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Envisioning a New Development Pattern for Meteorological Audiovisual Production (Postprint)

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

Abstract

The “Internet+” new economic model constructs a new ecosystem for the development of meteorological television and film. Meteorological services provide foundational, public welfare meteorological data services and technical support to society, with continuously improving forecast accuracy and granularity. Digitization furnishes crucial impetus for the development of visual media dissemination, encompassing new technologies, networks, media platforms, and innovation. The R&D of digital “meteorological media convergence” addresses not merely the dissemination of meteorological information, but more fundamentally, the provision of more targeted and convenient meteorological service data support, thereby realizing greater social value of meteorological information. Innovating in meteorological media convergence, conducting in-depth development of meteorological data, and generating benefits in all-media development services.

Full Text

Preamble

Digitalization has revolutionized the development of video communication, creating a new digital video consumption ecosystem. The video industry has evolved toward streamlined production processes, digital media, networked display, and integrated multimedia development. In the era of converged media, meteorological information services have exhibited new characteristics: increasingly rich and diverse product content, continuous format innovation, and enhanced service refinement.

Society’s demands for meteorological services are growing ever higher. These services are no longer limited to simply disseminating meteorological information; they must also provide more refined services to society, playing a role in safeguarding and improving livelihoods while supporting disaster prevention,

mitigation, and relief efforts. The application of new technologies creates conditions for integrating meteorology with other industries, and through China's "Internet Plus" strategy, drives high-quality development of meteorological undertakings.

In terms of audience needs, service content, service channels, and interactive experiences, current meteorological video services face entirely new challenges. The key question is how to improve and fully leverage meteorology's role as the first line of defense in disaster prevention and mitigation.

Since its inception, meteorological science and technology services have served as the window through which the meteorological system engages with society, maintaining close connections with various departments and industries. They provide risk and disaster management services for government decision-makers and policymakers. The transformation of meteorological service concepts has established new cooperative models for professional meteorological services across industries. [2]

1. Applications of Meteorological Information

1.1 Marine and Offshore Operations

Meteorological information helps crew members select cost-effective shipping routes and optimize oil drilling techniques, thereby maximizing operational efficiency.

1.2 Aviation and Land Transportation

Weather information enables the transportation sector to adopt refined meteorological services under extreme weather conditions, helping transportation departments manage effectively. Based on numerical forecasting and intelligent grid forecasting systems, meteorological guidance forecast products are issued for key transportation and aviation areas.

1.3 Hydrometeorology

This enables monitoring of water and rainfall conditions, retrieval of forecast products, and production and distribution of risk products.

1.4 Agricultural Services

Providing weather and climate information supports the development of sustainable and economically reliable agricultural systems, improving both crop yield and quality.

1.5 Energy Sector

Using observational data, weather forecasts, and climate information enables the formulation of efficient and rational long-term energy planning.

1.6 Water Resource Management

Meteorology plays a crucial role in long-term water resource management and flood control during flood seasons.

1.7 Tourism, Leisure, and Sports

Timely release of weather forecasts and warnings ensures safety for outdoor activities and helps people select appropriate locations and times for outdoor recreation and leisure.

1.8 Atmospheric Environment

Provides an integrated decision support system for services including haze forecasting, air quality model development and maintenance, emission inventories, and pollution assessment.

1.9 Disaster Assessment

Provides real-time monitoring and assessment of various disastrous weather events, as well as dynamic pre-assessment of medium- to long-term disaster impacts within the month.

1.10 Urban Environment

Provides weather and air quality information to help the public take appropriate action, minimizing impacts on urban residents' lives.

1.11 Land and Urban Planning

Helps functional departments conduct environmental assessments and plan for climate certification and energy conservation. Meteorology participates in all aspects of social production and people's lives. For meteorological video services, whether through traditional or new media, the goal is to deliver new disaster prevention and mitigation information to everyone through multiple means, adapting to media development trends, developing new media service platforms, and accelerating the development of refined meteorological service products. [3]

2. Rethinking Industrial Transformation: Achieving Breakthroughs Through Convergence

With the development of media and changes in communication methods, traditional video communication forms are becoming increasingly limited in their effectiveness from theoretical, market, and audience cognition perspectives, and can no longer adapt to or satisfy the diverse trends of digital video development. The digital transformation of video is both a process and a product of cross-boundary integration of traditional media. Excellent online video platforms

such as iQiyi and Youku are products of cross-boundary integration between television stations and the internet, enabling ordinary audiences to access more high-quality content through more channels and platforms. The inherent advantages of digital video in converged media communication effectively extend and supplement the diverse needs of the public.

Converged media has promoted the development of human social relations. The advantages and characteristics of converged media themselves serve as the means for public meteorological services to enhance their service functions through “integration” in the current communication environment. The integration of meteorology with network media must proceed from three aspects: content, economy, and function. Content integration involves finding paths for service innovation from the source of demand, including meteorology’s relationship with social activities, cultural trends, and economic development. Functional integration involves strengthening traditional service advantages while incorporating information channels such as industry experts, anchors, and internet celebrities to expand public influence through different channel strengths. During emergencies, close collaboration with various industry departments should be maintained to jointly build resource and voice platforms, integrating methods of early warning, publicity, and science popularization, and co-constructing shared emergency science popularization content resources.

Timely emergency science education and publicity work should be carried out, including policy interpretation, knowledge popularization, and public opinion guidance. Through three-dimensional communication and precise services, the influence of emergency science education and publicity work for emergencies should be further strengthened, allowing the benefits to reach more people. [4]

3. Developing Meteorological Converged Media Video

Challenges and opportunities coexist. The development of meteorological converged media video must first recognize the situation and acknowledge the power of mobile video. Although digital video communication is a relatively young form, we must also recognize the era-specific attributes of converged media communication. Since the birth of video, it has always been a communication medium with broad public participation in creation, presenting numerous images of human technological progress and cultural innovation in different eras. It is an information dissemination method with widespread public participation. Capture users wherever they are. Relying on new technological applications such as big data, we must overcome difficulties to develop flagship products like meteorological services, engage in open cooperation, and achieve win-win cooperation across multiple platforms. The future focus of integrated development remains the internet, comprehensively integrating content resources across various media publishing platforms including newspapers, radio, television, networks, and clients. We must abandon the rigid thinking of self-entertainment and working behind closed doors, not only cooperating with platforms but also placing greater emphasis on cooperation with local social media to influence

each other and expand communication power.

From a technical perspective, meteorological converged media development is most profoundly influenced by the iteration of digital technology. Innovation in digital video technology not only disrupts previous video industry production processes but also positively influences changes in the visual style of video products. The development trend has begun to focus on capturing hot topics, emphasizing product thinking, user thinking, and internet thinking, with converged media product production closely following user needs.

Video products do not simply cater to the market for commercial purposes. The invisible hand of industry and market regulates the content of video products, providing data analysis of market demand. The integration and transformation of digital video resources in the internet era is accomplished through the development and utilization of big data. Video communication emphasizes consumer segmentation and data-driven customization, providing different cultural value sharing and customized visual experiences to different video users. Video content and consumption connect through data, with video work data, communication channel data, display platform data, and video consumption data constructing complete video user data. This represents the front-end data needs of consumer groups.

The development of any new techno-economic discipline requires a long-term process. The digital video economy powered by network and digital technology is continuously perfecting its business models and ecosystems. Through innovative application of new technology, video is transformed from everyday real-life space into virtual video space for public use and consumption. Network and digital technology have created infinite possibilities for video creation, driving innovation in digital video concepts. [5]

4. Implementation Approaches

In an era where everyone watches short videos, media technology development trends are becoming increasingly humanized, satisfying people's needs for interactive expression, entertainment participation, and information sharing anytime and anywhere.

How can we better produce meteorological audio-video products? First, the service orientation must "remain true to our original aspiration," deeply cultivating service content and insisting on professionalism as the core. Professional capability is the foundation of our existence. Facing competition in original audio-video content production, losing professionalism means losing the meteorological field itself, and service products lose their value. Simultaneously, content planning must be "justified in application": actively launching diverse product types, creating works that align with regional and ethnic characteristics, fully integrating principles of emerging media communication studies, and fully utilizing hot topics. Rich meteorological audio-video product content should be combined

with audience interest preferences and service needs to produce content that meets audience demands.

Transform expression methods. Drawing on others' strengths can help overcome our weaknesses. Traditional production must "break the old and establish the new." Meteorological converged media platforms should strengthen all meteorology-related derivative service products, broaden communication channels, and disseminate meteorological audio-video content through varied forms. Absorb international new concepts and apply new technologies. Use 5G, VR and other new technologies to enrich service content, improve service quality, and expand service depth and breadth. Seize all meteorology-related hot topics, popularize weather characteristics, publicize meteorological department work, and provide meteorological interpretation combined with social hot topics. By connecting with issues people care about, communication influence is expanded. Timely addressing public concerns about weather builds a bridge between traditional weather forecasts and public weather needs.

Moving from transmitting conclusions to transmitting thinking. Meteorological video is no longer monotonous data information. Previous meteorological information that primarily served forecast conclusions has transformed into concise, targeted, all-weather meteorological information. Humanized meteorological services transform complex and obscure meteorological terminology into language easily understood by audiences, shifting from transmitting conclusions to transmitting thinking. Using rational decision-making methods and emotional language expression brings services closer to audience life. Meteorological new media products that align with current public fragmented viewing habits—attracting attention in short timeframes, without dragging rhythm, with engaging editing and smooth visual transitions—are highly valued. Using interactive methods to publicize meteorological services sparks public interest in weather and meteorology, helping people understand weather forecasts while effectively raising public awareness of weather disaster prevention.

Meteorological video has evolved from scheduled weather forecast production to launching video-audio forecast and warning information and science popularization products, ultimately achieving real-time all-media production—all in adaptation to new media development processes. Meteorological information possesses typical data genes, hiding much information unknown to the public. Through data mining and interpretation to gain more service entry points is a powerful weapon for enhancing program competitiveness. Data mining is a "deep diving" process, while visualization is a "shallow emerging" presentation. Using appropriate conversion and quantification methods for data can make abstract things concrete and perceptible, giving the public more intuitive perception and enabling more effective dissemination of meteorological information. [6]

5. Future Prospects for Meteorological Converged Media

Currently, the research and development of digital “meteorological converged media” will solve not only the problem of meteorological information dissemination but also how to provide more targeted and convenient meteorological service data support and maximize the social value of meteorological information. Disruptive innovation is crucial for meteorological media convergence, requiring conceptual innovation to lead from three aspects: First, deeply mine meteorological data to produce meteorological programs that television stations cannot create. Second, closely follow hot information to create meteorological content that self-media cannot conceive. Third, continuously broaden thinking to produce meteorological information that ordinary people need. Society’s demand for meteorological services is growing. We must fully tap the added value of meteorological information, improve professional meteorological service levels, and meet society’s multi-level and personalized meteorological service needs. Accelerate technology integration, optimize media platform and service channel construction, and focus on content production and public communication. Cultivate all-media talent and chief analysts. Deeply cultivate big data mining, engage in cross-boundary cooperation in short videos and video live streaming, and provide point-to-point customized services.

As media convergence continues to deepen, meteorological media should also adapt to trends for development. Doing well in meteorological media innovation requires meticulous development of meteorological data to generate benefits in all-media development services. Facing challenges, we must also keep pace with technological development and creatively open up new ideas and methods conducive to meteorological media development. In the technological innovation of converged media, cloud computing, and big data, we must construct a new development pattern for meteorological “video-audio production” to achieve innovation in both function and social value. The vitality of meteorological undertaking development lies in service. Driven by the converged media era, meteorological departments should adhere to the concept of serving society, keep pace with the times, follow the communication laws of different media, and create richer products and forms of expression.

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(Executive Editor: Zhang Xiaojing)

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Source: ChinaXiv –Machine translation. Verify with original.