

# *Analysis on the Direction of Public Opinion Management Based on Block Chain Technology*

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**Keywords:** Block chain, Block chain media, Network public opinion, Public opinion analysis, Crisis management model

**Abstract:** From block chain 1.0 to block chain 3.0, thanks to its advantages of decentralization and peer-to-peer encryption, the application of block chain technology has expanded from the cryptocurrency to all walks of life. In the era of omni-media, the News Media is very sensitive to data, and the endless fake news and the once-growing public opinion crisis have caused chaos online. Block chain technology has begun to be applied to the media, and has been combined with Artificial Intelligence, Big data, Internet of Things, and other technologies to empower the media industry but its application in public opinion management is relatively weak. Based on the public opinion management, this paper discusses the application of block chain in the whole process of public opinion development in order to provide reference for relevant research and help to govern network public opinion environment.

## **1. INTRODUCTION**

After Big data, Cloud Computing, Artificial Intelligence, Virtual Reality, 5G, and other technologies, block chain is another emerging technology that will have a significant impact on the development of future informatization. It is expected to promote human beings from the information to value. It plays an important role in technological innovation and industrial transformation. The application of block chain technology has been extended to many fields such as digital finance, Internet of Things, intelligent manufacturing, supply chain management, and digital asset trading. Major countries in the world are accelerating the development of block chain technology. China will take the block chain as an important breakthrough for independent innovation of core technologies, increase investment, overcome key core technologies, accelerate the development of block chain technology research and industrial innovation, and promote the deep integration of block chain and the real economy. Block chain technology is developed as a kind of underlying logic that can empower all walks of life. The media industry is no exception.

## **2. CURRENT STATUS OF BLOCK CHAIN DEVELOPMENT**

Block chain is defined as a distributed ledger by the Focus Group on Application of Distributed Ledger Technology. The ledger is composed of digital data. The data is arranged in a chain

according to continuously increasing blocks, and each block is connected in an encrypted manner and reinforced to prevent tampering and revision. The “Block chain-Reference Architecture” issued by the China Block chain Technology and Industry Development Forum defines the block chain as a kind of construction that cannot be forged, tampered with, and can be constructed in a peer-to-peer network environment through transparent and credible rules. The traceable block chain data structure realizes and manages the transaction processing. The China Academy of Information and Communications Technology and the Trusted Block chain Promotion Plan define the block chain as an accounting technology that is jointly maintained by multiple parties, uses cryptography to ensure transmission and access security. It stores data consistently, is difficult to tamper with, and prevents denial., which known as distributed ledger technology. In summary, block chain technology has the characteristics of decentralization, difficult to tamper with, traceability, autonomy, etc. So, it can solve the trust problem and transfer value. It can also reduce trust costs, transaction costs, and time costs while improving processing efficiency.

Block chain developed from Bitcoin, but it has gone far beyond the scope of digital currency because it provides a new mechanism for how to build trust and deliver value without a “center”. Block chain technology has roughly gone through three stages of development: the 1.0 era represented by Bitcoin, which is the digital currency stage; the 2.0 era represented by Ethereum, which is the smart contract stage. Block chain is currently exploring the era of popularization in various industries. The embryonic form of the “block chain 3.0” era characterized by “programmable society” is beginning to emerge, and the era of industrial block chain is coming.

The technology maturity curve released by the well-known consulting company Gartner no longer regards block chain technology as an emerging technology and believes that block chain technology has begun to enter a mature stage in terms of technology and practical applications. In terms of technology patents, according to the statistics of the China Academy of Information and Communications Technology, the number of block chain technology patent applications from 2015 to 2018 has increased rapidly year by year. Although the application speed has slowed down in 2019, as of July 2019, the number of global public block chain patent applications has reached more than 18,000. From 2013 to 2019, the number of countries and regions with block chain patents gradually increased from 6 to 35.

Although governments of various countries hold different attitudes towards the development of block chain, major countries in the world attach importance to the application of block chain technology in the real economy, and set out to formulate the overall development strategy of the block chain industry, and actively promote the research and application of block chain technology. The current block chain projects promoted by governments around the world mainly involve the financial industry, government archives, digital asset management, voting, government procurement, land certification/real estate registration, medical and health and other fields. The Netherlands, South Korea, the United States, the United Kingdom, Australia, and other countries are more active in developing the research and application of block chain technology. Block chain technology is showing an accelerating trend in applications in many fields.

IDC predicted in its “IDC Worldwide Block chain Spending Guide” released on March 24th that the global block chain market will reach \$18.95 billion in 2024, with a compound growth rate of approximately 48.0% during the five-year forecast period (2020-2024). With the dual benefits of effective containment of the epidemic and policy support, IDC is optimistic about the market of China's block chain in the next five years. IDC predicts that the scale of China's block chain market is expected to exceed \$2.5 billion in 2024, and the five-year forecast data will be increased by 5%-10% compared with the previous period, basically returning to the pre-epidemic level. The latest forecast shows that the five-year compound annual growth rate (CAGR) of the Chinese block chain

market will reach 54.6%, ranking first in the world. The market size is expected to maintain within the five-year forecast period Second in the world.

### 3. PUBLIC OPINION

The application of block chain in the media field is still in its infancy. But because block chain can solve the widespread “trust” problem in the real world, and well solve the cost and efficiency problems of the current social trust mechanism, the range of application in the media industry is very wide. For example, in view of the characteristics of block chain technology that is difficult to tamper with and traceable, a distributed news database can be built to help news source authentication and content review. Thanks to the block chain, copyright protection can be carried out conveniently and at a low price. Of course, none of the above applications are the focus of this research. This article focuses on the analysis and management of online public opinion.

In the era of Wholly Media, the development and popularization of network technology provides the public with diverse and convenient life services. At the same time, due to the virtuality and concealment of the network, there have been chaos such as the proliferation of false information, verbal violence, and network fraud, which has given the network society a great impact. Different from the traditional media, in the Wholly Media era, public communication is diversified and convenient. You can use different channels to express your opinion and demands, and you can publish and forward information at will. Netizens’ behavior in cyberspace is less pressured by reality, and they do not need to bear corresponding responsibility for what they say. Therefore, sense of social responsibility for virtual cyberspace tends to be weaker than that in real. That is to say, lack of sense of integrity and responsibility in the network.

At present, social media such as Weibo acts as a public opinion fermenter. Due to the open communication mode setting, it has the function of a public opinion fermenter. All users can discuss on the open platform so this model provides a place for the expansion of public opinion. Short video apps and live webcasts are becoming efficient media for the dissemination of public opinion. Recent years, short video apps and webcasts have quickly become emerging media for the dissemination of public opinion due to their effectiveness, convenience, continuity, sense of direct vision and sense of participation in the process of public opinion dissemination.

The “Decision” of the Fourth Plenary Session of the Nineteenth Central Committee of the Communist Party of China proposed: “Improve the public opinion guidance mechanism for major public opinions and emergencies.” Advocating and improving the guidance of public opinion and raising it to the mechanism level shows that China is paying more and more attention to public opinion.

### 4. RESEARCH METHODS

Mitroff and Pearson proposed a five-stage crisis management model for corporate crisis management. In the first stage, Signal Detection, is to identify signals that may be in crisis. In the second stage, Preparation and Prevention, should prepare to minimize the probability of the occurrence of a crisis. In the third stage, Damage Containment, should minimize damage. The fourth stage, Recovery, is to recover from the crisis. The fifth stage, Learning, should gain experience and lessons. Learn from the crisis management process to prevent the same crisis from happening again. After studying this model, we believe that this model can also be applied to public opinion management. It can apply block chain technology in the four periods such as Signal Detection, Preparation and Prevention, Damage Control, and Learning to solve the current problem better:

#### 4.1 Block Chain in Signal Detection

In this period, the network public opinion is in its infancy and only a small number of people spread it. The existing technology is not easy to detect this state of information. Therefore, the digital identity mechanism of block chain is introduced to endow users in the system with a unique digital identity in the world, and no third-party certification is required. With this unique digital identity, when users publish information in the social network, the system will write the information together with this digital identity into the block chain. Because the block chain cannot be tampered with and the digital identity is unique, the source of this information will be permanently saved. The cost of information is higher and the transmission is irreversible, which can authoritatively verify whether the public opinion information is consulted, tampered, copied, and retained.

In addition, the social network based on block chain technology has introduced an incentive mechanism that encourages users to spread high-quality information. That is a proof-of-work mechanism. The user can get more benefits (to obtain tokens and increase reputation value) when forwarding high-quality information, and when the disseminated information is confirmed as distorted, the user will also suffer heavier punishment (loss of reputation value). Finally, due to Block chain technology cannot be tampered with, once a user forwards public opinion information, the forwarding information and related operations have been stored in the distributed ledger and cannot be deleted. Therefore, even if the user no longer disseminates the public opinion information, all neighbor nodes can still receive the public opinion information forwarded by him.

Thanks to the block chain, users are no longer frequently forwarding or commenting on the public opinion information of others in consideration of the price or expected benefits paid for their actions, but can carefully screen the authenticity of the information. Therefore, the application of block chain can stop rumors and other false public opinion from the users, and can effectively enhance positive energy and public opinion leadership. So it can achieve the goal of self-purification and save management costs.

## **4.2 Block Chain in Preparation and Prevention**

Compared with traditional security technology, the block chain can trace the information from generation to dissemination. Whether it is during the event or afterwards, it has a complete process, which can measure the value of information and transmission with credible data. If combined with the sentiment analysis of the text in the Big Data technology, we can identify hot issue of public opinion when the information appears, and use block chain technology to build a network public opinion tracing system to trace the source. So, we can warn timely and take necessary measures. At the same time, it also allows more people to participate in the editing of network information. By tracing and verifying the reliability and source of information, users can identify real information at low cost, so that real information can be spread more widely. And the public opinion environment will be cleaner and more transparent.

## **4.3 Block Chain in Damage Control**

The spread of online rumors is not only due to the lack of responsibility of the media platform and insufficient response from the mainstream media, but also the tampering of news and the anonymity of online accounts. The digital processing of news pictures and the digital synthesis of digital video can tamper with news unknowingly. Facebook banned more than 1.3 billion fake accounts from October 2020 to December 2020. It also deleted more than 12 million misinformation with COVID-19 and vaccine. These fake accounts can also create false enthusiasm for public opinion through likes, comments, and reposts. Because of the limitations of traditional technology, media supervision is very difficult.

The tracking and visualization function of block chain nodes, the penetrating supervision technology of alliance chains, the discovery and detection technology of public chains, and the architecture and standards of chain governance will be the main trends in the development of block chain supervision technology. In the environment of block chain, public opinion information is more accurate. We can introduce the document authenticity verification mechanism, store all the “context metadata” of news-related files on the block chain, and support the authenticity verification of related files to prevent the falsification of pictures or video files. Big data can be used to build a public opinion case database, and compare public opinion hot topics with the case database. If there is a high degree of agreement, the response plan can be directly output. Use block chain technology to develop a direct online public opinion reporting system to stimulate the enthusiasm of public opinion management, and build a decentralized trust mechanism to form a new pattern of direct public opinion information interaction, intelligent analysis, and assisted writing.

#### 4.4 Block Chain in Learning

At this stage, it is mainly to analyze the development of the event and analyze the public opinion in order to summarize experience. Use block chain to statistics data and record all stages of information release and transmission, and then grasp the evolution behind public opinion information. In the block chain environment, information is more real, information value density is higher, data analysis is more efficient, analysis results are more accurate, and public opinion changes can be more efficiently responded to. This technology providing a good opportunity for government and other industries.

### 5. CONCLUSION

Compared with traditional technology, with the support of the immutable and traceable characteristics of block chain, users are more rational and only responds to tangible and credible public opinion information. So that we can suppress chaos in the embryonic stage. The social network based on block chain technology introduces an innovative incentive mechanism, so that users are more enthusiastic about forwarding real information and can analyze the information objectively. Then users derive their own communication strategies more carefully. Block chain combined with big data and other technologies can effectively supervise public opinion, collect public opinion information efficiently, and analyze accurately.

The application of block chain technology in news and dissemination is still in its infancy, and its application in public opinion management has just begun. However, due to its technical characteristics, it is believed that block chain technology can be used as an infrastructure to support public opinion management in the future.

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