

## Challenges of 5G Technology for Future News Production and the Media Industry: An Analysis (Postprint)

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### Abstract

With the continuous development of society, communication technologies are constantly evolving. The new generation of 5G communication technology is increasingly being applied across various domains. Within the media industry, its deployment can accelerate information transmission, effectively reduce latency, and ultimately enhance both work efficiency and quality. For news production and the media industry, the adoption of 5G technology represents both an opportunity and a set of challenges. Accordingly, this paper focuses on analyzing the challenges confronting news production and the media industry in their utilization of 5G technology, with the aim of providing valuable insights for future endeavors.

### Full Text

## 5G Technology' s Challenges for Future News Production and Media Industry Analysis

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### Abstract

As society continues to develop, communication technologies are constantly evolving. The new generation of 5G communication technology is being applied across various fields. In the media industry, 5G can facilitate rapid information transmission, effectively reduce latency, and ultimately improve work efficiency and quality. For news production and the media industry, adopting 5G technology presents both opportunities and challenges. This paper focuses

on analyzing the challenges faced by news production and media industry in applying 5G technology, aiming to provide valuable insights for future work.

**Keywords:** news production; media industry; communication technology; 5G technology; internet

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## 1. Analysis of 5G Technology Communication Characteristics

5G technology can significantly enhance user experience and accelerate the rapid development of the Internet of Things across various industries [5]. Ultimately, 5G will be applied in all sectors of the economy and society, becoming a critical foundation for social digitalization, networking, and intelligence. In news production and the media industry, the application of communication technology has driven substantial transformations in both content and form, fostering the growth of self-media and streaming media. Compared with previous 4G technology, 5G network communication technology demonstrates substantially greater capacity, supporting up to one million connected devices per square kilometer—100 times that of traditional 4G technology. Additionally, 5G offers the advantage of significantly lower network latency, greatly facilitating users' rapid access to mobile networks [3].

With 5G technology, communication can effectively break through temporal and spatial limitations, enabling information dissemination anytime and anywhere. Although virtual reality was proposed as early as the 3G era, its implementation remained extremely difficult. However, with the advent of 5G network technology, high-definition 4K and 8K applications have become widespread [4], and virtual reality technologies such as VR and AR can now achieve holographic immersive interactive experiences, further connecting the real and virtual worlds. This may even lead to the fusion of real and virtual worlds into a single entity. Meanwhile, the Internet of Things brought by 5G technology enables the interconnection of all things, giving rise to the phenomenon of “everything as media.” This infinitely expands the traditional concept of media—not only traditional media, electronic media, the Internet, and social media, but all people and objects can release information and become media.

## 2. Current Application Status of 5G Technology in News Production and Media Industry

As mobile Internet deeply penetrates various industries, it provides high-quality services across sectors. Mobile Internet technology has evolved from the 2G, 3G, and 4G stages to the 5G era, generating significant societal impact. The fifth-generation mobile communication technology (5G) features high speed and low latency, making it one of the best current technologies. It can provide users with better experiences and promote the rapid development of the Internet of

Things across industries [5]. Ultimately, 5G will be applied in all sectors of the economy and society, becoming a critical foundation for social digitalization, networking, and intelligence.

In news production and the media industry, the application of communication technology has driven substantial transformations in both content and form, fostering the growth of self-media and streaming media while also impacting the business models of traditional print and television media. As China's 5G era continues to develop, news production and media industry face both opportunities and survival challenges, requiring reform and transformation to adapt to the evolving landscape.

The application of 5G technology in news media has already achieved some successes. For instance, during China's 2019 "Two Sessions" and the 70th anniversary parade of the People's Republic of China, the press centers utilized 5G network technology to enable journalists to conduct interviews and compile reports more conveniently. Additionally, 5G+4K or 5G+VR technologies were employed for live broadcasting. 5G technology can enhance news transmission speed and accuracy while simultaneously improving interactivity [6]. Some mainstream central media outlets in China have established converged media displays and 5G new media experimental platforms, further innovating new forms of news dissemination and providing users with alternative reading experiences.

### **3. Challenges of 5G Technology for Future News Production and Media Industry**

#### **3.1 Intense Inter-industry Competition**

5G technology compels news production and media industry to undergo transformation and innovation for future survival and development. The application of 5G promotes further integration between traditional and new media in China, establishing mobile and intelligent platforms to present news information through diverse forms such as text, audio, and video. Moreover, news content has become increasingly rich, further blurring boundaries between mainstream media, commercial media, and self-media.

In traditional news production, all media work was completed by professionals. However, 5G technology applied across different fields has transformed various information platforms into collection and output terminals. Self-media and short videos have become crucial channels for people to obtain news information, with dissemination capabilities and influence rivaling mainstream media. While they effectively expand news dissemination methods, they also intensify market competition in the media industry. Consequently, the deepening application of 5G technology places considerable pressure on news production and media industry to transform.

### 3.2 Disrupted Information Dissemination Ecology

Currently, certain conceptual differences and contradictions exist in the integration of traditional media and the Internet. Traditional media's core philosophy is disseminating facts and outputting values, while the Internet focuses more on traffic aggregation and user acquisition. Properly resolving these differences and contradictions is a challenge that news production and media industry must address during transformation and upgrading.

5G technology can improve information transmission and increase network system capacity, with the fundamental goal of meeting people's diverse information consumption needs. In news production and dissemination, traditional core philosophies are gradually weakening, with greater emphasis now placed on creating market value [7] and considering user interest and profitability. Targeting information dissemination based on user interests may seemingly achieve news personalization and diversification, but it creates information limitations, as users only see content they are interested in while missing other information. Simultaneously, some news obtained by users contains false information that they cannot verify. Such fake news severely impacts the information dissemination ecology and undermines media credibility.

### 3.3 Stricter Standards for Journalists

As 5G technology continues to evolve, advanced technologies such as artificial intelligence and big data can be applied in news production, transforming traditional news gathering and editing methods and imposing new standards and requirements on journalists. Particularly for mainstream media, which faces stronger urgency and sense of mission, there is a need to cultivate versatile talents who can adapt to current technological development and application, understand characteristics of different platforms and channels, edit targeted release information, and achieve precise dissemination.

Furthermore, 5G technology promotes the development of artificial intelligence [8], which also places higher demands on big data technology. AI plays a significant role in information processing and dissemination, liberating journalists from basic gathering and editing work. This requires professionals to possess information technology capabilities and big data thinking, skillfully utilizing AI features and advantages to better conduct news work.

### 3.4 Network Information Security

Like any new technology, 5G may present certain problems during use. In applying 5G technology to news production and media industry, attention must be paid to network information security issues. The arrival of the 5G era has led to highly diversified forms of news media, increasing regulatory pressure. Meanwhile, the lack of relevant laws and regulations for management makes security risks highly probable.

## 4. How to Address Challenges and Opportunities Brought by 5G Technology

### 4.1 Layout the 5G Field and Promote In-depth Application of New Technologies

As media convergence deepens, 5G technology is gradually becoming the core of media development. Some mainstream media prioritize technology construction, promoting a new model that integrates technological and business development, focusing on user needs and adhering to content primacy. News work should incorporate new technologies as a critical component of media innovation, infusing media convergence with technological thinking, seizing the high ground in 5G technology, strategically planning development paths, reshaping media development models [9], and building a new media ecology.

By enhancing the application of new technologies in news production, distribution, and reception, we can strengthen semantic recognition and analysis, as well as research and application of VR technology, big data, and the Internet of Things, creating a superior environment for news production and presentation. For example, during China's Two Sessions reporting, 5G networks were established in the Great Hall of the People and delegates' residences to support conference coverage, facilitating journalists' interviews and compilation work, and enabling real-time 5G+4K high-definition live broadcasting. Both *People's Daily* and People's Daily Online have innovated news reporting using 5G technology. *People's Daily* employed 5G+VR panoramic modes, using 5G transmission speeds to deliver more interactive images to users, allowing them to experience the feeling of being at the Two Sessions venue. People's Daily Online used AR scanning to animate *People's Daily*, enabling users to scan article illustrations to watch related content, making news more visually vivid.

### 4.2 Focus on User Needs and Provide Quality Services

5G technology significantly impacts network speed and data capacity. In future media, the core business will be user data services. Through big data collection and in-depth analysis, news production and dissemination can deeply integrate with user needs. Using big data and AI to restructure production relationships, accumulated user information can be systematically aggregated and stored. Through database mining, user models can be constructed, and personalized reporting can meet users' actual information needs [10]. For example, China's *Chongqing Daily* established a media cloud platform and database, deeply cooperating with Internet companies to promote the application of intelligent robots and intelligent gathering and editing, maximizing big data utilization and achieving transformation and upgrading of traditional dissemination.

### 4.3 Adhere to Content and Reengineer the Process of Gathering, Writing, Editing, and Distribution

The most fundamental aspect of the media industry is news content, which should remain the priority during converged development, using higher-quality content to win competitive advantages. User demand for content should be the primary indicator for the media industry. Moreover, new technologies and channels should all serve to facilitate more convenient content presentation to users. The 5G technology era will face more media news content, and some mainstream media can fully unleash the fundamental value of news content under 5G technology, emphasizing investment in content production and integrating it with gathering, writing, editing, and distribution to create their own high-quality content [11].

For example, mainstream media such as China Central Television attach great importance to content innovation, investing considerable effort in creating premium content. Additionally, local media have actively pursued various innovative developments. For instance, some news websites in Hunan Province have innovatively launched diverse product forms such as micro-posters, micro-videos, and videos, including micro-posters of General Secretary Xi Jinping' s golden quotes from the Two Sessions and micro-video classes on the Two Sessions. Once released, these were reposted and promoted by various media outlets, including *People' s Daily*.

### 4.4 Strengthen Talent Cultivation and Enhance Innovation Capacity

For new media development, emphasis should be placed on cultivating journalism talent, establishing effective incentive mechanisms, and enabling news teams to develop comprehensive capabilities to adapt to new technology applications. Additionally, attention should be paid to avoiding the phenomenon in traditional media recruitment that overemphasizes gathering and editing while neglecting technical application. Strengthen the cultivation and recruitment of technical talent while simultaneously enhancing technical training for existing staff to improve their comprehensive capabilities.

For example, Xinhua News Agency and Sogou jointly released the first synthetic news AI anchor at the Internet Conference [12], demonstrating remarkably realistic hosting effects, thereby posing significant challenges to traditional anchors. As innovative science and technology continue to be deeply applied, journalists must master certain application capabilities while leveraging the tremendous advantages of human emotion and cognition that technology cannot manifest, thereby creating products that cannot be replaced by machines. According to relevant experts, the popularization of 5G will take significantly less time than that of 3G and 4G. However, comprehensive 5G coverage in China will still require considerable time—at least 5-10 years. Therefore, the news media industry must make adequate preparations during the 5G construction period, seize development opportunities, actively adapt to 5G development in the media in-

dustry, further promote deeper media convergence, and achieve rapid and stable development trends.

#### 4.5 Strengthen Network Security Management

Currently, traditional networks still face certain security threats, and the deep application of 5G technology will also bring some security issues. Additionally, the overlapping and intertwining of different network information security issues pose serious challenges to network security management, creating pressure for management work. To ensure network security, safeguard cyberspace order, effectively intercept various network attacks, and reduce the occurrence of network security issues, greater attention must be paid to network security management and the construction of network legal systems in the 5G era. Infrastructure for network security should be enhanced, and laws and regulations should be improved.

In news production and media industry, the deepening application of 5G technology significantly impacts media survival and development. Against the 5G backdrop, competition among industries becomes more intense, the information dissemination ecology is severely disrupted, stricter requirements and standards are imposed on journalists, and security issues must be confronted. However, with the development of news production and media industry, we must fully leverage 5G advantages to enhance competitiveness, maintain the information ecology, build professional teams, strengthen network security management, and promote the subsequent development of news production and media industry.

#### References

- [1] Wan Liping. Survival Challenges and Transformation Trends of the Media Industry in the 5G Era [J]. *Future Communication*, 2020(2): 113-119.
- [2] Peng Lan. Better Journalism or Worse Journalism?—New Challenges for the Media Industry in the Age of Artificial Intelligence [J]. *China Publishing*, 2017(24): 3-8.
- [3] Qi Yalin, He Huan. Return and Reconstruction: Navigating the “Turbulent Information River” —The Development Path of Western Media Convergence in 2019 [J]. *News and Writing*, 2020(1): 36-42.
- [4] Liu Shan, Huang Shengmin. Deconstruction and Reconstruction of China’s Media Industry in the 5G Era [J]. *Modern Communication (Journal of Communication University of China)*, 2020(5): 7-12.
- [5] Hu Yong, Zhou Lingyu. 5G: Another Turning Point for the Internet—On the Impact of Mobile Communication Technology Iteration on the Culture and Media Industry [J]. *China Editor*, 2020(2): 10-15.
- [6] He Yimeng. Development Characteristics and Communication Logic of the Media Industry in the “5G+AI” Era—Reflections Based on 2019 Major Events

- in China' s Media Industry [J]. Publishing Wide Angle, 2020(11): 73-75.
- [7] Zhang Yiran. Breakthrough Innovation and Era Mission of the Media Industry in the 5G Era [J]. Communication Power Research, 2020(10): 7-8.
- [8] Chen Chao. Exploration on the Innovative Development of TV News Anchors' Media Awareness from the Perspective of 5G [J]. Reporter Observation, 2020(15): 101-101.
- [9] Ding Hong, Hu Nian. How Traditional Media Can Build a 5G-Oriented All-Media Communication Ecology [J]. News Outpost, 2020(2): 77-78.
- [10] Li Gen. The Path Forward for Television in the 5G Era: Carrier Reconstruction, Text Innovation, and Converged Communication [J]. Media, 2020(23): 71-73.
- [11] Tang Xujun, Huang Chuxin, Wang Dan. "5G+" : A New Starting Point for China' s New Media Development—Current Status and Prospects of China' s New Media Development from 2019 to 2020 [J]. News and Writing, 2020(7): 43-49.
- [12] Chang Bairu. "Internet Plus" or "Plus Internet" ?—On the Integrated Development of Traditional Publishing and New Media [J]. China Media Technology, 2021(10):

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*Note: Figure translations are in progress. See original paper for figures.*

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