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# Research on the Government's Strategy of Governing Internet Public Opinion on Emergencies in the Era of Big Data--Taking the Natural Disaster Henan 7-20 Rainstorm as an Example

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**ABSTRACT**
In the era of big data, the online public opinion of emergencies presents new characteristics, which brings challenges to government governance. Based on the background of big data era, this paper takes 7-20 rainstorm in Henan as an example, applies the crisis life cycle theory to summarize the problems in the government's governance of the network public opinion of emergencies, and puts forward measures to improve the monitoring and early warning system, the data synergy system, the information dissemination system, and the big data guarantee system, etc. , which provides reference for the government's governance of the network public opinion of emergencies.

**KEYWORDS**
Big data era; emergencies online public opinion; crisis life cycle theory; Henan 7-20 rainstorm; government governance

## 1 Problem formulation and literature review

As a key part of network governance, online public opinion governance has a significant impact on the effectiveness of the construction of a comprehensive network governance system. As of December 2023, the number of Chinese netizens reached 1.092 billion, with an Internet penetration rate of 77.5%, and Internet activity has increased significantly. After the occurrence of emergencies, massive public opinion data brings challenges to government governance. The emergence of big data technology brings opportunities, such as the ability to combine with online government services to improve government effectiveness, but it also exposes the inadequacy of traditional public opinion monitoring and analyzing technology[1].

In the field of research, foreign countries early put forward the concept of "big data", Obama emphasized its importance to the government to govern the network public opinion, but the current role of big data to play a limited, like Cobb that the government has not been organized in a timely manner to effective data[2] ;James pointed out that the "data silos " affecting the utilization of data value. Domestic scholars realize the shortcomings of traditional public opinion response[3]. Domestic scholars realize the shortcomings of traditional public opinion response, Li analyzes the reality of the dilemma and proposes an innovative model[4] ; Zhang explores from the perspective of "people"[5] ; and Cao proposes a "technological governance path"[6] .

However, the existing literature has not studied much about the online public opinion of emergencies from the perspective of public management, and has not described enough about the specific application of big data technology. The 7-20 rainstorm disaster in Henan Province has attracted a lot of attention and is very typical [7] . In this paper, we will analyze this event in depth and provide countermeasures and suggestions for the government to manage online public opinion at different stages from the perspective of public management.

## 2 Theoretical foundations

In the 1980s, American management scholar Steven Finker put forward the crisis life cycle theory in "Crisis Management: A Plan for Dealing with Emergencies", which divides crisis into four stages. Crisis brewing period, a variety of triggers continue to accumulate, the crisis is about to appear, at this time the need for timely monitoring and early warning, as early as possible to find the signs of crisis and solve. Crisis outbreak period, quantitative change triggers qualitative change, the crisis spreads rapidly, should be immediately linked to deal with the impact of the crisis will be controlled within a certain range. Crisis diffusion period, the impact of the crisis continues, may also trigger a chain reaction, must be released in a timely manner, the crisis communication, reduce the collateral impact. As the crisis handling period comes to an end and the crisis subsides temporarily, it is necessary to reflect and summarize in a timely manner and improve the protection system to avoid the crisis from coming again[8].

In the era of big data, network public opinion changes rapidly and has a wide range of influence, and the government needs to control the whole process of managing the network public opinion of emergencies, which is in line with the theory of crisis life cycle. Therefore, based on this theory, this paper will analyze the problems in government governance

and put forward strategic suggestions .

## 3 Problems of Governmental Governance of Internet Public Opinion on Emergencies in the Era of Big Data--Taking Natural Disasters 7-20 Henan Rainstorm as an Example

### 3.1 Disasters 7-20 Henan Rainstorm Public Opinion on the Basic Situation

Since July 17, 2021, Henan Zhengzhou, Kaifeng, Xinxiang and other north-central areas of the extraordinarily heavy rainstorm disaster, breaking through the historical extreme since the meteorological records, to the Henan territory in many places caused major casualties and property damage, caused widespread concern throughout the country[9] .

In order to better analyze the evolution of online public opinion on the 7-20 Henan rainstorm, this paper uses Baidu Index to search for "Henan rainstorm" as the keyword and "2021-07-01~2022-01-31" as the time period, and obtains the search trend graph shown in Figure 4.1.

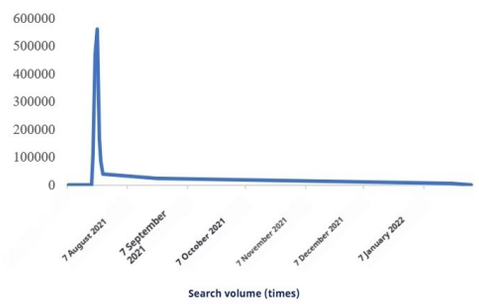


Fig.4.1 Trend chart of Henan rainstorm online public opinion evolution based on Baidu Index

From Figure 4.1, it can be seen that this event has obvious stage characteristics. Combined with the evolution law of public opinion events and the change of data volume, this paper divides the evolution cycle of Henan's rainstorm online public opinion into four stages: gestation period, outbreak period, fluctuation period, and demise period. The gestation period is 2021.7.16 - 2021.7.20, the rain did not cause any big damage in the early stage, and there was little discussion, and the public opinion began to ferment when the rain increased and flooding appeared from 19th onwards. The outbreak period is from 2021.7.20 - 2021.7.22, the state and Henan raise the level of flood control emergency response, attention rises, the Zhengzhou Metro Line 5 incident makes public opinion peak, 12 deaths are announced in the early morning of the 21st, the public questions the government's ability to cope with the situation, the media and the public focuses on the casualties, rescues and donations. Fluctuation period from 2021.7.22 - 2021.7.25, the rain abates, rescue and supplies are in place, the disaster is under control, and the heat of public opinion should have declined, but the spread of rumors causes public opinion to fluctuate. Extinction period from 2021.7.25 - 2022.1.31, the State Council investigation team is stationed, public opinion declines, the second round of rainstorms on August 21 is low due to the government's advance preparation, the public opinion is low, and the investigation report is released on January 21, 2022, public opinion ends due to the long interval without triggering widespread concern.

### 3.2 Problems in the Government's Governance of Internet Public Opinion on Emergencies

#### 3.2.1 Internet public opinion gestation period: untimely monitoring and early warning

In the era of big data, the impact of online public opinion on emergencies is high, and the government's monitoring and early warning capability is highly demanded. During the brewing period of Henan's rainstorm public opinion, as early as early July 2021, the meteorological department warned several times, and the online platform also had relevant news, but the relevant public opinion management department had no reaction. It was not until the middle to late July that the relevant microblogging words got hot, missing the best time for public opinion monitoring and early warning[10] .

#### 3.2.2 During the outbreak of online public opinion: data synergy is not high

In the era of big data, the complexity and difficulty of controlling online public opinion on emergencies require government data sharing and collaborative governance. During the outbreak of the Henan rainstorm, the relevant departments failed to do a good job of collaborating with public opinion data. in the early morning of July 21, the Publicity Department of the Zhengzhou Municipal Party Committee said that all the trapped subway passengers were rescued, but in the afternoon of the same day, netizens said that their family members were lost, and that the official report did not correspond to the reality, which triggered a public opinion crisis, highlighting the lack of inter-

departmental data linkage and collaboration.

#### 3.2.3 Period of fluctuating online public opinion: untimely release of information

In the era of big data, online public opinion on emergencies demands timeliness, and rumor prevention is even more important when public opinion decreases. During the period of fluctuating public opinion on Henan rainstorm, rumors about the incident spread like wildfire on the Internet from July 22 to 24, such as "Collapse of the elevated column base of Zhengzhou Longhai Road and the West Fourth Ring Road", which made the public opinion about to be calmed down to make waves again. Although the relevant departments suppressed the spread of rumors in time, the harm had already been done. Therefore, during the period of public opinion fluctuation, the government should disclose information in time to prevent rumors from spreading.

#### 3.2.4 The period of demise of online public opinion: imperfect public opinion protection

As online public opinion enters a period of demise, the government should review the process of public opinion, summarize the lessons learned, and improve the protection system. However, during the demise of the Henan rainstorm public opinion, the relevant departments did not pay attention to improving the big data public opinion protection system when summarizing and reflecting on the situation. Like writing analysis reports without mentioning a sound protection system, the government failed to recognize the lack of big data thinking and organized no training for the personnel, making them passive and difficult to effectively control public opinion.

## 4 Strategies for Governmental Governance of Internet Public Opinion on Emergencies in the Age of Big Data

### 4.1 Improvement of the monitoring and early warning system for managing online public opinion on emergencies

#### 4.1.1 Improvement of big data monitoring capability of online public opinion

In order to effectively manage online public opinion, the Government needs to do a good job in two aspects. On the one hand, it should make use of big data technology to monitor online data in real time, and organize, classify and preserve public opinion information in a timely manner to prepare for subsequent analysis. At the same time, all departments should realize the sharing of public opinion information and collaborate under institutional norms. On the other hand, targeted public opinion analysis should be done. Although public opinion monitoring is crucial, accurate analysis of monitoring data should not be neglected. Government departments need to find connections among complicated data and extract useful information to assist decision-making. Once the heat and search volume are found to be on the rise, measures should be taken immediately and other departments should work together to nip online public opinion on emergencies in the bud.

#### 4.1.2 Improving the Big Data Early Warning Mechanism for Internet Public Opinion

In order to enhance the government's ability to manage public opinion, two aspects of work need to be done. On the one hand, a perfect specialized database system should be established in the era of big data. The government can categorize and store the public opinion information it keeps, and when emergencies occur, match, mine and analyze the public opinion information in the database with the help of big data technology, so as to provide early warnings for the government's decision-making. On the other hand, establish a specialized public opinion early warning center. This is an inevitable requirement in the era of big data, which can bring together more adequate technology, funds and talents to help the government study online public opinion on emergencies more efficiently, accurately judge the public opinion situation, realize the improvement of early warning capability, and comfortably cope with the challenges in the era of big data.

### 4.2 Improvement of the data synergy system for managing online public opinion on emergencies

#### 4.2.1 Strengthening the organization of data synergy for online public opinion

In order to strengthen public opinion data governance, it is necessary to start at both the national and local levels. At the national level, given that there is currently no national public opinion data governance organization, a unified national public opinion management coordination center should be set up as soon as possible. The center should be

responsible for formulating policies on coordinated public opinion governance, clarifying the powers and responsibilities of each position, and ensuring that rules and regulations are in place for public opinion handling and accountability. At the local government level, it is necessary to give full play to the role of existing governance organizations, resolve departmental conflicts of interest, realize the unity of rights, responsibilities, and benefits, and form a coordinated governance system. At the same time, a chief data officer system can be set up, drawing on Western experience, to promote data flow and shared governance, effectively control public opinion, and reduce the negative impact of online public opinion on emergencies.

#### 4.2.2 Improvement of the data disclosure and sharing mechanism of online public opinion

On the one hand, integrate the functions of various government departments. Currently, government data governance departments are set up with cross-functions and other shortcomings, which affect data governance. Therefore, government departments should strengthen the integration of functions and unified management of data, and can set up an opinion data governance committee responsible for formulating policies on the open sharing of opinion data, establishing specialized management positions, clarifying responsibilities, and avoiding crossover, so as to enhance the efficiency of the open sharing of online opinion data and promote the sustainable development of governance. On the other hand, an incentive system for open sharing is implemented. At the government level, the effectiveness of public opinion data management is incorporated into performance evaluation, and the supervision, evaluation and feedback mechanism is strengthened to encourage various departments to collaborate in the management of online public opinion on emergencies. At the social level, the publicity of the social benefits of open data sharing has been intensified to guide society to correctly understand the work, enhance the sense of recognition, and transform it into practical actions.

### 4.3 Strengthening the information dissemination system for managing online public opinion on emergencies

#### 4.3.1 Enhancing the timeliness of information release on online public opinion

The government needs to make efforts in two aspects in responding to public opinion. The first is to seize the first opportunity of online discourse. It is necessary to release news in major news media in a timely manner to grasp the dominance of public opinion and curb the spread of inaccurate news. Quickly capture highly heated and sensitive topics in emergencies and respond to them in the first instance. Considering that emergencies are prone to public mood swings, the government's response must ensure that the content is accurate and scientific, and at the same time the attitude of affinity, to alleviate public panic. The second is to meet the expectations of social accountability, first fully understand the public demand, comprehensive investigation of the incident, fair and impartial assessment of the performance of all parties, departmental command failures and other issues in accordance with the rules and regulations, and finally publicize the results of the treatment, to accept public supervision.

#### 4.3.2 Smooth information dissemination channels for online public opinion

In order to better respond to public opinion, the Government can take a two-pronged approach. On the one hand, it can strengthen cooperation with outside media. Communicate with authoritative traditional media first to capitalize on their news influence; meanwhile, maintain daily communication and collaboration with online V and self-media because opinion leaders such as celebrities and Vs have a great influence on the formation and dissemination of public opinion, and enlisting their support can help guide public opinion. On the other hand, operate its own new media well. Seriously operate and maintain government media, promote the "fingertip inquiry" platform, promote platform interconnectivity, and establish a "multi-micro" interactive mechanism. A comprehensive official media matrix can serve not only for daily information dissemination, but also as a powerful tool for crisis response and hedging netizen's opinion in case of major emergencies.

### 4.4 Improvement of the big data protection system for managing online public opinion on emergencies

#### 4.4.1 Strengthening the legislative protection of online public opinion data

On the one hand, it is necessary to identify gaps and fill them. On the basis of the existing policies and regulations, according to the new trend of the current development of the Internet and the new challenges posed by the era of big data, new provisions are proposed to enrich the existing laws and regulations in accordance with the current situation, and special laws and regulations can be formulated to deal with some complex issues. On the other hand, the legislative

level should be raised. At present, some laws and regulations on big data have been issued at the national level, but there are fewer policies and regulations for network public opinion on emergencies. Therefore, corresponding legal norms should be formulated based on the national level, and the work responsibilities of big data professionals and the legal boundaries of the work on network public opinion data should be clarified. All in all, when managing public opinion, we must pay great attention to the development trend of online public opinion, and supplement and modify the legal system related to critical incident online public opinion in a timely manner, so as to prevent the emergence of the problem of legal vacuum.

### 4.4.2 Grasp the big data talent guarantee for online public opinion governance

In the era of big data, talent is the key to improving the government's online public opinion governance. On the one hand, it is necessary to recruit a wide range of talents. Complex emergencies network public opinion, need to understand both financial and familiar with the computer and other fields of knowledge of the complex talent to sort out the laws, accurate response; at the same time, big data technology professionals are indispensable, can be introduced directly from professional enterprises, but also with the help of universities, research institutions indirectly introduced. On the other hand, to build a learning and exchange platform, the relevant government departments jointly with other departments to carry out regular training, update the staff's knowledge base, learn advanced technology, and improve their practical ability. It is also necessary to develop a training system, urge personnel to participate on time, cultivate big data thinking, and abandon stereotypes.

## About the Author

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## References

[1] China Internet Network Information Center. The 53rd Statistical Report on Internet Development in China [R]. Beijing: China Internet Network Information Center, 2024.

[2] Cobb W N W .Trending now: using big data to examine public opinion of space policy[J].Space Policy,2015,32(06):11-14.

[3] Druckman N J , Jacobs R L . Response to Daniel M. Butler's review of Who Governs? Presidents, Public Opinion, and Manipulation[J]. Perspectives on Politics,2016,14(03):822-823.

[4] Li Biao,Gao Linxuan. Intelligent turn of public opinion governance in the context of big data: status quo, risks and countermeasures[J]. China Edit,2023,(05):4-10.

[5] Zhang Shichang. Dilemma and improvement of public participation in online public opinion governance in the era of big data[J]. Xinjiang Social Science,2023,(01):128-136.

[6] Cao Haiyan, Li Ming. Rethinking and expanding the governance of China's online public opinion in the era of big data--Based on the embedded perspective of "technology governance path"[J]. Administrative Forum,2019,26(05):65-73.

[7] Wang Yongming, Zheng Shanshan. Multiple Dilemmas and Optimization Paths for Improving the Effectiveness of Local Government's Emergency Management--A Case Study Based on the '7-20' Heavy Rainstorm Disaster in Zhengzhou, Henan Province[J]. Management World, 2023,39(03):83-96.

[8] Li Weining, Shi Da. Critical Minority in Mass Petition Incidents--A Portrait and Simulation Study Based on the Crisis Life Cycle[J]. Research on Financial Issues,2020,(11):127-137.

[9] Su aifang, Xile, Lv Xiaona, et al. Characteristics and causes of the "21-7" extreme rainstorm in northern Henan[J]. Meteorology, 2022, 48(05): 556-570.

[10] Why Zhengzhou is being pushed into the limelight as a result of flooding caused by exceptionally heavy rains. [EB/OL]. (2021-08-19)[2024-11-17]. https://www.thepaper.cn/newsDetail_forward_14116988.