

Research on the Innovative Practice of Guangdong TV News Driven by Artificial Intelligence

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Abstract: The rapid development of artificial intelligence technology has brought unprecedented opportunities and challenges to the traditional media industry. This paper takes Guangdong TV news as the research object to discuss the innovative application practice of artificial intelligence technology in its news production, communication and operation. Through case analysis, literature research and other methods, the innovation path, practical experience and challenges of Guangdong TV news driven by artificial intelligence are summarized, so as to provide reference for the integration and transformation of traditional media.

1. Introduction

In recent years, the rapid development of artificial intelligence technology has brought profound changes to all industries, and the field of journalism and communication is no exception. Artificial intelligence technologies, such as natural language processing, machine learning, and computer vision, are reshaping all aspects of news production, communication, and consumption, providing new opportunities for the transformation and upgrading of traditional media. However, traditional media also face challenges such as high technology application cost, insufficient talent reserve, data security and ethical issues. In this context, Guangdong TV News, as the provincial mainstream media at the forefront of China's reform and opening up, actively explores the innovative application of artificial intelligence technology, and has achieved remarkable results in news production, communication, operation and other aspects, providing valuable practical experience for the integration and transformation of traditional media. The purpose of this study is to systematically analyze the innovative practice of Guangdong TV news driven by artificial intelligence, summarize its successful experience, analyze the challenges faced, and provide reference for traditional media to achieve high-quality development in the era of artificial intelligence.

Scholars at home and abroad have made some achievements in their research on artificial intelligence and news communication. Foreign scholars pay more attention to the influence of AI technology on news production process, news ethics, and the future development trend of

journalism, while domestic scholars focus more on the application scenarios, practice cases and challenges of AI technology in the field of news communication. However, it is rare to see the specific research object of systematically exploring the AI innovation practice of Guangdong TV news[1]. As one of the most influential provincial media in China, Guangdong TV News has important research value in its development course, innovative practice and future strategy. This study will use the case analysis method to select the typical cases of Guangdong TV news in artificial intelligence application for in-depth analysis; use the literature research method, sort out the relevant domestic and foreign research results, to provide theoretical support for the research; through the comparative analysis method, compare Guangdong TV news and other media in the application of artificial intelligence, and summarize its unique experience and advantages. Research content will focus on artificial intelligence technology in Guangdong TV news production, communication, operation of the specific application practice, including intelligent topic selection and planning, intelligent editorial and writing, intelligent audit and proofreading, personalized recommendation, intelligent interaction and feedback, cross-platform communication, user data analysis, advertising precision, intelligent copyright protection, etc.

2. Innovative practice of Guangdong TV news driven by artificial intelligence

2.1. Innovative practice of news production link

In the process of news production, the application of artificial intelligence technology has significantly improved the efficiency and quality of topic selection planning, content production, audit and proofreading of Guangdong TV news. The following are three aspects: intelligent topic selection and planning, intelligent editing and editing, intelligent editing and writing, intelligent review and proofreading, combining case analysis, comparative analysis and literature research method, to deeply discuss the innovative practice of Guangdong TV news.

2.1.1. Intelligent topic selection and planning: Use big data to analyze users' interests and predict hot topics

By introducing artificial intelligence technology, Guangdong TV News has built an intelligent topic selection system based on big data. The system can capture real-time data from social media, search engines and news websites, combined with natural language processing technology, analyze users' interests and hot topics, and provide data support for news planning. For example, during the Guangzhou international auto show in 2022, Guangdong TV news using intelligent topic selection system analyzes the user attention of new energy vehicles, found that "intelligent driving technology" and "range" is the user most interested in topic, thus planning a series of in-depth reports, won high ratings and network clicks[2].

The case analysis method shows that, compared with the traditional topic selection method that relies on the experience of journalists, the intelligent topic selection system can capture social hot spots more quickly and accurately, and improve the timeliness of news and user fit. The comparative analysis method further points out that Guangdong TV news is ahead of other provincial media in China, and its successful experience lies in the combination of artificial intelligence technology and localized content production, forming a unique competitive advantage. Literature research method shows that the application of intelligent topic selection system is in line with the development trend of "data-driven decision-making" in the field of news communication, but there are also problems such as single data source and algorithm bias, which need to be further improved.

2.1.2. Intelligent editing and writing: robot writing, voice transfer, intelligent editing and other technology applications

In the process of news gathering and editing, Guangdong TV news has introduced robot writing, voice transfer and intelligent editing technologies, which significantly improves the efficiency of news production. For example, when reporting on the two sessions of Guangdong Province in 2023, Guangdong TV News uses robot writing technology to automatically generate conference briefings and data news, liberating journalists from tedious manuscript writing, and enabling them to focus on in-depth reporting and thematic planning. In addition, the voice transliteration technology is widely used in the interview link, which can quickly transform the voice content into text and reduce the workload of later editing[3].

Case analysis shows that robot writing technology is particularly prominent in areas with more structured data, such as sports events and financial news, but there are still limitations in reports that require in-depth analysis and emotional expression. The comparative analysis method points out that compared with Xinhua News Agency and CCTV and other central media, Guangdong TV news pays more attention to the localized application of technology, such as the use of intelligent editing technology to produce content suitable for the dissemination of short video platforms, so as to adapt to the consumption habits of young audiences. Literature research shows that the application of intelligent editing technology is changing the process of news production, but it has also triggered a discussion about the authenticity of news and the change of the role of journalists.

2.1.3. Intelligent audit and proofreading: to improve the efficiency and accuracy of news production

In the process of news review and proofreading, Guangdong TV News has introduced an intelligent audit system based on artificial intelligence. The system can automatically detect grammatical errors, factual errors and sensitive information in news articles, which significantly improves the accuracy and safety of news production. For example, during typhoon Terry landing in Guangdong in 2023, Guangdong TV News used the intelligent audit system to quickly review a large number of real-time news articles to ensure the timeliness and accuracy of news reports.

The case analysis method shows that the intelligent audit system is particularly prominent in dealing with emergencies, which can greatly shorten the time of news release. The comparative analysis method points out that compared with other provincial media in China, Guangdong TV news pays more attention to the localization and adaptation of technology, such as optimizing the audit algorithm according to the characteristics of Guangdong dialect and regional culture. The literature research method shows that the application of intelligent audit technology is helpful to improve the standardization of news production, but there are also problems such as algorithm misjudgment and over-reliance on technology, which requires the combination of manual audit and intelligent audit[4].

Through the comprehensive application of case analysis method, comparative analysis method and literature research method, it can be seen that Guangdong TV news has achieved remarkable results in the application practice of artificial intelligence in the news production link. Intelligent topic selection and planning improve the timeliness and user fit of news, intelligent gathering, editing and writing improve the efficiency of news production, and intelligent audit and proofreading enhance the accuracy and security of news. However, the application of AI technology also faces challenges such as single data source, algorithm bias and technical limitations. In the future, Guangdong TV news needs to further strengthen the combination of technological innovation and localized application, and pay attention to the collaboration between artificial intelligence and intelligence, so as to realize the high-quality development of news production.

2.2. Innovative practice of news and communication link

In the link of news communication, the application of artificial intelligence technology has significantly improved the content distribution efficiency, user interaction experience and cross-platform communication ability of Guangdong TV news. The following three aspects are personalized recommendation, intelligent interaction and feedback, and cross-platform communication, combining case analysis, comparative analysis and literature research, to deeply discuss the innovative practice of Guangdong TV news.

2.2.1. Personalized recommendation: precise content push based on user portrait

By building a user portrait system, Guangdong TV News uses artificial intelligence technology to analyze users' browsing history, viewing time, thumb up comments and other behavioral data, so as to realize personalized recommendation of news content. For example, in the mobile client "Electric shock News" of Guangdong TV News, the system will push related local news, people's livelihood information and special reports according to users' interests and preferences. In 2022, when Guangdong TV News reported the special topic of "Construction of the Guangdong-Hong Kong-Macao Greater Bay Area", it pushed news content related to their occupations and regions to different users through the personalized recommendation system, which significantly improved the reading time and interaction rate of users[5].

The case analysis method shows that the personalized recommendation system can effectively improve user engagement and content consumption time, but there is also the problem of "information cocoon room", that is, users may only be exposed to the content related to their interests, leading to the limitation of information acquisition. The comparative analysis method points out that, compared with business platforms such as Toutiao and Tencent News, the practice of personalized recommendation in Guangdong TV News pays more attention to the authority of content and social value, and avoids the tendency of excessive entertainment and vulgarization. Literature research method shows that the application of personalized recommendation technology is in line with the development trend of "user-centered" in the field of news communication, but the relationship between algorithm recommendation and human editing needs to be balanced to ensure the diversity and publicity of content.

2.2.2. Intelligent interaction and feedback: Using natural language processing technology to realize human-computer interaction

Through the introduction of natural language processing technology, Guangdong TV News has developed an intelligent interactive system to provide users with real-time question and answer, voice interaction and other intelligent services. For example, during the two sessions in Guangdong province in 2023, Guangdong TV News launched the "AI News Assistant", in which users can obtain the latest information and policy interpretation related to the two sessions through voice or text sessions. In addition, Guangdong TV news also uses emotion analysis technology to monitor users' comments and feedback in real time and adjust their communication strategies in time.

Case analysis shows that intelligent interactive systems can significantly improve users' sense of participation and satisfaction, but they also have technical limitations, such as insufficient understanding of complex problems. The comparative analysis method points out that compared with the central media such as CCTV and Xinhua News Agency, Guangdong TV news pays more attention to localized services, such as optimizing the speech recognition algorithm for the language habits of Guangdong users. Literature research shows that the application of intelligent interactive

technology is changing the way news is disseminated, but it has also triggered discussions about user privacy protection, algorithm transparency and other issues.

2.2.3. Cross-platform communication: Build an all-media communication matrix and expand the communication influence

Through artificial intelligence technology, Guangdong TV News has built an all-media communication matrix covering TV, mobile client and social media platform, realizing the multi-platform distribution and accurate access of news content. For example, during the landing of Typhoon "Tili" in Guangdong in 2023, Guangdong TV News used artificial intelligence technology to adapt the same news content into short video, graphic reports, audio podcasts and other forms, and published it on TikTok, wechat, Weibo and other platforms, realizing the maximum communication effect.

Case analysis shows that the cross-platform communication strategy can significantly expand the coverage and influence of news, but it also needs to be optimized according to the characteristics of different platforms. The comparative analysis method points out that compared with provincial media such as Hunan SATELLITE TV and Zhejiang TV in the practice of cross-platform communication, Guangdong TV news pays more attention to the localized application of technology, such as using artificial intelligence technology to analyze the platform usage habits of Guangdong users and optimize content distribution strategies. The literature research method shows that the application of cross-platform communication technology is in line with the development trend of "integrated communication" in the field of news and communication, but it also needs to solve the problems such as content homogenization and copyright protection[6].

Through the comprehensive application of case analysis method, comparative analysis method and literature research method, it can be seen that Guangdong TV news has achieved remarkable results in the application practice of artificial intelligence in the news communication link. Personalized recommendation improves users' content consumption experience, intelligent interaction and feedback enhances users' sense of participation and satisfaction, and cross-platform communication expands the coverage and influence of news. However, the application of artificial intelligence technology also faces challenges such as "information cocoon room", technology limitations and user privacy protection. In the future, Guangdong TV news needs to further strengthen the combination of technological innovation and local application, and pay attention to the balance between content diversity and public value, so as to realize the high-quality development of news communication.

2.3. Innovative practice of news operation link

In the link of news operation, the application of artificial intelligence technology provides strong support for the user data analysis, accurate advertising delivery and copyright protection of Guangdong TV news. The following are three aspects: user data analysis, accurate advertising delivery and intelligent copyright protection, combined with case analysis method, comparative analysis method and literature research method, to deeply discuss the innovative practice of Guangdong TV news.

2.3.1. User data analysis: gain insight into user needs and optimize content production

By building a user data analysis system based on artificial intelligence, Guangdong TV News collects and analyzes users' browsing behavior, viewing time, interactive feedback and other data in real time, so as to gain insight into user needs and optimize content production strategies. For example, in 2022, Guangdong TV News found that young users' preference for short video news

and interactive content increased significantly, so it adjusted its content production strategy, increased the output of short video news, and launched the program "News + Interactive", which significantly increased the activity of young users.

The case analysis method shows that the user data analysis system can help Guangdong TV news accurately grasp the user needs and improve the pertinacity and effectiveness of content production. The comparative analysis method points out that compared with business platforms (now Japan Toutiao and TikTok), the practice of user data analysis pays more attention to the standard use of data and user privacy protection, avoiding the problem of data abuse. Literature research method shows that the application of user data analysis technology is in line with the development trend of "data-driven operation" in the field of news and communication, but it also needs to solve the problems such as data security and algorithm transparency.

2.3.2. Precise advertising delivery: improve the advertising conversion rate and realize commercial value

Guangdong TV News uses artificial intelligence technology to build a precise advertising system, through the analysis of users' interest preferences and consumer behavior and other data, to achieve the accurate matching and efficient delivery of advertising. For example, during the "Double 11" in 2023, Guangdong TV News cooperated with local e-commerce platforms to use the precise advertising system to push advertising content related to consumer needs to different users, significantly improving the advertising conversion rate and commercial revenue[7].

The case analysis method shows that the accurate advertising delivery system can effectively improve the advertising effect and commercial value, but there is also the risk of user privacy leakage. The comparative analysis method points out that compared with commercial media, the practice of accurate advertising pays more attention to the quality of advertising content and user experience, and avoids the problems of excessive commercialization and vulgar advertising. Literature research shows that the application of precision advertising technology is changing the business model of traditional media, but it also needs to balance the relationship between commercial interests and user experience.

2.3.3. Intelligent copyright protection: Use blockchain and other technologies to protect original content

By introducing blockchain technology and artificial intelligence algorithm, Guangdong TV News has built an intelligent copyright protection system, realizing the whole-process tracking and protection of original content. For example, in 2023, Guangdong TV News uses blockchain technology to encrypt the storage and timestamp authentication of original news articles to ensure that its copyright information cannot be tampered with. At the same time, the artificial intelligence algorithm is used to monitor the network platform in real time to timely detect and combat infringement behaviors.

The case analysis method shows that the intelligent copyright protection system can effectively protect the rights and interests of the original content of Guangdong TV news, but there are also problems such as high technical cost and the difficulty of cross-platform rights protection. The comparative analysis method points out that compared with the central media (such as Xinhua News Agency and CCTV), the practice of copyright protection in Guangdong TV news pays more attention to the localized application of technology, such as the optimal monitoring algorithm for the network environment in Guangdong. The literature research law shows that the application of intelligent copyright protection technology is in line with the development trend of "content is king"

in the field of news and communication, but it also needs to strengthen the support of laws and regulations and industry cooperation[8].

Through the comprehensive application of case analysis method, comparative analysis method and literature research method, it can be seen that Guangdong TV news has achieved remarkable results in the application practice of artificial intelligence in the news operation link. User data analysis helps them to have accurate insight into user needs and optimize content production; precise advertising improves advertising conversion rate and realizes commercial value; intelligent copyright protection technology effectively protects the rights and interests of original content. However, the application of AI technology also faces the challenges of data security, user privacy protection and high technology cost. In the future, Guangdong TV news needs to further strengthen the combination of technological innovation and localized application, and pay attention to the balance between user experience and commercial interests, so as to realize the high-quality development of news operation.

3. Achievements and challenges of the innovative practice of Guangdong TV news

3.1. Innovation effectiveness

3.1.1. Improve the efficiency and quality of news production

Guangdong TV news by introducing high and new technologies, such as AI, VR, AR, etc., has significantly improved the production efficiency and quality of news. For example, in the report of the 2024 NPC and CPPCC sessions, Guangdong Radio and TELEVISION Station used the self-developed cloud media production and distribution platform to realize the rapid collection, editing, transmission and distribution of news content. This cross-regional low-latency cloud technology production chain, combined with AI production AIDS, not only improves the production speed of news, but also ensures the high quality of the content[9].

In terms of news content, Guangdong TV news pays attention to in-depth reports and the production of original quality products. For example, the original short video, micro documentary, animation and other new media products launched by the electric shock news client have told major events and stories in an all-round and multi-angle way, and won wide attention and praise. These innovative practices not only improve the production efficiency of news, but also enhance the depth and breadth of news.

3.1.2. Enhance user engagement and interactivity

Through diversified online and offline activities and interactive platforms, Guangdong TV News has significantly enhanced users' engagement and interactivity. For example, many mobile applications such as "Litchi Live, Electric Channel and Electric News APP" launched by Guangdong Radio and Television Station not only provide functions such as program preview, live broadcast and playback, but also set up sharing area, comment area and topic voting area to guide the audience to participate in discussion and voting. As shown in Table 1, some user data of the electric shock news client shows the significant improvement of its user stickiness and interactivity.

In addition, Guangdong TV news has also attracted the attention and participation of more young audiences through innovative expressions and expressions, such as the introduction of young journalists, stop-motion comics, CG animation, as well as street interaction. These innovative practices not only enhance user engagement, but also improve user interactivity and engagement[10].

Table 1 Some user data of the news client

project	data
Client downloads	At 120 million as of October 2022
Average monthly active users	9.56 Million
Press volume	More than 1.14 million pieces per year
Live broadcast	More than 8,500 games in a year
Client to the whole network click volume	More than 8.7 billion times annually

3.1.3. Expand the business model and profit channels

In the innovative practice, Guangdong TV news actively expands its business model and profit channels. On the one hand, by creating its own characteristic channels and providing personalized and characteristic service experience, it has attracted the attention of a large number of users and advertisers. For example, the electric news client combines with current political authority release, social livelihood, financial and technology and other content, and creates multiple aggregation and vertical channels to provide users with more down-to-earth information content and services[11].

On the other hand, Guangdong TV news also realizes the extension of the value chain and the diversification of profit models through media convergence and technological innovation. For example, Electric News has built an intelligent media platform through self-research technology, realizing the integrated operation of media resources and optimizing the production process of the policy, editing, editing and distribution. At the same time, it also actively explores the intelligent development mode of "platform + business", distributes the national and regional territory, expands the cooperation channels, and enhances the self-hematopoietic function. As shown in Table 2, Electric News has achieved remarkable results in terms of business model and profit channels.

Table 2 Business models and description

project	Data / description
Revenue scale	In 2021, it has reached the 100 million yuan level
Number of cooperative units	Establish a response mechanism with several provincial units and county-level financial media centers
Market expansion outside the province	The Shanghai Business Division, Hunan Business Division and Beijing Business Division have been established
Regional layout	Established Foshan, Zhuhai, eastern Guangdong, northern Guangdong and other branches

To sum up, Guangdong TV news has achieved remarkable results in improving the efficiency and quality of news production, enhancing user stickiness and interactivity, and expanding the business model and profit channel through innovative practice.

3.2. Facing challenges

Guangdong TV news has achieved remarkable results in its innovative practice, but it also faces some challenges. Here is a detailed analysis of these challenges:

3.2.1. High application cost of the technology

With the rapid development of science and technology, the demand for high and new technology in the TV news industry is increasing. However, the application of these technologies is often accompanied by high costs. When introducing AI, VR, AR and other advanced technologies, Guangdong TV News needs to invest a lot of money in equipment purchase, technology research

and development and personnel training. For example, in order to realize the rapid collection, editing, transmission and distribution of news content, Guangdong Radio and TELEVISION station needs to invest a lot of money to build a cloud financial media production and distribution platform. These high costs of technology application not only increase the operating costs of TV stations, but also may cause some pressure on their financial situation[12].

In addition, the upgrading speed of technology is fast. In order to ensure the competitiveness and timeliness of TV news programs, Guangdong TV news needs to continuously invest funds in technology upgrading and updating. This makes the technology application costs a long-standing challenge.

3.2.2. Backward performance in talent team construction

The innovation and development of the TV news industry cannot be separated from the high-quality talent team. However, at present, Guangdong TV news still has some lag in the construction of talent team. On the one hand, with the continuous emergence and application of new technologies, the TV news industry has an increasing demand for interdisciplinary talents with interdisciplinary knowledge and skills. However, existing TV news talents often focus on traditional news gathering and production skills, and lack the ability to master and apply new technologies.

On the other hand, due to the fierce competition and frequent talent flow in the TV news industry, Guangdong TV news also faces some difficulties in attracting and retaining excellent talents. Some excellent journalism talents may choose to enter other industries or regions for development, resulting in a gap in the talent team of Guangdong TV news.

In order to cope with this challenge, Guangdong TV news needs to strengthen talent training and introduction, and improve the comprehensive quality and innovation ability of employees. At the same time, it is also necessary to establish a perfect incentive mechanism and promotion mechanism to attract and retain excellent talents.

3.2.3. Data Security and Ethical Issues

In the innovative practice of TV news, data security and ethics issues have become increasingly prominent. With the wide application of big data, cloud computing and other technologies, Guangdong TV news is facing huge data security risks in the process of collecting, storing, analyzing and using data. Once the data is leaked or maliciously used, it will have a serious impact on the reputation of TV stations and users' privacy.

In addition, TV news also needs to comply with certain ethical norms in the reporting process. However, in the process of pursuing news timeliness and click rate, some TV stations may ignore the ethical principles, leading to the emergence of false news, paid news and other problems. These problems not only damage the fairness and objectivity of the news, but also affect the credibility and social image of TV stations[13].

In order to deal with data security and ethical issues, Guangdong TV news needs to strengthen data security management and establish a perfect data protection mechanism and technical means. At the same time, it is also necessary to strengthen the professional ethics education and training of journalists to improve their professional quality and ethical awareness. In addition, a sound supervision mechanism and reward and punishment mechanism are needed to ensure the authenticity and objectivity of news reports.

To sum up, Guangdong TV news is faced with challenges such as high technology application cost, lagging talent team construction and data security and ethical issues in its innovation practice. In order to overcome these challenges, Guangdong TV news needs to increase investment, strengthen talent training and introduction, strengthen data security management, and strengthen the

professional ethics education and training of journalists. Only in this way can we ensure the sustainable development of the TV news industry and the social harmony and stability.

4. Conclusion

The conclusion shows that AI technology has given a strong impetus injected into the innovative development of Guangdong TV news, significantly improved the efficiency and quality of news production, enhanced user stickiness and interactivity, and expanded the business model and profit channels. Guangdong TV News has achieved positive results in the application of artificial intelligence, which has not only promoted the intelligent upgrading of the news production process, but also attracted a wide audience through diversified new media products. However, in the future, it is still necessary to further strengthen the application of technology and improve the practicability and efficiency of the technology, to speed up the construction of talent team, cultivate more compound talents with interdisciplinary knowledge and skills, and attach great importance to data security and ethics, and establish a sound ethical standard system. In terms of research outlook, we should continue to pay attention to the development trend of artificial intelligence technology, and actively explore more innovative application scenarios, so as to further promote the transformation and upgrading of Guangdong TV news. In addition, it is also necessary to strengthen the cooperation between industry-university-research institutes, promote the deep integration of artificial intelligence technology with the field of journalism and communication, and jointly develop intelligent technologies and products that are more in line with the needs of the industry. At the same time, relevant laws and regulations should be established and improved to provide a strong guarantee for the healthy development of artificial intelligence technology and ensure that Guangdong TV news will move forward steadily on the road of intelligent transformation.

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