5G Visual Data Journalism Brings a Revolution to Converged Media Communication in the Post-Print Era

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Abstract

The advent of the converged media era has rendered data journalism a tangible reality, while the continuous evolution of big data has progressively established journalism as an industry trend. The development of 5G technology furnishes the journalism sector with more expansive development prospects, as 5G can support higher-velocity and more voluminous data streams, thereby propelling the transformation of converged media. However, the 5G era presents not only opportunities but also heightened challenges, imposing requirements across diverse dimensions including content and human capital. We must seize the opportunities afforded by 5G, reform converged media through data visualization, and thereby rejuvenate it with distinctive vitality.

Full Text

5G Visual Data Journalism Brings a Revolution in Media Convergence Communication

Abstract

The advent of the media convergence era has made data journalism a reality, and the continuous development of big data has gradually turned it into a major trend. The advancement of 5G technology offers broader prospects for the journalism industry, as it can support faster and larger data streams, driving reforms in media convergence. However, the 5G era brings not only opportunities but also greater challenges, imposing new requirements on various aspects such as content and talent. We must seize the opportunities brought by 5G, reform media convergence based on visualized data, and revitalize it with new vitality.

Keywords: Media Convergence; 5G; Data Journalism; Communication Revolution

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The advent of the big data era has transformed the form of media convergence. 5G' s characteristic of massive connectivity makes it possible to collect data simultaneously through multiple sensors, also improving the efficiency of news processing. In June 2019, the Ministry of Industry and Information Technology issued 5G licenses to China' s three major telecommunications operators, marking China' s official entry into the 5G era. 5G technology can support larger and faster data streams, which will undoubtedly bring different opportunities and challenges to the development of data journalism, while also exerting a tremendous impact on current media forms, audience interaction methods, and dissemination channels. This influence will inevitably be profound. Media convergence should be based on cloud computing technology, using big data and other means to establish multi-dimensional emerging media clusters that effectively integrate with mobile networks, transforming traditional news content, forms, and channels. Data journalism is currently the main innovative product of big data in news products and a key focus of media convergence.

1. Analysis of 5G' s Impact on Data Journalism and Media Convergence Communication

1.1 5G Era Reconstructs New Forms of Media Convergence Communication

5G technology makes ultra-high-speed bandwidth possible, which may consequently affect current news dissemination forms. With China' s internet user base exceeding 800 million, the majority being mobile users, media convergence must prioritize a mobile-first strategy—disseminating news through mobile communication devices. Previously, slow mobile network speeds hindered reforms in data journalism content and formats, but 5G development has cultivated fertile ground for data journalism growth. 5G technology will undoubtedly exert significant influence on data journalism, offering diverse content and formats that provide audiences with novel reading experiences and enhanced user satisfaction. While 4G technology offered peak rates of only 100Mbps, 5G dramatically increases this to up to 20Gbps. The faster download speeds enabled by 5G will transform product content and forms. Currently, new media is constrained by bandwidth limitations; 5G relaxes these constraints, allowing mobile audiences to play videos anytime and anywhere without content restrictions. Furthermore, currently burgeoning technologies such as artificial intelligence and 8K television

can also leverage 5G technology for revolutionary advances, driving innovation in news live-streaming formats.

1.2 Innovation in Media Convergence Production Methods

5G technology can connect multiple terminal sensors to the network, with the quantity reaching up to 1 million, compared to only 100,000 in the 4G era. In recent years, the degree of sensor-based news data collection has continuously increased internationally. Computers can read such data more efficiently and present analysis results to audiences in visualized form after processing. Sensors can collect data comprehensively, thus broadening the ways we understand the world and enabling us to comprehend it from different perspectives. Sensors can not only capture image data of scenes but also analyze images at the pixel level, while computers can analyze audio data through sound waves. Moreover, in the 5G era, news capture will be more accurate, minimizing errors to the greatest extent, with data being directly input into computers for processing and finally generating visualized report formats. The arrival of the 5G era enables news production through sensors, accompanied by corresponding software that journalists must learn to use to seize the opportunities brought by 5G.

2. Challenges Facing Data Journalism Development in the 5G Era

2.1 Uneven Content Quality and Piracy Issues

5G technology has brought profound impacts to data journalism. Problems from the 4G era become more prominent with 5G development, such as poor content quality in data journalism and frequent infringement incidents, which will inevitably challenge data journalism development. The low barrier to entry for short videos means anyone can produce and upload them to the internet. Due to the large number of participants, the volume of information is enormous, making review extremely difficult. Consequently, vulgar content is widely spread on many mobile media platforms, and the convenience of dissemination further expands the reach of such vulgar short videos. According to survey results, 20% of teenagers watch short videos frequently, with 30% of teenagers watching them daily. Vulgar content is detrimental to the physical and mental health of internet users and negatively impacts the communication ecology. Additionally, many short videos have copyright issues; clips and reposts of original videos without permission, along with secondary creations that delete original information, frequently appear, infringing on many people' s portrait rights. Such infringement issues are difficult to define in terms of responsibility, and many citizens lack awareness of protecting their rights, leaving many problems on short video platforms to be resolved. The arrival of the 5G era will highlight these issues, necessitating relevant laws to regulate short video production and dissemination, while also technically reviewing videos to restore a healthy data journalism environment.

2.2 Development Imbalance Issues

Data journalism technologies are diverse and content is rich and colorful, yet many audiences still perceive data journalism as highly professional and inaccessible to ordinary people. The development of 5G technology will enrich data content and visualization techniques. If data journalism remains overly professional and fails to connect with the public' s hearts, with content staying "cold and detached," it may lead to development imbalances. In the 5G era, many media personnel still have low capabilities in collecting and writing news, adhering to traditional journalism techniques without fully utilizing visualization methods to present works, resulting in low modal linkage in communication and preventing media convergence from achieving maximum dissemination effectiveness. 5G will inevitably make data journalism the mainstream of future news, but this does not mean all journalists must master these technologies; rather, it promotes the improvement of the news industry chain. For example, relevant enterprises should quickly use 5G technology to collect data while developing simple, user-friendly software that can directly process large amounts of data. By learning to use such software, journalists can improve news processing efficiency.

2.3 Professional Talent Issues

In the 5G era, requirements for data journalism practitioners are mainly reflected in data literacy, which encompasses both data awareness and data processing capabilities. In other words, 5G imposes higher demands on journalists, who must possess certain data literacy, primarily in data awareness and processing abilities. Journalism is, after all, a humanities and social science discipline, so practitioners do not need excessively high programming skills—only proficiency in commonly used data processing software is required. Therefore, data awareness is more important: the ability to discover data value and animate data. Journalism professionals with high data awareness are also what the news industry lacks in the 5G era.

3. Ways to Reshape Media Convergence Using 5G-Era Visual Data Journalism

The application of 5G communication technology has brought tremendous impact to traditional media, causing earth-shaking changes in terms of both dissemination speed and information volume. The application of 5G makes visual news dissemination forms possible. Under this premise, we need to reconsider the positioning of media convergence because its form has fundamentally changed with 5G application. 5G application has brought great convenience to our daily lives. For example, currently popular VR and AR technologies have comprehensively entered our daily lives with the assistance of 5G communication. Meanwhile, traditional news media have also entered people' s vision in richer ways under VR and AR technologies. The most obvious example is the People' s Daily' s

video-on-demand service combining AR technology, which greatly enhances the influence of People' s Daily.

The comprehensive application of 5G technology has enabled Cover News to pursue full-screen video management strategies, hoping to resonate more with the younger generation through video and expand brand influence. The rapid application of 5G has tremendously changed visual video news dissemination, making 5G technology a completely new form of news communication. However, without a sound management system, no communication form can operate well. Therefore, visual news dissemination also requires strict regulatory systems. We should establish management systems that suit visual news dissemination characteristics based on current news media features, existing problems, and future development. We should review news from its starting point, theme, specific content, guidance direction, potential negative impacts, and positive influences through multi-stage reviews by type and subject, with strict norms and systems because the influence of visual news dissemination will be unprecedented, covering extremely broad audiences unmatched by any traditional medium. Thus, it must be strictly regulated to better guide the public. For example, The Paper has established comprehensive editorial processes and reporting structures to manage and regulate new technologies spawned by 5G applications, such as audio-video content, VR panoramas, and live streaming. This mechanism not only ensures normal daily news operations but also effectively coordinates work between different departments, improving efficiency.

5G communication technology enables coordination between media and new technologies, spawning many new news communication forms such as VR live streaming, robot writing, and AI hosting. These new technologies make it more convenient for people to understand current affairs. 5G communication technology promotes new media convergence forms, fully combining current news communication characteristics to disseminate news that conforms to contemporary values, providing correct public opinion guidance and making news media an important force in establishing and cultivating correct values.

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