Reflection on Big Data Thinking Based on the Construction of Internet Public Opinion

Yi Zhang
Experimental Training Base
College of Information and Communication
National University of Defense Technology
Xi'an, China 710106

Yuting Zhao
Experimental Training Base
College of Information and Communication
National University of Defense Technology
Xi'an, China 710106

Lei Li
Experimental Training Base
College of Information and Communication
National University of Defense Technology
Xi'an, China 710106

Yanni Li
Experimental Training Base
College of Information and Communication
National University of Defense Technology
Xi'an, China 710106

Zheng Wan
Teaching Evaluation Center
Army Academy of Border and Coastal Defence
Xi'an, China 710108

Abstract—**Big data is an important symbol of the information network age. It is not only a technology, but also a value and methodology. Big data brings not only the upgrading of information technology, but also a new ideological emancipation and conceptual change. With the transformation and development of Internet technology and media ecological environment, using big data thinking to promote network public opinion to guide the work of innovation and development has become a new trend.**

Keywords—internet public opinion guidance; big data thinking; construction

I. INTRODUCTION

On December 8th, 2017, President Xi proposed to implement the national big data strategy and accelerate the construction of digital China. He pointed out that we should use big data to promote various tasks. On October 9th, 2016, President Xi stressed that it is necessary to continuously improve the ability to grasp the Internet, the ability to guide the internet public opinion, the ability to control the informational development, and the ability to guarantee internet security. On August 22nd, 2018, President Xi proposed that we should improve the communication, guidance, influence, and credibility of the news public opinion. Internet public opinion has become one of the important contents of news communication work in the new era, and big data has broadened and deepened the breadth and depth of internet public opinion guidance. Combining big data with internet public opinion guidance is both a theoretical problem and a practical problem. It is an important breakthrough to solve this problem by constructing internet public opinion guidance with big data thinking. It has realistic and long-term significance for promoting the innovation and development of big data science theory and promoting the innovation and development of internet communication work.

II. SCIENTIFICALLY GRASPING THE CATEGORY OF BIG DATA THINKING

The category of thinking is the organic unity of subjective logic and objective logic, reflecting the dialectical relationship between the existence and development of things. The big data thinking category reflects the transformation of people's thinking patterns in the big data environment. Big data thinking not only includes people's ideological understanding and attention to big data, that is to say, it must have a big data thinking attitude, it also includes big data thinking category, that is, a big data thinking mode. Therefore, in the big data age, we must first grasp the category of big data thinking, and clarify a series of "relationships" to lay a foundation for constructing a new thinking of internet public opinion.

A. The Relationship Between Possibility and Reality

Possibility and reality are common categories of thinking. It is generally believed that the ambiguity in the traditional Chinese way of thinking is an important feature. The Chinese way of thinking lacks science and is accustomed to "probably". The "probably" prediction accuracy is low and lacks scientificity. In the big data age, under the conditions of

possessing massive, holistic and real-time data, people's prediction of the trend of things will be much more accurate. This kind of prediction can be called scientific possibility recognition. The big data prediction has further narrowed the distance between possibility and reality, enabling people to gradually realize the good possibility into reality and to do not turn bad possibilities into reality. "Big data is with us all day, it has become a bridge between the virtual world and the real world." [1] It can be said that in the big data environment, the distance and boundary between the virtual world and the real world will occur new major changes, people's cognition of things is not only satisfied with "known", but also more accurately understand "unknown", not only can descriptively analyze "now", but also predictively analyze "future". Big data has built a fast and convenient bridge between "this side" and "the other side".

B. The Relationship Between Reason and Result

In the study of big data thinking changes, there is more discussion about the impact of big data on causality categories. The analysis of causality in traditional thinking is a traditional causal relationship based on rigorous mathematical reasoning logic. Although the logical chain is complete, it is easy to use part to replace the whole because of the small data, so errors are inevitable. Another drawback of small data is that limited sample data could not reflect the universal correlation between things. Finding the causal relationship of things is a habit that humans have formed for a long time. As Hume said, some of our reasoning about facts or existence was all based on causality. But in the big data age, big data research is a statistical search, comparison, classification and cluster analysis of massive data, which is more concerned about correlation. Correlation refers to there is a certain regularity between the value of two or more variables. In the past, people used to use causality to consider things, so they thought that causal connections are easy to find. But this is not the case, unlike the related relationship, and causal connections are difficult to prove even use mathematics this direct way. The experiments that prove the correlation are less time consuming and less expensive. "Correlation analysis itself is significant. At the same time, it also lays the foundation for the study of causality. By identifying possible related things, people can further analyze causality on this basis. If there is a causal relationship, we will find the reason."[2] Because the correlations shown by big data are more easily to be known and accepted, technical means can better enable us to accurately find relevant relationships, so we can satisfy the need without deep analysis of causality. People can find more cognition and insight through the hidden relationship between things through big data technology. By paying attention to linear correlations and complex nonlinear correlations, we can see many connections that we have not noticed before. We can also master complex technologies and social dynamics that were previously incomprehensible. Correlation can even transcend causality and become a better perspective for people to understand the world. Applying these insights can help people capture the present and predict the future, and the predictions based on correlation analysis are the core of big data. It can be seen that big data thinking does not negate causality. It just thinks that if we can find relevant

relationships, there is no need to find causality. This is a new feature of big data thinking. In a sense, big data weakens causality, and big data analysis can unearth the correlation between different elements, so that people can achieve their goals by simply "knowing it" and greatly improve work efficiency. [3] The rethinking of causality and correlation by big data thinking provides people with different choice modes for understanding different levels and different fields of things.

C. The Relationship Between Part and Whole

From Aristotle to Hegel, from Bertalanffy to Prigogine, they all explored the relationship between part and whole from their own theoretical perspective. This ancient category of thinking has new features in the era of big data. Big data collection and analysis techniques make it easier to get data that is close to the whole. Real-time processing of these data will result in a "full data model" of sample = totality. In some specific cases, although sample analysis method is still be used, it is no longer the primary way to analyze data. The full data model makes it possible to change from "spot check" to "real check". Big data makes us "quite close to the real check and can be used to replace the sample with bias." [4] The full data model undoubtedly improved the precision of people's grasp of things, by using the overall data, and we can find some clues that may be overlooked. The full data model involves our perception of the "big" of big data. The "big" of big data means not only the volume of data, but also the integrity and value of the data. Without excavating the value of big data, there is no use for more data. Similarly, without increasing the integrity of the data, the data has no value. Therefore, big data emphasizes the integrity of things and requires people to grasp the development of things as a whole. [5]

D. The Relationship Between Inevitability and Contingency

The inevitability and contingency category is the category of thinking that is more closely related to the possibility and reality category. The possibility has some relations with the necessity and it also has some relations with the fortuity. When people predict the possibility of the development of things, they must both consider the inevitability and contingency factors that constrain it. Scientism believes that nature is deterministic, and its movement changes are inevitable and predictable. Human society is non-deterministic, its movement changes are full of randomness and contingency, and are unpredictable. In the era of small data, some people think that the development of human social movement is unpredictable because the data in the social field is disorderly, most of them are unstructured data, especially emotional data and social data are even more varied and changeable. But under the conditions of big data technology, human beings have the powerful ability to deal with unstructured data. This allows a large number of random, accidental data to be captured and processed in real time, making it a deterministic and inevitable thing. Big data uses data fact constantly changes people's understanding of the phenomena and essence of history and social development, and the inevitability and contingency, making it easier for people to grasp the contingency through inevitability. The proposer of the concept "scale-free network"- Albert-Laszlo · Barabasi, pointed out that "although everything is

spontaneous and accidental, it is actually much easier to predict than you think." He believes that "93% of human behavior is predictable." It's just that "we didn't have relevant data in the past, and there was no certain way to explore human behavior". In fact, "most of human behavior is subject to laws, models, and principles, and their reproducibility and predictability are comparable to natural sciences." The laws of human society are the same as in nature, "many things follow power law distribution: Once the power law appears, the burst point will appear." [6] Big data can predict in many ways, big data is not about teaching machines to think like humans, instead, it applies mathematical algorithms to massive amounts of data to predict the possibility of things to happen.

III. ACTIVELY BUILDING INTERNET PUBLIC OPINION TO GUIDE THE BIG DATA THINKING

Big data is a collection of data that cannot be captured, managed, and processed with regular software in a certain period of time. The massive amounts of information must be deeply excavated, calculated, and analyzed to create values. The value of big data is not in the information itself, but in how to analyze data relevance to predict the future. The emergence of big data provides new theories, new ideas, and new technologies for us to study internet public opinion, and it also provides a new perspective for research. In the current process of internet public opinion research, the value of big data is extremely outstanding. The monitoring and analysis of internet public opinion is increasingly dependent on big data analysis technology and platform. In-depth study of the big data thinking category has undoubtedly provided us with powerful thinking and logical support for the study of internet public opinion guidance. In the new era, only by building new thinking can we better carry out the internet public opinion guidance work.

A. Precise Thinking Based on Data Support

The primary condition for big data technology to predict internet public opinion is to precisely analyze and calculate the comprehensive data of various associations. The realization of the value of big data prediction public opinion must be based on the massive information that has been excavated and use mathematical models for scientific calculation analysis. The "sample = totality" approach advocated by big data relies on its comprehensive, analytical, and predictive characteristics to make scientific judgments on uncertainties and then make decisions, so that it can fully grasp the timely changes in the development of internet public opinion, and provide a real and effective reference for improving the guidance. Excavating big data resources and creating a internet public opinion guidance platform with big data collection function to ensure the safe storage of massive data, centralized control, and timely update. Using the big data method, we will continue to improve the internet public opinion guidance methods, mechanisms and strategies supported by big data. Let accurate data results replace fuzzy intuition judgments and improve the effect of internet public opinion guidance.

B. Relevant Thinking Based on Related Connections

Behind the data is the internet, behind the internet are people. Researching internet public opinion data is actually researching the social network composed by people. In the past, people focused on the causal relationship behind the phenomenon, trying to analyze the internal mechanism through limited sample data. The most critical technology for the realization of big data technology to predict public opinion is to correlate the relationship between public opinions and pay more attention to the correlation between data. According to big data thinking, each data is a node, which can form the multiplication effect on the lyric chain with other related data indefinitely, and the associated state of data fission mode implies infinite possibilities. In the era of big data, the way of thinking must shift from causal thinking to correlation thinking in order to break through the constraints of traditional thinking patterns and inherent prejudice, so that to better share the profound insights brought by big data. Therefore, the internet public opinion guides should cultivate a broad space of thinking and multi-dimensional perspectives, and carry out extended, expansive and divergent thinking on the issues. This requires us to actively explore the internal relationship between internet public opinion with various events, and other fields, explore the hidden meaning and value behind the data. Through universal contact, key research, and individual analysis, we will continue to deepen our understanding of the intrinsic relationship between things, and creatively solve various problems. By solving problems that are easier to solve, we will create favorable conditions in order to solve the difficult problems that are related to them, and improve the effectiveness of internet public opinion guidance.

C. Systematic Thinking Based on Overall Planning

In the era of big data, we broke through the one-sided, singular, static thinking of the traditional data era, began to study the internet public opinion data from three-dimensional, global, and dynamic manner, and included seemingly insignificant data into the scope of analysis and calculation. With the breakthrough development of data collection, storage and analysis technology, people can obtain complete data related to the research object more conveniently, quickly and dynamically, instead of the sample research method due to many restrictions, correspondingly, the way of thinking should also turn to the overall thinking, so that we can understand the overall situation more comprehensively, stereoscopically and systematically, and provide strong support for decision-making from overall and system. The internet public opinion guidance should rely on the power of big data to improve the insight at the macro level and the overall level, grasp the various elements as a whole, observe and think comprehensively from the perspective of integration in every aspect of planning, deployment and implementation. Continuously enhance the systemicity of the internet public opinion to guide the top-level design, and seek systematic results of "partly success benefit the whole" and "invigorate a dot to active the whole".

D. Forward Thinking Based on Data Analysis

The core of big data is prediction. In the era of big data, people can use the big data technology to dig out the hidden

relationship between things and gain more cognition. Big data technology has the ability to scientifically analyze and process data. Through data excavating and intelligent analysis, the important information of relevant events can be extracted from the massive data, and the law of data change can be predicted, and the possibility of event occurrence is finally predicted. The core value of big data is to analyze the massive data and find the hidden links. On this basis, we can gain insights and predict future trends. The internet public opinion guidance should use the big data technology to analyze the internet public opinion data and the ideological dynamic data, predict the changes in people's thoughts and behaviors, improve the early warning prevention ability and emergency response ability, and reflect the forward-looking nature. Establish a internet public opinion big data analysis team to conduct high-level and real-time analysis of internet public opinion big data, and provide professional guidance for solid and effective guidance work. Conduct the forward-looking research of internet public opinion guidance, encourage high-volume, cross-domain data analysis to predict internet public opinion and guide the develop trends of new situations and new problems, so that to help improve internet public opinion guidance capability.

IV. CONCLUSION

With the rise of new media represented by we-media, the "Better late than never" style of internet public opinion guidance has become the "Achilles' heel" in the news communication work of the new era. In the face of the burst of emergencies and public opinions, the authoritative release and statement clarification which "to deal with affairs superficially rather than substantially" not only consumes a lot of public resources, but also makes the forward-looking and guiding nature of the internet public opinion guidance disappear. The precise thinking, related thinking, system thinking and forward thinking based on big data can provide thinking and logic support for internet public opinion guidance, and lead the transformation of the mode of internet public opinion guidance, so that we could take effective measures in the sensational stage to firmly grasp the public opinion and its direction, thus realizing the essential requirements of public opinion guidance "to take precautions before it is too late".

REFERENCES

[1] Li Deyi. "Study big data in practice with you", Science and Technology Information Network, 2013.06.05. (in Chinese)

[2] [Britain] Victor Meyer-Schoenberg: The era of big data: the transformation of life, work and thinking [M]. Translated by Zhou Tao. Hangzhou: Zhejiang People's Publishing Company, 2013.

[3] Zhou Jinchang, Meng Zhaoli. The transformation of big data applications: logical judgment to system thinking [J]. Communication World: 2013 (22). (in Chinese)

[4] Huang Shengmin, Liu Shan. Deconstruction and reconstruction of marketing system under the background of "big data" [J]. Modern Communication: 2012 (11). (in Chinese)

[5] [US] Bill Franks: Driving Big Data [M]. Translated by Huang Hai. Beijing: People's Posts and Telecommunications Press, 2013.

[6] [US] Albert-LaszloBarabasi. Outbreak: New thinking of future prediction in the ear of big data [M]. Translated by Ma Hui. Beijing: China Renmin University Press, 2012.