

Intelligent Social Media Information Dissemination: Balancing Freedom and Governance

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Abstract: This paper explores the problem of bad information management in smart social media and analyzes the status of smart social media and the challenges it poses. Besides, it discusses information management and public participation in smart social media platforms and the role of law and policy in it and compares the attitudes and policies of information management in smart social media in different countries and regions. Furthermore, it discusses the technology of advanced artificial intelligence and other technologies in information management applications. The study findings underscore three crucial pathways to address the urgent management and control of undesirable information on smart social media platforms. Firstly, there is a need to strike a balance between supervision and management and free expression. Secondly, international cooperation and co-management must be strengthened. Lastly, it is crucial to leverage new technological breakthroughs, particularly artificial intelligence, to accurately identify and provide risk warnings for undesirable information.

Keywords: Smart social media; Free expression; Information management; Balance; International cooperation

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1. Introduction

With the rapid development of information technology and digitalization, human beings have entered a new era of self-media, i.e., the era of smart media. WeChat, Shuttle, Facebook, TikTok, Twitter, and Clubhouse, etc. have achieved personalized information dissemination through algorithmic recommendations, marking the breakthrough of smart social media. This has greatly changed the way of life and thinking of human beings. However, more and more studies have shown that smart social media, like many new technologies, while offering many conveniences, also brings a series of seemingly inevitable new problems and challenges. The

fast-approaching era of smart media is also accompanied by problems such as disinformation, hate speech, and privacy breaches, which pose a threat to individual, societal, and national security. Manipulated by commercialized platforms, information dissemination focuses on gaining attention for rapid traffic growth. Exploiting human vulnerabilities, this approach easily hooks audiences, leading to addiction and mental numbing. Consequently, achieving legal, standardized, and civilized information dissemination on smart social media has emerged as a critical global concern. It is imperative to assess the current state of research on the characteristics, development trends, public engagement, and legal regulations of typical smart social media platforms. This endeavor will aid in curbing and mitigating the adverse impacts of smart social media while offering valuable insights into achieving lawful, standardized, and ethical information dissemination in this domain.

2. Popularity and trend of emerging smart social media platforms

In the era of smart social media, new social platforms continue to emerge, among which short video platforms are the most popular and influential. The earliest popular short video platform in China was Neihan Duanzi, but it was shut down due to the dissemination of short videos with sexual innuendo. Douyin and Kuaishou (English version: Kwai) quickly took over the market, leading to the arrival of a new era. Douyin, in particular, is not only popular in China, but has also taken the world by storm under the name of TikTok, perennially dominating the list of most downloaded apps, becoming China's most successful media platform on a global scale. Kuaishou followed closely behind, and it is one of the most popular short-video platforms in China. After that, more and more short video platforms emerged, such as Bilibili, Xigua video, etc., forcing the traditional top social platforms like WeChat and QQ to also venture into the short video business. Audio platforms such as Clubhouse and Himalaya were also developed with algorithmic recommendations. This technology was quickly incorporated into browsers, e-commerce platforms, gaming sites, and so on. But short video has become an economic powerhouse, forming a huge volume of industrial clusters. Live streaming is the best endorsement of this new form of economy, and it will surely become one of the highlights of this era.

The reason behind the rapid growth of short video platforms is their algorithm-based recommendations. For example, TikTok quickly became popular around the world due to its unique algorithm and user-friendly interface. It allows users to create, edit, and share short videos of 15 seconds to 1 minute. This quick and intuitive content format naturally appeals to internet users, particularly the younger demographic.

In only about 5 years, this unique algorithmic mechanism has proliferated across almost all interactive platforms and has completely replaced the previous mode of information dissemination, which mainly relied on user searches. This also marks the advent of smart media. At present, the scope of media and smart social media has significantly expanded. In addition to traditional media, numerous non-media platforms and even digitized, informatized objects now possess information interaction capabilities, transforming them into smart media and smart social media. For example, smart cars, unmanned airplanes, and smart mining equipment have all evolved into smart technology akin to smartphones. Online shopping platforms, browsers, and games have also become equipped with social functions. This transformation underscores the revolutionary and epoch-making changes occurring in the smart media era, with equally substantial negative implications that may potentially disrupt the future landscape.

While tech developers are defining the future landscape of smart social media platforms, there is also a growing concern about how certain rules will be imposed on this fast-growing domain. One important direction is an increased focus on enhancing privacy and data security. With rising instances of data breaches and privacy

violations, users are becoming increasingly concerned about protecting their personal information. To maintain brand trust, smart social media platforms will place greater emphasis on user data protection. This means that future smart social media may adopt more advanced data encryption technologies and develop more transparent data usage policies. Secondly, the application of artificial intelligence will become more widespread. It is expected that future smart social media platforms will utilize AI technologies more extensively, such as deep learning and natural language processing, to perform tasks such as content recommendation and disinformation monitoring, thereby improving the efficiency and effectiveness of information management. Thirdly, there is a trend towards diversified integration of intelligent social media functions. Smart social media platforms are evolving from merely facilitating social interactions to integrating multiple functions, including content creation, e-commerce, and gaming. This diversified development necessitates platforms to enhance their information management capabilities to ensure the efficient and safe operation of various functions, meeting the diverse needs of users.

3. Challenges and responses to false information and hate speech

3.1. False information

False information on smart social media has become a global challenge, in which it is more evident in some developing countries. Some countries have explored various approaches to address this challenge. Responding to the spread of disinformation through educational interventions is one of the most effective ways, especially among less digitally literate populations. For example, in a randomized experiment in Pakistan, researchers found that when educational information was combined with an individual's experience of interacting with fake news, it improved the ability to identify fake news by 0.14 in terms of standard deviations. Additionally, utilizing more advanced technology is one of the most important ways to address the problem of disinformation. Hoaxy is a tool for collecting, detecting, and analyzing online misinformation and its associated fact-checking efforts. Preliminary analysis of the platform shows that verified content sharing is usually delayed by 10–20 hours compared to false information, and that fake news is more often spread by highly active users, while real information often originates from less influential figures or platforms. Therefore, the utilization of certain tools or skills training can enhance one's ability to discern information accurately. This assertion was validated in a pilot study conducted in Indonesia.

3.2. Hate speech

Hate speech may fuel extreme social movements and may lead to real-world violence. Therefore, it is a pressing issue that needs to be addressed. While self-organized "counter speech" appears to offer a potential solution by encouraging dialogue between society members and those propagating hate, its effectiveness in curbing the spread of hate remains uncertain. Studies indicate that purveyors of hate speech often have a more detrimental impact on information dissemination than individual instances of hate speech. This is because they occupy central positions in social networks and form interconnected networks that exert strong control over discourse, creating echo chambers where users align with specific ideological positions. Effectively combating hate speech requires deeper research into the underlying mechanisms of its generation and dissemination. Additionally, leveraging natural language processing technologies such as artificial intelligence can enhance the scientific and accurate detection and identification of hate speech, contributing to more effective mitigation strategies.

3.3. Privacy violation

Under the background of informatization and digitization, more and more personal information is being

collected and disseminated. The active sharing behavior of some users may inadvertently result in the leakage of private information. Additionally, information protection systems, when breached by malicious actors, can also lead to the theft of user information. Whether through active sharing or passive breaches, these incidents ultimately contribute to the widespread leakage of personal privacy data among smart social media users. This can lead to a range of cascading risks, including mental harm and property damage to affected individuals. To encourage data sharing and alleviate user privacy concerns, many companies have developed anonymization and de-anonymization algorithms. These algorithms are designed to share user-related data while protecting user privacy. For example, image recognition techniques allow for the automatic detection and blurring of facial information, thereby protecting the user's privacy. Other studies propose adversarial attacks specifically targeting smart social media data and further provide a principled approach to evaluate the effectiveness of various aspects of anonymizing smart social media data. In addition, some studies propose a logical framework to validate privacy breaches in social networks.

3.4. Information overload

Social media information overload is a phenomenon in which an individual receives more information on a social media platform than he or she can process and digest, which leads to negative consequences. With the popularity of social media, users are constantly bombarded by massive amounts of information, which leads to a series of challenges in processing this information. First, the sheer volume of social media information distracts people from focusing on important tasks, which may affect work and study efficiency and lead to reduced thinking skills. Second, information overload triggers information anxiety, where individuals worry about missing out on critical information, leading to excessive social media surfing and increased stress. Finally, social media are filled with a large amount of information, making it difficult for individuals to manage their time effectively, and they may become addicted to browsing, affecting their daily lives.

4. Smart social media information management and public engagement

4.1. Importance of smart social media for public participation

Smart social media is the most important information dissemination and communication tool nowadays. For many, it transcends its role as a mere tool and becomes a companion, an assistant, or even a livelihood. It not only offers a convenient and swift platform for public interaction but also facilitates free expression, accompanying individuals through both joys and sorrows. Moreover, it serves as a valuable resource for resolving various everyday challenges related to lifestyle and necessities. Intelligent social media platforms streamline tasks such as food delivery, fashion choices, and regular payments of taxes and fees. With the advent of live video streaming, many individuals rely on social media for financial sustenance, leading to transformative opportunities. Importantly, smart social media facilitates public engagement in discussions on various societal issues, allowing individuals to share their perspectives and provide feedback on government policies and social events. This widespread public participation enriches societal diversity and furnishes policymakers with valuable public opinion references, thus fostering a more informed and inclusive decision-making process.

4.2. How information management affects public participation

Social media is a double-edged sword, and so is the management of social media information. While effective management ensures accuracy and fosters healthy discussion, overregulation can stifle free expression. Extremely strict or non-transparent information management policies may create a sense of mistrust and

insecurity among the public, or even create a spiral of silence effect whereby certain viewpoints and voices are suppressed or ignored. It is therefore crucial to strike a balance between maintaining public order and safeguarding the freedom of expression.

4.3. Roles of government and smart social media platforms

The users, the government, and the smart social media platforms all play a role in managing the information on smart social media. Individuals should first exercise moral restraints and comply with the law. Additionally, they should take on social responsibilities such as exposing and reporting misconduct. Governments are responsible for formulating laws, policies, and regulations to ensure truthful and fair information dissemination while protecting public rights. Smart social media platforms must enforce these regulations while considering business interests and user experience. The joint efforts of the government, the smart social media platforms, and the users are needed to create a healthy and orderly online environment.

5. Smart social media information management in China vs. other countries

There are some differences in the measures taken in dealing with the challenges of social media information between China and other countries. One notable distinction lies in the management policies adopted. China places significant emphasis on social media information management, particularly concerning national security, social stability, and combating online misinformation. As a result, China often implements more stringent measures compared to countries like the United States. In this regard, China has issued a number of specialized laws and regulations, and constructed a whole set of online censorship system to ensure the legitimacy and authenticity of information. However, China's adoption of stringent information management policies does not negate its support for free speech, a right enshrined in the Constitution and protected by national law. Instead, China places greater emphasis on citizens' responsibility to the state and society than on unrestricted individual freedom, prioritizing a balance between free speech on smart social media and their social responsibility.

In contrast to China's approach, the United States maintains a more open stance toward smart social media information, emphasizing individual freedom of expression and market self-regulation. However, following the "Capitol Hill" incident, the U.S. has recognized the potential threats posed by false information and hate speech on smart social media to national, social, and public security. Consequently, in the past two years, the U.S. has adopted increasingly interventionist policies, including the establishment of online data collection, analysis, and feedback mechanisms to manage risks and combat disinformation. As the drawbacks of liberal information management policies become more evident, it is anticipated that the regulation and restriction of social media information in the United States will intensify.

In contrast, Europe has adopted a more balanced policy towards smart social media information, offering new perspectives compared to the contrasting approaches of China and the United States. Europe's approach neither mirrors China's emphasis on strict control nor aligns solely with the U.S.'s focus on free speech protection. Instead, Europe prioritizes data protection and citizens' privacy, exemplified by the implementation of the General Data Protection Regulation (GDPR) to ensure legal compliance. Additionally, Europe acknowledges the importance of smart social media platforms taking responsibility for self-correction during crises they may incite. As such, they leverage smart social media data for opinion analysis and early warning systems to address potential issues.

The ideal strategy may be a combination of government intervention and free market regulation. Under such a strategy, the government can strike a balance between efficiency and equity by adopting regulations and policies to address market failures and ensure the public interest, while allowing the market to operate freely

in most cases. Essentially, addressing the challenge of misinformation in smart social media requires finding a balance between free expression and effective supervision and management. It's crucial to recognize that neither approach alone is sufficient. All countries are working towards achieving this balance, with variations in strategy focus influenced by cultural backgrounds and national governance models.

In an era of global connectivity, managing smart social media information presents a complex challenge that no country can address in isolation. With users across different countries and regions engaging on the same or similar platforms, the negative impacts of social media can quickly transcend borders. Simply ensuring information legality and safety within a country or region is no longer sufficient. Instead, international cooperation is imperative to collectively address crises. This entails the development of uniform or compatible standards and strategies to ensure the free, fair, and safe flow of information on smart social media platforms worldwide.

6. Application of artificial intelligence and other advanced technologies in information management

Artificial intelligence has unrivaled advantages in information management, and it has permeated into many fields. Firstly, artificial intelligence provides powerful support for information screening and classification through natural language processing, which can automatically identify, classify, and label a large amount of information, significantly improving the efficiency of information management. Second, artificial intelligence also shows great potential in false information monitoring and content recommendation. It can effectively detect and filter false information and provide users with personalized content recommendations based on their behavior and preferences. Artificial intelligence also plays a key role in areas such as sentiment analysis and privacy protection. Sentiment analysis can provide valuable public feedback to companies or governments, thus anticipating the possible riskability of social opinion, and privacy protection technology ensures the security of user privacy.

Blockchain technology provides a decentralized verification and storage mechanism for smart social media information, which ensures the authenticity and non-tamperability of the information and enhances user privacy protection. Deep learning techniques such as Convolutional Neural Networks (CNN) and Recurrent Neural Networks (RNN) can also play a key role in identifying and analyzing undesirable information on smart social media. It can efficiently process images, videos and textual content to detect bad information. The combination of these two technologies provides a powerful tool for smart social media information management, ensuring authenticity, security, and accuracy.

New technologies like artificial intelligence and blockchain have indeed revolutionized smart social media information management, offering applications in information screening, content recommendation, and privacy protection. However, despite these advancements, issues such as disinformation and hate speech remain prevalent on smart social media platforms and have yet to be fundamentally resolved. Moreover, the widespread adoption of these technologies introduces new challenges, including privacy breaches and algorithmic biases. Intelligent social media information management still faces significant hurdles and requires concerted efforts from all stakeholders to address these challenges effectively.

7. Conclusion

7.1. Summary of research findings

Managing misinformation on smart social media platforms is indeed a multifaceted issue, requiring a delicate

balance between management control and free expression. Furthermore, it necessitates collaboration among countries and regions worldwide to effectively address the issue. Additionally, further advancements and utilization of technologies like artificial intelligence are crucial in combating misinformation effectively. It is through a combination of regulatory measures, international cooperation, and technological innovation that progress can be made in addressing the complexities of misinformation on smart social media platforms.

7.2. Policy recommendations

(1) Authorities should create balanced policies addressing misinformation, hate speech, and privacy breaches on smart social media, respecting both free expression and effective information management.

(2) Enhanced international exchanges, coordinated countermeasures, and shared learning experiences are recommended for managing and mitigating risks associated with undesirable smart social media information.

(3) Advanced technologies such as artificial intelligence be further developed and utilized to achieve accurate identification of undesirable information and risk identification.

7.3. Prospects for future research directions

Future research should delve deeper into establishing a viable international cooperation mechanism and achieving a dynamic balance between control and freedom in smart social media information management. This can be accomplished through leveraging advanced technologies such as artificial intelligence and blockchain.

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