5G Communication Technology: Opportunities and Challenges for News Dissemination (Post-print)

Authors: No ice

Date: 2023-10-08T00:00:00+00:00

Abstract

The development of 5G communication technology has created new opportunities and challenges for news communication, leading to significant transformations in communication forms, concepts, and efficiency. As media convergence trends deepen, traditional news communication paradigms have become inadequate for meeting contemporary demands. This paper analyzes the concepts and implications of 5G communication technology, explores the opportunities and challenges facing news communication development within the 5G context, and proposes strategies to accelerate communication efficiency and enhance communication effectiveness, with the aim of providing practical insights for media and news professionals.

Full Text

Opportunities and Challenges Brought by 5G Communication Technology to News Communication

Wu Bing
Guangdong Radio and Television Station, Guangzhou, Guangdong 510000, China

Abstract

The development of 5G communication technology has brought new opportunities and challenges to news communication, fundamentally transforming communication forms, concepts, and efficiency while deepening media convergence. Traditional news communication models can no longer meet current demands. This paper analyzes the concept and implications of 5G technology, explores the opportunities and challenges facing news communication in the 5G era, and

proposes strategies for accelerating communication efficiency and improving effectiveness, aiming to provide valuable insights for media professionals.

Keywords: 5G communication technology; news communication; development opportunities; converged media

---

1. Concept of 5G Technology

5G represents the fifth generation of communication technology. In 2018, 5G standalone networking began to take shape, demonstrating benefits in mobile broadband. By 2020, 5G technology had become widely applied in industrial production, enabling high-speed connectivity. Currently, 5G technologies such as virtual reality, augmented reality, and ultra-high-definition video are gradually becoming commonplace and playing important roles in news communication. Each new communication technology drives industrial upgrading, and 5G is no exception, bringing both opportunities and challenges to news communication. The currently developed 5G technology is applied across three major scenarios: enhanced mobile broadband, massive machine-type communications, and ultra-reliable low-latency communications [1].

2. Characteristics of 5G

2.1 High Communication Speed Compared with 4G, 5G technology demonstrates significantly increased communication rates. Based on existing 5G performance indicators, the network communication peak rate reaches approximately 20 Gbit/s, with a traffic density of over 10 Mbps per square meter, enabling information transmission even at speeds of 500 km/h. This represents roughly a tenfold improvement over 4G technology—a video that previously required five minutes to download and view can now be downloaded in about 30 seconds under 5G. High-speed information communication and transmission constitute one of the primary features of 5G technology.

2.2 Low Information Latency Communication inherently involves latency. When two parties use mobile terminals for data transmission, information delivery may take around two seconds, representing relatively high latency. 5G performance specifications indicate that network communication air interface latency is approximately 1 ms, allowing both parties to receive information and transmit data in real time when connected via 5G networks. Therefore, low latency represents another key characteristic of 5G communication technology [2].

2.3 Large Network Capacity Network capacity serves as the carrier for network information—the greater the capacity, the more information can be collected and stored. Current 5G communication technology performance in-

dicators can support device connections across millions of square kilometers, enabling large-scale IoT functionality.

2.4 Strong Technical Applicability The development of 5G technology provides support for other technologies, including virtual reality, remote control, and automatic control technologies. Compared with 4G, 5G offers better spectral efficiency and broader coverage, making virtual reality and augmented reality technologies based on 5G more realistic.

3. Opportunities and Challenges for News Communication Under 5G

3.1 Opportunities for News Communication

3.1.1 Broadening Information Boundaries In the 5G communication environment, information dissemination boundaries are gradually expanding, and media are showing convergent development trends. Due to 5G' s high transmission speeds and large network capacity, information dissemination is no longer limited to a single platform or carrier but has achieved interaction and collaboration across multiple media, jointly promoting news communication. For example, news media utilize short-video platforms like Kuaishou and Douyin to present news events to audiences through short video combinations. News media' s presence on Douyin has positively impacted communication effectiveness. Under 5G' s high-speed information transmission capabilities, news media can videoize communication content, enabling audiences to download and access information faster. Meanwhile, news media can fully leverage network resources to supplement and improve communication content, making resource acquisition more convenient and efficient. The boundaries of news communication are becoming increasingly blurred, providing new channels for innovation in content, form, and carriers. 5G technology has also changed how audiences select and receive information—interactive apps and short-video apps offer new pathways for news communication, making dissemination methods more diverse and information transmission more effective. Consequently, 5G communication technology is blurring information dissemination boundaries, and news content communication is showing a trend of convergent development. News media should seize this opportunity to tap into network resource advantages and achieve resource integration.

3.1.2 Enhancing Communication Timeliness Compared with 4G, 5G technology offers lower latency and faster resource acquisition and information transmission efficiency. News communication can leverage 5G' s low-latency capabilities to ensure timeliness and deliver news information to audiences. Traditionally, audiences primarily obtained news through television; after internet development, they could access news online; with the rise of mobile terminals, mobile devices have become the main source for news consumption. In this environment of massive information dissemination, ensuring news communication timeliness is particularly crucial. 5G technology creates more possibilities

for improving news timeliness, making news material collection and content dissemination more efficient. Currently, most offline news media are gradually moving online, establishing network sections through major platforms to break through temporal and spatial limitations, enabling faster news dissemination. Therefore, while 5G technology imposes higher timeliness requirements on news communication, it also provides technical support for enhancing timeliness—an opportunity that technology offers to news communication. News media should fully exploit network resources, leverage technical advantages, further explore news materials, and achieve in-depth communication of news content [3].

3.1.3 Application of New Technologies The emergence of new technologies drives reform and upgrading in related fields. The invention of papermaking created carriers for information dissemination; wireless signals promoted the upgrading of radio broadcasting; internet technology provided the foundation for online information transmission. Under 5G, the development of new technologies such as AR, VR, and IoT offers more possibilities for transforming news communication forms and content. For example, integrating VR technology with news content can build more realistic news scenarios for audiences, allowing them to examine news events and content from all perspectives [4]. The development of 5G technology has made AR and VR technologies more mature, even enabling interactive functions and more realistic visuals. Many media organizations have already begun experimenting with integrating VR and AR technologies into news communication, achieving certain results. This represents a new opportunity that 5G development brings to news communication, a dissemination approach that will add more value to news. News media need to seize this opportunity, actively develop news communication, and explore the potential of technology in news dissemination.

3.2 Challenges Facing News Communication

3.2.1 Intensifying Competition The development of 5G technology has enabled universal media participation, gradually blurring the boundaries between new media, converged media, and self-media. Mass media has entered audiences' field of vision, becoming a primary carrier for information exchange and news communication. With faster news dissemination speeds and more communication subjects, audiences are both creators and receivers of news, playing dual roles in news communication. The increasing volume of news resources disseminated online undoubtedly increases pressure on news media. 5G technology imposes higher requirements on news media for timeliness and authenticity. Currently, much of the competitive pressure in news communication comes from the vast number of internet users who use terminal devices to disseminate news information to the public in real time, gradually reducing the market share of traditional news media. Although news media still maintains professional advantages over self-media in delivering news content more accurately, truthfully, and comprehensively, facing fierce market competition remains a reality. In-

tensifying competition is one of the challenges facing news communication—a challenge that forces communication subjects to transform and upgrade, break through platform barriers, adjust industrial structures, and increase the depth of news content [5].

3.2.2 Higher Requirements for Personnel Quality The development of 5G technology imposes higher requirements on news communication subjects, not only in terms of scene design, development, and programming functions aided by communication technology but also in news communication presentation forms. 5G technology has driven the development of artificial intelligence and virtual reality, and integrating these with news communication requires certain technical support. Currently, the number of interdisciplinary talents in news communication is relatively small, and media organizations that continue traditional news communication forms and focus mainly on editorial talent development clearly cannot meet current market demands. News communication personnel urgently need to transform, improving their information literacy, professional literacy, and news literacy, learning about new communication technologies to achieve multi-angle and multi-dimensional news dissemination. Therefore, 5G technology presents a talent challenge for news communication—how to develop, apply, and discover talent, and leverage talent' s driving role in news communication transformation, is a primary issue at present.

4. Strategies for Strengthening News Communication Under 5G

4.1 Cultivating New Talent Cultivating new talent is essential to meet the new requirements that 5G technology imposes on news communication and represents a response strategy for news media to seize opportunities and meet challenges. Analyzing from the perspectives of news information collection, development, dissemination, reconstruction, design, promotion, and application, news media need to allocate specialized editorial talent, network resource development talent, information promotion talent, technology application talent, and technology development talent to achieve high-quality news dissemination through multi-talent collaboration, ensuring both timeliness and authenticity/completeness of news communication. News media can cultivate talent through the following approaches:

Introducing new talent. This refers to recruiting more comprehensive and interdisciplinary talents from society to meet the objective needs of news communication in the 5G era. News media can introduce high-end talents from society and campuses. In particular, many high-end talents in the new media industry understand information dissemination forms of new media and self-media and can employ scientific methods to attract more audiences and expand the scope of news communication. Campuses also have many new talents who understand network technology, information technology, and 5G technology, possessing advantages in data development, information transmission, and resource design that can contribute to the transformation and upgrading of news

communication.

Developing existing talent. Compared with introducing new talent, developing existing talent is more efficient and cost-effective. Traditional editorial staff have in-depth understanding of news communication mechanisms and theories. News media can train traditional news workers engaged in collection, writing, editing, and commentary to establish intelligent thinking and data thinking and apply these to specific work to achieve transformation and upgrading of news communication. Regardless of the talent acquisition model, new talent represents a new requirement that 5G technology development imposes on news communication.

4.2 Strengthening Technology Development 5G technology will inevitably drive changes in the traditional media landscape and permeate new intelligent technologies, IoT technologies, and cloud computing technologies into the news industry. News media must consider how to integrate technologies and equipment to innovate news communication forms. The concepts of virtual news scenarios and news IoT dissemination proposed above are feasible—users can obtain personalized information through terminal devices, and news media can use virtual technology to reconstruct news scenarios. All these require data technology support. Therefore, news media must attach great importance to technology introduction, research, and development in news communication.

Technology introduction. Virtual reality and augmented reality technologies have begun to be promoted and applied in various fields in China, but their application in news communication is not yet widespread, making promotion difficult due to factors such as the news communication environment and effectiveness. News media can introduce technologies and attempt to integrate technical content from other fields into news communication, using intelligent technology, data mining technology, and virtual technology as fulcrums for their transformation and development.

Technology development. Technology development is a lengthy process requiring certain financial support. In the all-media environment, technology resources are extensive, and utilizing existing technology resources for development is relatively scientific. News media can establish specialized departments responsible for data technology development to achieve effective integration of communication technology, virtual reality technology, and news communication.

4.3 Scientific Management and Operation News communication videos require production and editing, and news manuscripts require interviewing, editing, and proofreading. Even with 5G technology support, basic editorial work remains necessary to ensure news communication authenticity. Therefore, to ensure scientific transformation and upgrading, news media must strengthen media management and operation, targeting news production efficiency and effectiveness as management goals. Under 5G, the profit model for news communication is gradually changing, and consumer audiences increasingly rely on

smart devices for information. The media industry can integrate existing information resources, emphasize scientific operation of online resources, and build a scientific and complete information dissemination system. Considering market competition principles, news media can attempt to build unique media brands, promoting systematic, branded, and specialized development of news communication to attract audiences and enhance market competitiveness. Additionally, news media must emphasize the introduction and development of network infrastructure to provide basic support for digital news dissemination.

4.4 Developing New Content In the 5G era, the information environment has changed dramatically, but the principle of "content is king" remains unchanged. News communication must still focus on content development to ensure news content is authentic, novel, scientific, and comprehensive. News media can broadcast news through live streaming to enrich information content. For example, when discovering valuable news, media can dispatch journalists for real-time interviews and filming, transmitting the most authentic footage to audiences. 5G-enabled news communication content development can leverage IoT functions to connect network information terminals and devices in specialized topics, achieving real-time broadcasting of diverse news content. 5G technology imposes higher requirements on news communication content, and news media must emphasize content innovation, develop new content, actively face fierce market competition, and achieve targeted news information dissemination.

In summary, news communication work in the 5G context requires high-quality 5G talent as a guarantee, focusing on reforming and updating communication methods and content to leverage technology' s internal driving force in news communication. Especially with the emergence of new media and development of converged media, news communication increasingly emphasizes timeliness and authenticity. News workers need to explore 5G technology' s advantages in news communication, promote core news production development, and maximize news resource development to increase news value.

References

[1] Wang Qing. Innovation in News Reporting by Mainstream Media in the Converged Media Era—Taking the "Slow Live Broadcast of Two Mountain Hospital Construction" on CCTV as an Example [J]. Media, 2021(20).

[2] Dong Feng. Preliminary Exploration of the Integration Path Between Large and Small Screens in the 5G Era—Taking the "Dual-Screen Convergence Development Project" of Lishui Radio and Television Station as an Example [J]. China Newspaper Industry, 2021(13): 70-71.

[3] Zhou Shuyi. Discussion on the Video Layout and Transformation Path of Traditional Media Under the 5G Context [J]. Journal of News Research, 2021(13): 17-19.

[4] Jiang Hua, Zhang Taofu. On the "Context-Proposition"Consciousness in Chinese News Communication Theory Research—A Discussion Centered on Communication Power [J]. News and Writing, 2021(7): 23-31.

[5] Mao Lengrei. Research on News Communication and Innovation Using Short Videos as a Carrier in the 5G Era—A Review of *The History of Communication: Technology, Culture and Society (6th Edition)* [J]. News and Writing, 2021(7): 115.

Author Biography

Wu Bing (1989-), male, from Chongqing, bachelor's degree, journalist. Research direction: news communication.

(Executive Editor: Zhang Xiaojing)

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