

Research on Internet Public Opinion of Major Conferences Based on Big Data—Take the 2021 World Internet Conference Data as an Example

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Abstracts: *By using K-means clustering method and Porter's five forces model, taking the 2021 World Internet Conference data as an example, and with the help of big data platforms such as Baidu Index and Sina Micro Index, this paper analyzes the evolving law of online public opinion in major conferences and the heat influencing factors. Research indicates: Internet public opinion begins to fluctuate a week before the opening of major conferences, reaches its peak for the first time on the opening day, and then public opinion will rebound, until the closing of the conference, public opinion begins to weaken; during the evolution of online public opinion, the government and official media are the leading forces in handling online public opinion. Facing online public opinion of major conferences, the government should first plan ahead and respond quickly, but should not interfere excessively; secondly, give full play to the guiding role of guests and experts; give full play to the government's "three micro ends" communication channel again. The big data platform provides data support for the government to scientifically respond to the network public opinion of major conferences.*

Keywords: *Big Data, Major Conferences, Internet public opinion*

1. Introduction

According to the 48th latest report of China Internet Network Information Center (CNNIC), as of June 2021, the number of netizens in China was 1.011 billion, 21.75 million new netizens compared to December 2020, the internet penetration rate reached 71.6%, 1.2 percentage points higher than in December 2020. With the rapid development of computer network communication technology, the mobile client is quickly accepted and used by ordinary people, and China has gradually moved towards the era of big data network.[1] Big data has the 4V characteristics of large quantity, variety, high speed and value, and the openness of the Internet allows netizens to express their opinions freely and conveniently.[2] The manifestation of online opinion is more three-dimensional and visualized. Network public opinion is changing rapidly and diversified, presenting the characteristics of big data. For major conferences, Netizens' attention has skyrocketed in a certain period of time. Proactively publish via the Internet, Spreading public opinion data will grow at a geometric level.[3] Netizens vent their emotions and express their interests through new social media such as forums, Weibo, WeChat, audio-visual, Facebook and Renren, which increases the complexity of online public opinion management.[4] Therefore, using big data methods to analyze online public opinion can track fluctuations, turning points, and evolutionary trends of online public opinion, improve the accuracy and precision of analysis, give timely warning, and improve the ability to respond to and deal with online public opinion.

Internet public opinion is to spread the public's comments and tendentious views on an event with the help of the Internet platform. It is a complex of various emotions, views, opinions and suggestions.[5] By Analyzing the characteristics of online public opinion information data of major conferences and taking network data as the analysis object, the evolution process of online public opinion can be divided into initial stage, diffusion stage, Stationary period and regression period.[6] September 26, 2021, World Internet Conference officially opens in Wuzhen. Before September 26, it was the initial stage of online public opinion. On June 11, 2021 World Internet Conference Partner Recruitment Information was released. It was determined to be held in Wuzhen, Tongxiang City, Zhejiang Province in the second half of 2021. The detailed schedule will be released at the Wuzhen Summit on September 22. During the diffusion period from 26th to 28th, a series of activities were held such as the "Light of the Internet" Expo, the release of leading scientific and technological achievements, the "Direct Wuzhen" Global Internet Competition Finals, the Open Source Ecological Forum, the Entrepreneur Summit Forum, the Global Anti-epidemic and International Communication Forum, etc. The closing ceremony was held on the

28th. Since then, the Internet public opinion has entered a stable period until finally faded. Of which December 28, 2021 World Internet Conference held a closing press conference to release the results of the conference, which triggered successive media reports.

2. Research Methods and Data Sources

The large amount and high speed of data in the era of big data network provide time-sensitive possibility for online public opinion warning. Based on big data technology, this paper analyzes the fluctuation direction of online public opinion. Based on big data platforms such as Baidu Index and Sina Micro Index, this paper studies the trend of online public opinion at major conferences and analyzes the evolution of online public opinion by using K-means clustering method and Porter's five forces model. If problems are found, give early warning in time, reply to hot spots of netizens' attention, stabilize the mood of netizens, and guide the healthy development of online public opinion in the direction of positive energy. The K-means clustering method randomly select K objects as the initial cluster centers, and each object is assigned to the nearest cluster center. This process will continue to repeat until a certain termination condition is met.[7] The clustering method is efficient and concise, and time progression is approximately linear, which is very suitable for network public opinion data mining; Porter's five forces model is that there are five forces in the industry that determine the scale and degree of competition. The model is used for the analysis of competitive strategy and can effectively analyze the competitive environment.[8] As its theory continues to improve, this model method is suitable for the research of factors affecting the popularity of Internet public opinion heat.

According to the search frequency of keywords related to the 2021 World Internet Conference by Sina Micro Index and Baidu Index, June 1st-December 31st, 2021, and the 1,000 microblogs related to the conference released by Sina Weibo during this time period, 100 of them are selected by stratified sampling and systematic sampling methods, and classified them according to the hottest words of the conference, to study the evolution trend and response strategies of the Internet public opinion of the conference. In addition, according to the data of the Zhejiang Provincial Party School Public Opinion Center, we analyze the international communication of the conference. Firstly, Use K-means clustering method to study the evolution of Internet public opinion at various stages of major conferences; Secondly, use Porter's Five Forces Model to study the Influencing factors of internet public opinion heat, and explore the dynamics and trends of online public opinion of major conferences according to the big data characteristics of online public opinion of major conferences.

3. The Law of the Evolution of Internet Public Opinion

According to the search of Sina Micro Index, during the 2021 World Internet Conference September 26-28, up to 280 related topics appeared on Sina Weibo topics. Which ranks first, "On September 26, President Xi Jinping sends a congratulatory letter to the 2021 World Internet Conference Wuzhen Summit.", it reached 150 million readings and 27,000 discussions, ranking at the top of the micro index, causing widespread heated discussion. Second place, "Direct access to World Internet Conference 2021", and the introduction "2021 World Internet Conference " light of the Internet", take you straight to the scene!", 110 million readings, 6774 discussions. From the analysis of popular articles, at the 2021 World Internet Conference Wuzhen Summit "Internet Rumors Co-governance" Forum, Lu Lan, Deputy Minister of Propaganda Department of Shandong Provincial Party Committee and director of the Provincial Party Committee's Cyberspace Affairs Office, shared Shandong's experience and exploration in the governance of Internet rumors, which aroused widespread heated discussion and 6.669 million people attended the discussion. In addition, Wuzhen tourism was awarded the "Advanced Group" for undertaking the Wuzhen summit of the 2021 World Internet Conference in Tongxiang, which also aroused widespread heated discussion. 24% of the media talked about President Xi's congratulatory letter, 19% of the media reported the latest scientific and technological achievements, 15% of the media paid attention to the contents of the blue press conference, 9% of media reported on artificial intelligence, digital economy and international cooperation initiatives, and 6% of the media paid attention to the impact of the conference on the lives of the people and future internet economic trends. From the analysis of media focus heat; basically it is roughly consistent with the ranking of Weibo hot topics.

According to the K-means clustering method, after standardizing the search data of the Internet conference, the spread of public opinion presents the characteristics of rapid outbreak, long shock period, quick fall and other features. The value is assigned $K=4$, then use clustering method for mean analysis. The results show that the major meetings are divided into the initial stage, the spreading period, the stable

period and the fading period of public opinion.[9] As the World Internet Conference, Weibo netizens started paying attention within half a month before the opening of the conference, only sporadic public opinion, which was in the early stage of public opinion and lasted half a month; On September 26th, the day before the opening of the conference, domestic and foreign media began to warm up reports, and netizens discussed the guests at the meeting. At this time, the public opinion of the meeting has entered a period of diffusion. On the 27th, Internet tycoons competed to speak. The conference was officially opened, and the attention of Weibo increased slightly. On the morning of the 28th, the award ceremony of the finals of the "Direct to Wuzhen" global internet contest and the closing press conference of the 2021 World Internet Conference reached a peak in public opinion. When the meeting closed, public opinion fell back and entered a stable period of public opinion. Then, Public opinion lasted for a week and entered into the fading period. Since then, the attention of public opinion has not rebounded again.

In the process of the evolution of Internet public opinion at the Internet Conference, by setting the Baidu index data analysis for nearly half a year from June 1 to December 31, 2021, public opinion has not improved from June 1 to the end of August. Public sentiment began to fluctuate in early September. On September 16, public sentiment rose slightly and the index reached 821. Index reached 1410 on September 22. On September 26, the opening ceremony index of the Internet Conference reached 4405, ushering in the first peak of public opinion at this conference. The closing ceremony index reached 1891 on September 28 and public opinion began to decline. By October 2, the index was 369, and the public opinion did not fluctuate too much in the follow-up.

From the analysis of Baidu demand map, the time range is set from July to October. The top four keywords in July were the World Internet Conference, Artificial Intelligence Conference, China Internet Conference and Wuzhen Internet Conference. The top 4 keywords in August were the World Internet Conference, Wuzhen Internet Conference, International Conference, and Science and Technology Conference. The top 4 keywords in October were the Internet, World Internet Conference, 2021 World Internet Conference Wuzhen Summit, Zhongguancun Forum. From the Keyword search analysis of Baidu demand map, the popularity of the World Internet Conference can only last one month before and after the conference. The time range is wide and the attention heat is not high.

From the analysis of Baidu Crowd Portraits, the time range is set from July to October. The top five provinces are Beijing, Zhejiang, Guangdong, Jiangsu and Shanghai, and the top five cities are Beijing, Hangzhou, Shanghai, Jiaying, and Wuhan. According to the city distribution, Wuzhen Internet Conference in 2021 is more concerned with relatively developed cities, and the Internet level is also at the forefront of the country. According to Baidu Index, the ages of concerned people are divided into less than 19 years old, 20 to 29 years old, 30 to 39 years old, 40 to 49 years old and more than 50 years old. Among them, the most concerned age group is 20 to 29 years old, reaching 40.32%, followed by 30 to 39 years old with 35.21%, indicating that the majority of young people pay attention to the World Internet Conference.

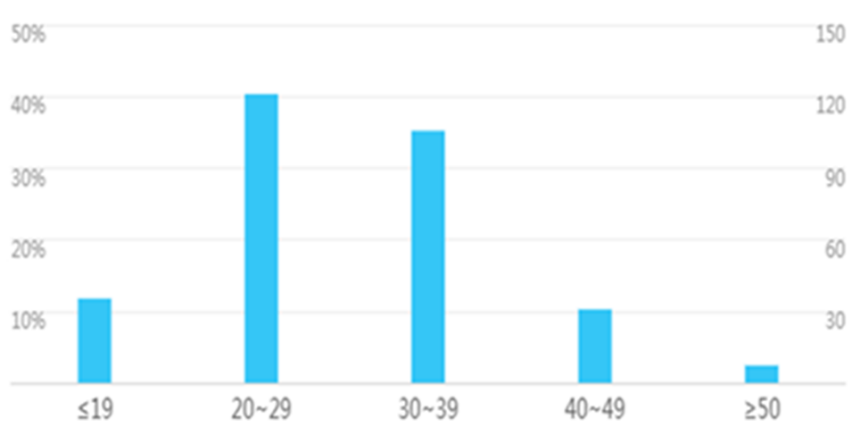


Figure 1: Age distribution of Internet conferences

It is discovered from the data that Netizens' attention to major conferences is mainly concentrated during the opening and closing periods of the conference. The big coffee's speech at the meeting or the conference-related documents release caused a peak of public opinion. One week before the opening of the conference is the initial stage of public opinion. When the time goes forward, public opinion is almost zero. Public opinion dropped rapidly after the closing of the meeting, and then the public opinion stabilized in the following month until it finally subsides.

During the proliferation period of network public opinion of the conference, the following conclusions are drawn by retrieving the reports of authoritative media such as Xinhuanet and People's Daily Online, as well as news sites such as Wechat, Sina Weibo, Baidu Post Bar, Sohu and today's headlines. Firstly, WeChat brings together major authoritative media and We-media to open WeChat public accounts. Media official microblog reports and interprets the status of the Internet conference, and Self-media accounts are also fully used for interpretation, acting as an opinion leader in a particular circle; secondly, the media focused on the "big guys" attending the conference and their remarks in various industries. On the occasion of the opening, the President Xi Jinping sent a congratulatory letter to let the digital civilization benefit the people of all countries and promote the construction of a community with a shared future for mankind. The rapid dissemination of these topics has increased the popularity of online discussions. At last, before the start of the World Internet Conference, a media official Wechat released relevant promotional videos on social platforms, because it's the warm-up phase, and netizens feel more excited about the changes brought by the development of the Internet.

4. Factors Affecting the Popularity of Internet Public Opinion

Using Porter's Five Forces Model to study a cycle of internet public opinion in major conferences, it is found that the major factors affecting the popularity of online public opinion at major conferences mainly include the influence of the host country, the driving force of netizens who pay attention to public opinion, the display power of new media platforms as the carrier, the traction force with international communication as the traction, the response force with the government and official media as the object.

(1) The influence of the host country of the conference plays an important role in the popularity of the conference network public opinion. For such major conferences, it can be analyzed from multiple perspectives of the impact degree, method and scope of the meeting. As China's economic strength continues to rise and its GDP accounts for second in the world, according to the Global Times report in 2018, more than 80% of foreign respondents feel that China has entered or is entering the ranks of world powers. China's holding of international conferences has an important impact on world economic growth. Therefore; the world will pay great attention to the influence of the conference held in China. On September 26, 2021, a series of activities were held, including the "Internet Light" Expo, the release of leading scientific and technological achievements, the finals of "Direct to Wuzhen" Global Internet Contest, the Open Source Ecological Forum, the Entrepreneur Summit Forum, the Global Anti-epidemic and International Communication Forum, which caused the first climax of public opinion at home and abroad. The 2021 World Internet Conference Wuzhen Summit has the theme of "Moving towards a new era of digital civilization-join hands to build a community of shared future in cyberspace". Some of these conference activities have attracted a high degree of global attention and wide impact.

(2) Netizens have played a significant role in promoting online public opinion at major conferences. Netizens' dissemination of public opinion is often affected by personal cognitive level, moral values, and information dissemination behavior, as well as personal age, education, etc. Ordinary netizens express their concerns about the meeting by commenting, reposting microblog, WeChat, and other behaviors. From Baidu Index analysis, Beijing netizens paid the highest attention to this conference, followed by Zhejiang and Guangdong, because Beijing is the political center of our country. Important leaders attach great importance to the Internet Conference. For example, the general secretary Xi sent a congratulatory letter to the conference, which drove Beijing's netizens to pay attention to the conference. In addition, Beijing has a large base of netizens, which is also another reason for the high degree of attention of netizens. Wuzhen, Zhejiang is the host city of this conference. Since the last G20 summit in Hangzhou, Zhejiang has held the World Internet Conference in Wuzhen every year, and netizens are extremely active in international conferences. Guangdong's Internet development effectiveness and level are among the top, and local netizens have a strong interest in Internet-related information.

(3) From the analysis of Sina Micro Index, the information release of this conference is mainly through the new media platform. Weibo accounts for 70%. In addition to the official micro release news, pear video and Beijing time also introduced the conference. Various media spread to each other. For example, Xinhuanet published a blog post and added short videos of Beijing time, which were superimposed with each other to make this video widely spread. In addition, Internet celebrities interact with netizens through Weibo. For example, Xiaomi Company released photos of Lei Junwu Town, which attracted netizens' praise. Online media accounted for 21%. During the conference, most netizens could not participate directly and could only discuss based on media reports. "Future Net" will re-report the public opinion of netizens, which is a manifestation of the integration of the new media agenda. WeChat public account number 5%, due to the strong privacy of WeChat, the influence is not as high as the repost

rate of Weibo. And WeChat has a huge user base and is also one of the important channels for new media communication. New media communication platforms, as well as forums, news clients, digital newspapers, blogs, videos, etc., account for a relatively small proportion.

(4) Analyze the international communication of the conference from the data of the Zhejiang Provincial Party School Public Opinion Center. "Beautiful Zhejiang" series of photo exhibitions have received the most praise rate of forwarding overseas. "Wuzhen" has more mentions than "Zhejiang" and is rapidly growing into a Chinese image. The overseas editions of Bloomberg and People's Daily are the most active in communication. Financial accounts, Beijing reporters from Bloomberg News and Reuters reporters are very concerned about the grand occasion of the World Internet Conference. These accounts target economic sectors. Their high-frequency attention shows that western countries agree that China will make contributions to the economic development of the century with the help of the Internet economy. In addition, comprehensive foreign media such as Deutsche Welle and the South China Morning Post are also paying more attention to the Internet conference. It is worth noting that professional financial media such as PR Newswire, FT Chinese network, Bloomberg News, PYMNTS.com also have certain reports on the Internet conference, indicating that the western media fully agree with the role of the World Internet Conference in economic financing. The performance of large Internet and IT enterprises such as Xiaomi, Alibaba, Nokia and Facebook is also remarkable, demonstrating the huge potential of large enterprises in building a good external image.

(5) The conference was sponsored by the Chinese government, and Wuzhen hosted this international event. The official media was unusually active. The Chinese government has demonstrated strong self-confidence and response to major international conferences, dominating the trend of online public opinion throughout the cycle. Official media such as Xinhuanet, People's Daily Online, CCTV, and provinces, municipalities and localities released dynamic information in a timely manner. Official WeChat public account and Weibo interacted with netizens in time to understand the dynamics of netizens. At the opening of the conference, Phoenix Network Post issued a document, which aroused the media to focus on the industry's "big man" remarks and CCTV reported, which caused the media to discuss the congratulations from the chairman. People's Daily Online issued a document, causing the media to report the scientific and technological achievements announced by the conference. The Economic Information Daily reported Internet scientific and technological achievements, which attracted media attention. The International online coverage of the Belt and Road Initiative, which drove media's attention. According to the analysis of overseas public opinion data, it can be seen from the information of the top 10 bloggers released by social media accounts that 40% are Chinese official media, namely China Central Television, People's Daily, Xinhua News Agency and China Daily European Edition, which have played a good role in guiding public opinion on the new media platform and successfully promoted the image of China as a big country with the help of the Wuzhen World Internet Conference.

5. Conclusion and Suggestion

Combined with the 2021 World Internet Conference, using the K-means clustering method and with the help of big data platforms such as Baidu Index and Sina Micro Index, this paper analyzes the evolution law of online public opinion at major conferences. It is found that the online public opinion of major conferences is divided into the initial stage, the spreading period, the plateau period and the fading period. Using Porter's five forces model, the factors affecting the popularity of online public opinion of major conferences are divided into the host country's own influence, netizens as the driving force, new media platforms as the display force, international communication as the traction force, and the government and official media as the response force.[10] Through the research on the evolution law of online public opinion of major conferences and the influencing factors of public opinion enthusiasm, some conclusions and recommendations are summarized as follows:

First of all, the popularity of internet public opinion will reach its peak on the opening day of major conferences. Public opinion has entered a period of diffusion until the end of the meeting, and then public opinion began to weaken. Due to a wide range of areas and rich content of major conferences held in China and the high frequency of foreign media reports, public opinion began to fluctuate within a week before the opening of the conference, and then the popularity of public opinion will reach its peak repeatedly. For the government, the public opinion must be monitored in the whole process throughout the initial stage, plan ahead and respond quickly. During the period when the popularity of public opinion repeatedly reaches its peak, the government should not interfere too much with netizens' enthusiasm for normal public opinion on the meeting, and should actively guide it, otherwise it will cause the public opinion heat to increase again and have a negative impact.

Secondly, increase the guiding role of traditional media commentators and industry experts, and actively guide the trend of online public opinion through positive reports on the conference. The government has plans to hold a press conference, the official authoritative media will release conference news in time, and announce the progress, content and results of the meeting in a timely manner. During the entire public opinion cycle before and after major meetings, the government should take response and early warnings for different levels of online public opinion.

Thirdly, "Three WeChat One End" is currently the most popular communication channel among netizens and also the most active new media platform. The government fully communicates with netizens with the help of official Weibo, WeChat, micro video and mobile clients to timely feedback on issues that netizens care about. Use multimedia methods such as text, video, pictures and animation to introduce the progress of the meeting. The WeChat public platform pushes meeting information in time. At the same time, the government will hold a press conference at an appropriate time to interact with domestic and foreign media. We should attach importance to the role of opinion leaders in Weibo, WeChat public accounts and media accounts, strengthen guidance, curb the spread of negative speech, and create a harmonious online public opinion environment.

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