, and distributed processing technology, in the process of social network public opinion governance, through accurate guidance, accurate control and accurate supervision, the wisdom of social network public opinion can be effectively realized Governance, dynamic governance, and real-time governance. [6] The collection and processing of network public opinion information and the collaborative sharing technology of big data computer resources transform the post-event processing of network public opinion into pre-event analysis, and realize the information sharing of network public opinion among various collaborative governance entities through the use of distributed information collection and analysis systems. Through the use of big data technology to comprehensively and accurately cover the relevant information of network public opinion governance, starting from the source of the public opinion crisis, real-time monitoring of relevant hot spots of public opinion involved, and real-time early warning before the crisis occurs. The key to establishing a network public opinion collaborative governance platform lies in building a data storage and real-time sharing platform, professionally storing and analyzing the data scattered among various government functional departments and social collaborative governance entities, unifying and coordinating big data computing resources, and improving the professional level of network public opinion collaborative governance.



Pic 1 Public opinion data collaborative processing platform

The above figure is a schematic diagram after the optimization of the network public opinion data system, which mainly includes four parts: data collection, data storage, data analysis, and data application. Collect public opinion data, government department data, and collaborative governance entities by building a public opinion data analysis and sharing platform; Deliver public opinion data to distributed systems and NoSQL databases; Through correlation analysis, sentiment analysis, cluster analysis, statistical analysis, scientific and effective analysis of relevant public opinion data to form the analysis and prediction of public opinion events; Finally, the public opinion data information analysis and sharing platform outputs the information required by each public opinion collaborative governance subject, forming an organic cycle of network public opinion governance data.

3.2 Improve mechanisms for collaborative governance of multiple subjects in online public opinion

The key to realizing the collaborative governance of network public opinion is to improve the diversified collaborative governance mechanism of network public opinion. The governance of network public opinion mainly includes three aspects of the force, namely the government, society, and enterprises. Among them, the main entities involved in government departments include internal network information departments, public security departments, petitioning departments, and propaganda departments. Social forces mainly include the news media, industry associations, opinion leaders and ordinary people. Enterprise entities include social network operation platforms, public opinion monitoring centers, content providers, etc. To improve the diversified collaborative governance mechanism, On the one hand, it is necessary to strengthen the mutual cooperation between the various governance subjects within the government. Government departments should actively implement the main responsibility, and for important decisions involving competent departments at all levels, the competent departments at the same level should actively assume the

main responsibility of leading, directing, coordinating, and supervising all relevant functional departments to do a good job in responding to public opinion. Where illegal or criminal acts are discovered in the course of monitoring network public opinion, the relevant departments, while actively responding, must also transfer the clues to the public security and network supervision departments for investigation and handling in accordance with law. For some particularly major and major sudden online public opinions, it is necessary to quickly reflect them, hold press conferences or clarify them quickly in the official media, and actively respond to hot spots in public opinion. On the other hand, it is necessary to establish an external coordination and cooperation mechanism. News media and opinion leaders can go deep into the frontline of the incident and feedback the truth of the incident to the relevant departments and the public, and the government can also appropriately express its opinions and opinions on the incident through the news media, and resolve the crisis of online public opinion through the use of new media resources. At the same time, it is also necessary to give full play to the advantages and resources of Internet enterprises, give play to the role of social network operation platforms and public opinion monitoring centers, rely on the advantages of enterprise entities in technical overcome, public services, and information and data collection and processing, carry out in-depth cooperation, and all parties work together to replace network public opinion governance into a new stage.

3.3 Implement the construction of a network public opinion common interest and value system

It is particularly important to realize the construction of a collaborative governance system for network public opinion, let more social forces participate in the governance of network public opinion, and build a common interest value system. In the actual handling of the network public opinion crisis, because the government is in a dominant position, the government should take the initiative to take the initiative to adjust the interests of all parties and the incentive work of relevant elements in the public opinion response system. Under the premise of fully respecting the interests and needs of each collaborative governance entity, the government should fully weigh the interest relationship between the various collaborative governance entities, put forward corresponding incentive measures, encourage social entities to give full play to their supervisory role, conduct timely supervision and reporting of netizens, bad media, and opinion leaders who make bad remarks, and give appropriate rewards to the reports, and timely respond to and explain the public opinion hotspots of public concern and guide public opinion. It is necessary to encourage social forces to participate in public services and the guidance of public opinion, and stimulate social forces; Fully support all types of social organizations in carrying out self-management and self-restraint, and through setting up industry rules, organizational charters, and other social norms in social governance, complete the

social credit system, build interaction mechanisms between all kinds of social entities, and let social entities actively participate in the governance of public opinion crises. Construct a benign interaction mechanism that is deeply integrated with all kinds of media, take the mainstream media as the core, rely on social media, and make full use of rich social resources and public opinion influence to maximize the governance effectiveness of the collaborative governance mechanism.

3.4 Persist in legalized and coordinated governance of network public opinion

To build a collaborative governance system for network public opinion, it is necessary to adhere to the legalization of public opinion governance, improve the network public opinion legislative system, and realize the rule of law of network order. The legalization of network public opinion crisis governance is an important part of public opinion governance. For network applications, it is necessary to exercise reasonable jurisdiction, not only to control the negative effects it produces, but also to give full play to its active role, to guide public opinion, and to rationally regulate the content and take into account the right of citizens to freedom of speech. Persist in the legalization of online public opinion, and promote the formulation of laws and regulations related to online public opinion. There is an obvious lag in the existing network public opinion related laws and regulations, and it is necessary to combine the actual development of the Internet and the latest trend of the development of network public opinion, strengthen the top-level design, promote the formulation of the basic law of network public opinion, provide unified guidance and planning for China's network public opinion crisis response. On the other hand, the law should be combined with the development of modern network technology to enhance the practical operability of network-related regulations. When Internet technology is seriously disconnected from legal norms, it is difficult for law enforcement departments to effectively supervise the Internet. Therefore, the formulation of public opinion laws and regulations should be combined with the latest development of network science and technology, in line with the development and changes of network science and technology.

4 Conclusion

In today's highly prosperous big data technology. Correctly understand big data technology, apply big data technology to network public opinion governance, and improve the ability of network public opinion collaborative governance through the study and analysis of a large amount of data, so it is more convenient to use big data.

References

1. Tian Xianhong. Local Government Governance in the Era of Big Data: Challenges and Responses [J]. People's Forum, 2020(Z1):100-1

2. Wang Yifan, Shao Kaili, Xu Zhiwen, Ye Hongxin. Research on the dynamic classification of network public opinion of emergencies based on big data [J]. Internet of Things Technology, 2022, 12(08):46-49+52. DOI:10.16667/j.issn.2095-1302.2022.08.013.
3. Xiong Guangqing. Continuously Improving the Ability of Network Public Opinion Guidance: A Discussion on the Perspective of Multicenter Collaborative Governance[J]. Lanzhou Academic Journal, 2019(05):36-44.
4. Zhu Huaxin. Internet Public Opinion Forces China's Reform [J]. Contemporary Communication, 2011(06):81.
5. CHEN Fuji, ZHUANG Caiyun. Research on the Improvement of Government Response Capability in Network Public Opinion Crisis Events-Based on the Perspective of System Dynamics [J]. Information Security and Communication Confidentiality, 2015(06): 92-98.
6. Li Wenjun, Chen Mei. Research on the Governance Path of Social Network Public Opinion Driven by Big Data [J]. Journal of the Party School of the CPC Tianjin Municipal Committee, 2021, 23(05):69-77. DOI:10.16029/j.cnki.1008-410x.2021.05.008.
7. Ding Xiaowei. Research on Network Rumor Prevention and Governance Based on Blockchain Technology [J]. Nanjing Social Sciences, 2020(12): 109-116+124. DOI:10.15937/j.cnki.issn1001-8263.2020.12.015.