

## Application of VBA in Internal Broadcasting Effectiveness and Quality Reports: Postprint

**Authors:** Wang Qiang

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

### Abstract

This article introduces the key statements and business logic for implementing report automation using VBA. The speed of report production using VBA is more than twice that of manual production, thereby enhancing the efficiency of report generation.

### Full Text

## Application of VBA in Internal Broadcast Effectiveness and Quality Reporting

**Abstract:** This paper introduces the key statements and business logic for implementing report automation using VBA. With VBA, report generation speed is more than double that of manual production, significantly improving reporting efficiency.

**Keywords:** VBA usage; report automation; data center

**Author:** Wang Qiang

My department is the data center. The data center serves as the collection point for all data and the production site for numerous reports. Using VBA can significantly improve report generation efficiency, providing great assistance to the data center. Meanwhile, various directly-affiliated stations also need to produce reports. If they use VBA, it will bring them efficiency gains as well.

### 1.4 Multi-Column Duplicate Removal

`Sheets("x").Range("$A$1:$C$65535").RemoveDuplicates Columns:=Array(1, 2, 3), Header:=xlYes` removes duplicates based on the combination of columns A, B, and C.

```
Sheets(X).Range("$A$1:$D$65535").RemoveDuplicates Columns:=Array(1, 2, 3, 4), Header:=xlYes
```

 removes duplicates based on the combination of columns A, B, C, and D.

Duplicate removal is a frequently used function. I obtained this code by recording a macro and then debugging it. This method is worth learning.

### 1.5 Checking for Dramatic Changes in Audibility Comparison Tables

A key part of the program is checking whether dramatic changes exist in the audibility comparison table. The so-called dramatic change check examines whether the current month's audibility rate has decreased by more than 10% (including 10%) compared to the previous month, and whether the current month's audibility rate for a front-end device is 0 (meaning the front-end device was not measured). The content to be checked is shown in Table 1. The tables to be checked also include program audibility comparison tables by region and language audibility comparison tables by region.

The program starts checking from the first record of Table 1. First, it determines whether front-end devices exist in a region. If no front-end devices exist, it jumps to the next region. If front-end devices exist, it checks whether the current month's audibility rate for that device is 0. If it is 0, it records "This front-end device was not measured this month." If not 0, it checks whether the audibility rate has decreased by 10%. If the audibility rate has decreased by 10%, it records "The audibility rate of this front-end device has decreased by 10%." It then checks whether all records in the table have been processed. If not completed, it checks the next record.

All situations are recorded in a file named "Issues and Responses." After recording, it is also necessary to understand the reasons for dramatic changes in audibility rates by reviewing monthly reports from directly-affiliated stations and asking these stations, and to record the reasons in this file for monthly reporting purposes. The specific process is shown in Figure 1 [Figure 1: see original paper].

## 1. Report Production Process

Below are some distinctive VBA applications. Copying and refreshing pivot tables are common operations. Multi-column duplicate removal is a special application that I obtained by recording a macro and reverse-engineering it. The subsequent introductions are all business process-oriented and relatively complex to operate. The purpose is to share with readers what complex problems VBA can actually solve.

### 1.1 Copying Used Range from One Workbook to Another workbook

```
A.Sheets(x).UsedRange.Copy ThisWorkbook.Sheets(x).Range("a1")
```

 copies the used content from sheet x in workbook A to the top-left corner of sheet x in the current workbook.

**1.2 Copying Entire Columns to Desired Locations** `Sheets(x).Range("H:H").Copy Sheets(x1).Range("A1")` copies column H from sheet x to cell A1 in sheet x1.

**1.3 Refreshing Pivot Tables** `Sheets(x).PivotTables("PivotTable x").PivotCache.Refresh` refreshes pivot table x in the current workbook. When a report contains numerous pivot tables, this statement can greatly improve efficiency and operational accuracy.

## 1.6 Preparation Before Multi-Report Import

Before importing multiple reports, checking their existence is a necessary condition. If a report does not exist, the program will automatically generate an error message. However, such error messages generally cannot directly identify the problem. Therefore, it is necessary to write custom code with prompt messages that can directly point out issues, as shown in Figure 2 [Figure 2: see original paper]. First, check whether the file to be imported exists. If it exists, proceed to the next file. Otherwise, record the non-existent file name, provide a prompt message, and exit the program. Wait until the corresponding files are prepared before running the program again. This program interrupts directly when encountering problems rather than identifying all problems at once. This design considers that after preparing files, generally only one or two files might be missing. After interruption, files can be quickly prepared and the program can run again. If multiple files are indeed missing, proficient report producers will know their problems after one interruption.

## 1.7 Transmitter Frequency Summary

Table 2 is the transmitter frequency summary table, recording the monthly number of medium/short wave and FM frequencies broadcast by each transmitter station (there are two types: Type X and Type Y). The table requires central directly-affiliated transmitter stations to be recorded in the upper section and local transmitter stations in the lower section.

Compare the transmitter names in Table 2 with the obtained list. If the transmitter name exists in the frequency summary table, fill in the frequency number in the corresponding position. If the transmitter name does not exist, when the obtained transmitter is Type X, insert the corresponding information in the top row; when it is Type Y, insert it in the last row.

## 2. Conclusion

Using VBA to create Excel reports brings significant efficiency improvements and reduces the possibility of errors. Hopefully more report producers will try using VBA and experience the changes it brings.

The audibility rate refers to the ratio of the number of times audibility is greater than or equal to 3 points to the total number of listening times, expressed as

a percentage. Here, the audibility rate equals the ratio of frequencies with 3+ points to total measurement frequencies. Each frequency measurement counts as one frequency instance.

Table 3 is the audibility statistics table. The program should place corresponding records into the appropriate administrative region workbook. The specific method is to first sort the audibility statistics table by administrative region, then place all records into the corresponding workbooks at once.

**References:** [1] Li Xiaomei, et al. VBA Programming in Excel[J]. Journal of Sichuan Normal University, 2004, 27(4): 423-424. [2] Ren Xiaolong, et al. Application of VBA Program Interface in Instrument Design[J]. Chemical Automation and Instrumentation, 2016, 43(2): 145-146.

**Author Affiliation:** National Press and Publication Administration Monitoring Data Processing Center

---

## Exploration of Safety Protection Design Ideas for TV Station Broadcasting Systems

**Abstract:** The broadcasting system is the foundation for TV stations to perform their functions. Currently, information loss and theft issues have emerged in the application of TV broadcasting systems in China. To improve this phenomenon and promote the healthy development of the entire industry, it is necessary to enhance the security protection level of broadcasting systems. This paper analyzes and studies the safety protection design ideas for TV station broadcasting systems, starting from the composition of these systems.

**Keywords:** TV station; broadcasting system; safety protection design

### 1. Composition of TV Station Broadcasting Systems

TV station broadcasting systems are mainly composed of upload network elements, broadcast business system elements, production business system elements, and media asset business system elements. The security risks in TV station broadcasting systems are primarily caused by information interaction among multiple networks within the system.

### 2. Design Requirements for TV Station Broadcasting System Safety Protection

**2.1 Completeness Requirement** This requirement addresses the system architecture of TV broadcasting systems. In actual design work, the safety protection needs of every component of the broadcasting system should be comprehensively considered. While reasonably meeting the transmission requirements of different elements, the security level of internal files in the broadcasting system should be improved.

**2.2 Integrity Requirement** This requirement addresses the data information within the broadcasting system. A program file contains a large amount of data information, and the loss or damage of some data may affect the overall program quality. Therefore, in designing the safety protection of TV broadcasting systems, the integrity of all data information within the system should be ensured.

### **3. Design Ideas for TV Station Broadcasting System Safety Protection**

**3.1 Safety Protection Architecture Design** To enhance information security during transmission in TV broadcasting systems, the entire safety protection architecture is designed as follows: the security gateway serves as an intermediate link in the broadcasting system information transmission, establishing effective connections between the security gateway and TV station business systems (production system, media asset system, and broadcast system). During actual transmission, external material information is imported into the broadcasting system via external files. When the security gateway detection results show that the external file quality is qualified (no abnormal information or security risks), the external file is allowed to enter the corresponding business system to provide file information support for the formal operation of the broadcasting system.

**3.2 File Transmission Process** Based on safety protection, the file transmission forms of the broadcasting system mainly include the following:

**3.2.1 External File Import Process:** In this information transmission process, external files need to be transmitted to the network through TV broadcasting system sites. At this point, the security gateway must perform its safety protection function. After passing safety inspection, files are transmitted to the corresponding TV station business system modules based on task attributes.

**3.2.2 File Security Transmission Between Media Asset and Production Systems:** This process is critical for the broadcasting system. After TV station staff produce TV programs using the production system, the production system submits the program to the media asset business system's program library. During the submission and transmission process, the security gateway judges the security status of the submitted file through safety inspection operations, ensuring no damage or loss occurs during submission. Additionally, when program file quality or content issues arise, the media asset system needs to return the relevant program file to the production business subsystem of the broadcasting system. During this transmission, the security gateway automatically performs safety inspection and protection functions, allowing files from the media asset business system to be automatically transmitted to the production business system after confirming the transmission object file's security status is qualified.

**3.2.3 File Security Transmission Between Media Asset and Broadcast Systems:** After relevant program files pass inspection in the media asset business system, they officially enter the transmission process to the broadcast business system. At this point, the security gateway uses its safety inspection and protection functions to ensure secure transmission between the media asset business system and broadcast business system. For viewers, the completion of this transmission process means they can watch the TV programs produced by production staff, satisfying their entertainment and leisure needs.

**3.3 Security Gateway Characteristics 3.3.1 Performance Dimension:** The security gateway's characteristics at the performance level mainly include: (1) Task priority transmission - allowing priority completion of higher-priority TV program file transmission; (2) Multi-task concurrent transmission - enabling simultaneous transmission of multiple file types during high-workload periods, significantly improving transmission timeliness.

**3.3.2 Physical Dimension:** Characteristics include: (1) Six full-gigabit network ports providing excellent port environment for file transmission between subsystems; (2) Mechanical device characteristics allowing deployment in central machine rooms to provide effective safety protection for internal file transmission.

**3.3.3 Functional Dimension:** Characteristics include: (1) Transmission file filtering - using built-in file plugins to determine whether to allow transmission; (2) Transmission file identification - identifying whether file formats and structures are consistent to reject disguised files; (3) Transmission file virus checking - scanning for viruses after filtering and identification; (4) Transmission file verification - using MD5 codes to verify consistency between original and transmitted files; (5) Transmission result feedback - providing transmission information through the security gateway's Web interface.

#### 4. Conclusion

To ensure information transmission security in TV broadcasting systems, security gateways can be integrated into TV station broadcasting systems to enhance file transmission security levels. During actual operation, security gateways can use their physical, functional, and performance characteristics to identify problem files with viruses or format mismatches from among files to be transmitted.

**References:** [1] Chen Jinming. On the Safety Protection Design Ideas for TV Station Broadcasting Systems[J]. Electronics World, 2016(12): 188-189. [2] Xiao Hang. Research on Boundary Protection Methods for TV Broadcasting Systems Based on Security Domain Division[J]. Science and Technology Communication, 2016(16): 111, 136. [3] Chen Yu. Design and Practice of P2 Card Safety Protection Management System for Beijing TV Station's High-definition News Network[J]. Modern TV Technology, 2011(07): 42-45. [4] Gong Minghao, Wang Xiaoyan, Liang Jinchun. Research on Boundary Protection Methods for

TV Broadcasting Systems Based on Security Domain Division[A]. China News Technology Workers Association. Proceedings of the 2015 Annual “News Technology Papers” Excellent Papers Collection of China News Technology Workers Association[C]. China News Technology Workers Association, 2015: 5. [5] Wang Xiaoyan, Liang Jinchun, Yao Yingying, Wang Yanan. Research on Boundary Protection Methods for TV Broadcasting Systems Based on Security Domain Division[J]. Cable TV Technology, 2015(03): 97-99, 102. [6] Cao Jiucheng, Yan Haidong. Analysis of Network System Security Design—On the Satellite Program Recording System of Yancheng TV Station[J]. Audio-Visual World (Broadcasting and Television Technology), 2010(02): 47-50. [7] Zhou Wei. Design and Implementation of CCTV Network Information Security Platform Construction Planning and Key Technologies[D]. Tianjin University, 2014.

**Author Affiliation:** Longkou Radio and Television Station

---

## Discussion on Security Management and Maintenance of TV Station Office Networks and Non-linear Editing Networks

**Abstract:** With China’s rapid economic and technological development, computer information technology is widely applied across various fields, with TV station office networks and non-linear editing networks being representative examples. These networks play crucial roles in TV station public management activities, but they face serious network security issues. This necessitates proper security management and maintenance. This paper conducts specific research on this topic, hoping to provide inspiration for relevant TV stations.

**Keywords:** TV station; network; security management

### 1. Concept of Network Security

For computer network security, information confidentiality, integrity, availability, and auditability constitute its specific components. From this perspective, network security involves not only data security but also hardware facilities and software systems. In essence, network security can be regarded as the reliable operation of network systems and secure sharing of network resources. This understanding reveals the significance of network security for TV station office networks and non-linear editing networks.

### 2. Sources of Security Risks for TV Station Office Networks and Non-linear Editing Networks

**2.1 Physical Risks** Physical risks for TV station office networks and non-linear editing networks refer to external interference with network physical equipment, including natural disasters, environmental accidents, circuit failures,

and human destruction. This risk directly threatens the foundation of network function implementation and cannot be fundamentally eliminated. Relevant TV stations can only properly handle and control it to minimize the probability of network physical risks.

**2.2 Other Risks** Other risks refer to vulnerabilities in computer network systems during information transmission, including application service risks, TCP/IP protocol transmission security deficiencies, and hacker attacks. Application service risks mainly refer to security vulnerabilities in network services such as NFS, Java, Web, and PRC. TCP/IP protocol security deficiencies are mainly reflected in IP packet forgery and modification during transmission. Hacker attacks often combine with TV station encryption measures and system security vulnerabilities, posing fatal threats to both office networks and non-linear editing networks.

**2.3 Operating System Risks** Operating system risks mainly stem from defects in the operating system itself that computer networks rely on, such as Windows system vulnerabilities during use. Although such vulnerabilities are often patched, they cannot be fundamentally eliminated, leaving serious security issues in TV station office networks and non-linear editing networks.

### **3. Security Management Measures for TV Station Office Networks and Non-linear Editing Networks**

**3.1 Strengthening Network Security Management Laws and Regulations** Considering the security risks of TV station office networks and non-linear editing networks, comprehensive consideration provides strong support for solving China's TV station network security problems. Through laws and regulations construction, both risks can be resolved together, creating a good network security atmosphere.

**3.2 Improving Internal Management** This strategy mainly achieves reduction of network security risks through "people" management. In most Chinese TV stations, office computer networks are used by many people, making risk reduction through "people" management difficult. Therefore, TV stations should establish internal network security management mechanisms to strengthen internal management and ensure all staff pay attention to network security management.

**3.3 Focusing on Equipment Management and Maintenance** To better solve physical risks, TV stations must strengthen equipment management and maintenance, focusing on switches, routers, hosts, etc. This management and maintenance must assign responsibility to specific individuals to ensure quality. TV stations also need professional personnel for database server maintenance,

static antivirus of key software systems, password settings for key equipment, and strict access control to the main computer room.

**3.4 Prioritizing Viruses and Hacker Attacks** TV stations must attach great importance to viruses and hackers to solve network security risks. Under this priority, TV stations can set access permissions, install firewalls, and conduct regular software antivirus in office computer networks to maximize protection against viruses and hacker attacks.

#### **4. Daily Maintenance Measures for TV Station Office Networks and Non-linear Editing Networks**

**4.1 Effective Technical Support Analysis** This measure mainly ensures non-linear editing network users can master its usage methods. Effective operation of non-linear editing networks requires high technical support, placing high demands on TV station staff. Therefore, TV stations should conduct demonstration operations and related training for non-linear editing networks.

**4.2 Targeted Permission Management** To ensure high-quality daily maintenance, TV stations need targeted permission management, preparing different access levels for different employees. This ensures strong system stability and security for both office networks and non-linear editing networks, improving maintenance efficiency and effectiveness.

**4.3 System Storage Space Maintenance and Management** System storage space maintenance and management is also an important component of daily maintenance. Due to production cycles, TV stations often occupy large amounts of storage space, causing storage shortages. Through system storage space maintenance and management, this problem can be alleviated.

#### **5. Conclusion**

This paper discusses the concept of network security, sources of security risks, security management measures, and daily maintenance measures for TV station office networks and non-linear editing networks. Based on these measures, we can clearly recognize the importance of network security management and maintenance, ensuring non-linear editing networks better serve TV station program production.

**References:** [1] Wang Shipeng, Zhao Liang. Research on Security Management and Maintenance of TV Station Office Networks and Non-linear Editing Networks[J]. Computer CD Software and Applications, 2013(04): 120, 122. [2] Niu Fanghua. Management and Maintenance of Computer Network Security Hidden Dangers[J]. Electronic Technology and Software Engineering, 2016(24): 216. [3] Liu Qingfeng. Network Management and Maintenance of TV Station Production-Broadcast Integration[J]. West China Broadcasting TV, 2016(01):

246-247. [4] Zhou Fengjuan. Maintenance and Management of TV Station Network Technology[J]. Science and Technology Communication, 2016(10): 72-74. [5] Zhou Ruyin. On the Management and Maintenance of TV Station Non-linear Editing Network Systems[J]. Manager, 2016(19): 427. [6] Li Gang. Summary of Experience in Network Management and Maintenance of TV Station Non-linear Editing Systems[J]. West China Broadcasting TV, 2016(14): 223. [7] Hong Yuan. Management and Maintenance of TV Station Non-linear Editing Network Systems in the New Era[J]. China Cable TV, 2015(07): 875-876.

**Author Affiliation:** Longkou Radio and Television Station

---

## Development Path of Mobile Short Videos under UGC Mode

**Abstract:** Network technology development drives smart device proliferation and reduces data transmission marginal costs. Relying on China's huge internet user dividend, domestic mobile short video platforms have emerged strongly, opening the prelude to mobile short video social networking. Mobile short videos provide users with new video production experiences, meet personalized needs, and create new forms of public opinion fields and content economies, but profit models remain unclear, user retention costs are high, and data fees are expensive. This paper defines UGC, reviews mobile short video characteristics and development history, and proposes solutions and future development suggestions through analysis of development patterns and features.

**Keywords:** UGC; mobile short video; integrated development

### 1. UGC Mode Overview

UGC (User Generated Content) refers to user-original content, a new way for internet users to use the internet, where users display or provide their original content to other users through internet platforms. The UGC mode is a product of the internet's development trend to meet user personalized needs, rising in the Web 2.0 era. This mode transforms internet users from content viewers to content producers. Users are not only information recipients but also network content creators.

### 2. Characteristics of UGC Mode Short Videos

UGC short videos have general information communication characteristics and special attributes of internet product content. First, UGC mobile short videos are social. Social functions are important for internet products to improve user stickiness. The social aspect of mobile short videos lies in platform functions like sharing, forwarding, liking, commenting, and collecting, as well as online interactions between content publishers and viewers. Although short video content is limited, a high-quality short video can resonate with countless netizens,

generating huge social information volume and improving user dependence on the platform.

Second, mobile short videos are operable. Mobile short video applications generally provide simple and easy-to-use video production and polishing methods. Users can achieve professional non-linear video editing software effects through simple operations, producing high-quality micro-videos with excellent picture and sound quality, providing users with excellent content creation experiences.

Finally, mobile short videos are authentic. Compared with text and images, short videos are more authentic. UGC short videos mostly appear in long shot form. Although video software processing may improve audio-visual effects, the content authenticity remains unchanged. On one hand, users need short videos to show real social conditions and real people and events, or to shape a full personal network social image rather than false or forged content. On the other hand, images are the greatest restoration of the real world, and video is the content form that presents authenticity to the greatest extent.

### 3. Development History of UGC Mobile Short Videos

UGC mobile short videos emerged from micro-video development. Micro-videos are short, low-cost, diverse in content, and have high netizen participation, making them a flexible new media form. In 2005, YouTube was born in the US, creating the concept of “video sharing platform.” Meanwhile, China’s internet development already had the technical conditions and user base for video website development. In the same year, China’s localized video sharing website Tudou launched, followed by Youku the next year. The two major video operation websites launched fierce competition, kicking off the prelude for grassroots directors and network self-media to compete on the same stage.

In 2011, US Viddy launched, introducing the “video sharing community” concept to China. In August 2013, Weibo launched the “Miaopai” video sharing community, and Tencent launched the “Weishi” application. In December 2013, China’s telecom business entered the 4G era, breaking through the user bottleneck for short video social networking. In 2014, Meipai produced by Meitu Company became the top downloaded short video application.

### 4. Development Strategies for UGC Mobile Short Videos

**4.1 Live Function Expansion** Mobile short video applications should accelerate function updates, prioritizing user experience improvement. On one hand, they should continuously add special effect resources to meet users’ personalized short video production needs, drawing on domestic and foreign sound effects, music, filters, and special functions like face recognition and motion capture to enhance playability. On the other hand, they should develop other functions beyond short videos, especially live video functions.

**4.2 Mutual Benefit with News Industry** The instant shooting, production, and rapid dissemination functions of short videos are very suitable for news information transmission. Short video platforms are not only news release platforms but also important platforms for traditional news media to obtain first-hand news materials. Short videos make news ubiquitous and news material acquisition cheaper and more convenient. Cooperation between traditional news media and short video platforms extends the reach of news media while providing continuous fresh news materials.

**4.3 Creating Lightweight Marketing Tools** Short videos' short duration can fill audiences' fragmented time. As short video platforms develop, they have broken through the second limit in duration, appearing in videos exceeding 5 minutes, creating conditions for advertising. Short video social networking gathers strong popularity and network celebrity media effects, creating a huge advertising goldmine.

**4.4 Achieving Cross-Border Cooperation** As an internet new media, short videos should actively participate in media convergence under the background of deepening triple-network convergence, including resource interoperability in software and device compatibility in hardware. Currently, China's triple-network convergence has achieved fruitful results, with multi-screen interaction functions among TV, mobile phone, and computer terminals already realized.

**Author Affiliation:** Harbin Normal University, School of Media

---

## Analysis of Data Analysis and Mining in News Editing Business Processes Based on Business Intelligence

**Abstract:** With the arrival of the big data era, more enterprises adopt business intelligence technologies to “mine gold” from production, sales, and other data to support decision-making. This paper applies business intelligence key technologies to news editing business, analyzing the entire process through full-process status analysis, news productivity, and communication influence to demonstrate the workflow, production efficiency of editorial departments and personnel, and communication influence of manuscripts. It introduces business intelligence principles and conducts in-depth research on data analysis and mining methods for news editing business processes.

**Keywords:** business intelligence; data analysis; data mining

### 1. Business Intelligence

Business Intelligence (BI) collects and manages data, providing a series of technologies and methods to analyze various enterprise data. BI helps enterprise

leadership grasp overall operation status, identify potential industry opportunities, and assist in decision-making.

## 2. Research Significance

BI helps enterprises quickly identify problems and prompts managers to solve them. Specifically for the news editing industry, BI addresses urgent needs of media managers. Through analysis and mining of news communication influence, managers can clearly grasp news communication effects and influence. BI creates value for news, helps traditional media achieve “end-user-centered” transformation, and through user behavior analysis, can classify user groups by gender, age, occupation, region, etc., for personalized recommendations.

## 3. Business Intelligence Key Technologies

**3.1 OLAP** Online Analytical Processing provides a multidimensional data management environment, enabling enterprise data analysts to model and analyze business problems from multiple dimensions.

**3.2 Statistical Analysis** Using appropriate statistical analysis methods to analyze data and extract valuable information.

**3.3 Data Mining** Data mining extracts hidden, unknown, and valuable associations and patterns from large amounts of data, establishes models for decision-making, and provides risk analysis and prediction functions.

## 4. Business Intelligence Architecture

First, data scattered in various enterprise systems, including relational and non-relational data, is aggregated through extraction, transformation, cleaning, and loading (ETL), and finally loaded into a data warehouse according to a predefined data model. Based on data warehouse requirements analysis, logical and physical models are established to organize various enterprise data by analysis themes.

## 5. Application in News Editing Business

**5.1 Data Sources** Data warehouse data collection needs to obtain data from various business application systems and management information systems, such as manuscript collection systems, editing systems, contribution systems, and OA systems, and store them in the data warehouse according to unified data standards. This paper divides editorial business system data into static information data and dynamic information data. Static information data refers to relatively stable information, mainly including static attribute information about editorial departments, personnel, and contribution lines. Dynamic information data collects constantly changing process data in editorial business systems, including collection, editing, signing, revision, distribution, contribution, and feedback.

**5.2 Analysis Objectives** By collecting manuscript, process, personnel, and quality data, manage the entire editorial business process to grasp reporting progress, personnel work efficiency, manuscript landing status, and communication influence effects. Conduct data analysis and mining from themes such as full-process status, communication influence, and news productivity to present the operation of news production business.

**5.3 Data Modeling** Data modeling mainly uses dimensional models. A metric is often related to multiple dimensions, and dimensional models express the association relationships between data. Dimensional modeling reorganizes data from multiple dimensions to provide a multidimensional view for decision-making. Dimensional models use two different types of tables: fact tables and dimension tables. Fact tables store business performance measurement values, while dimension tables provide perspectives for observing measurement values. Star or snowflake models are typically used to integrate fact tables and dimension tables.

**5.4 Key Indicator System** **5.4.1 News Productivity:** In news productivity evaluation, metrics such as productivity rate, per capita manuscript quantity, and personnel input ratio can be used to assess departmental news productivity. Metric values can be aggregated by year, quarter, month, bi-week, week, or day, and viewed by dimensions such as media type, news category, contribution category, and manuscript processing flow.

**5.4.2 Communication Influence:** In communication influence evaluation, this paper uses traditional media influence index, network media influence index, domestic media influence index, overseas media influence index, overseas social media influence index, and full-network influence index as main indicators.

**5.4.3 Full-Process Status Analysis:** Full-process status analysis can monitor real-time changes in various indicators, viewable by dimensions such as manuscript processing stage (collection, storage, creation, editing, signing), media type, and contribution category.

**5.5 Business Process Data Mining Algorithms** **5.5.1 Association Rules and Sequence Patterns:** Association rules analyze user data to discover behavior patterns, describing association relationships between data items. The Apriori algorithm is a classic association rule algorithm. In news business, association rule mining can find relationships between editorial staff characteristics and manuscripts, recommend relevant manuscripts based on staff concerns, and assign reporting tasks to appropriate journalists or editors.

**5.5.2 Time Series Analysis:** Time series analysis records event results at fixed time intervals. Cases include daily manuscript processing numbers, monthly processing numbers, and quarterly total contributions. Analyzing time series data can use visualization methods like bar charts and line charts to observe phenomena and behaviors.

## 6. Conclusion

Under the urgent situation of traditional media strategic transformation, technological innovation is needed to enhance core competitiveness and communication influence. Big data is the core fulcrum of content, channels, and services, and a powerful driver for traditional media transformation. This paper explores the application of data analysis and mining technologies to news editing business process data within the general BI framework. Through analysis and mining of news productivity, communication influence, and full-process status, advanced methods and tools help decision-makers grasp business development direction. With big data era development, BI technology applications will help media convergence and provide strong support for traditional media strategic transformation.

**References:** [1] Zhang Liangjun, Chen Junde, et al. Practical Case Analysis of Data Mining[M]. Beijing: China Machine Press, 2013(7): 18-30. [2] Chen Zhe. The Helpful Assistant for Data Analysis Enterprises[M]. Beijing: China Machine Press, 2015(5): 1-27. [3] Ralph Kimball, Margy Ross. The Data Warehouse Toolkit (Third Edition)[M]. Beijing: Tsinghua University Press, 2015(1): 5-11.

**Author Affiliation:** Xinhua News Agency Technology Bureau

---

## Big Data and News Reporting

**Abstract:** When people use the internet for social interaction and news browsing, traces and information are retained, which is very important for news media. Deep analysis can deepen news narrative and effectively present facts.

**Keywords:** big data; news reporting; research

### 1. Characteristics of Big Data News Reporting

**1.1 Multi-Channel Acquisition of Massive Data** News production mainly uses two methods: (1) analyzing large amounts of data to find problems based on relevant principles; (2) systematically analyzing problems to find gaps and conduct further analysis. Both methods require large amounts of data. Currently, it's both an information era and big data era, with many data acquisition means and improved authenticity and timeliness. Data on the internet is extensive and transmitted quickly, and the number of searchable websites continues to increase.

**1.2 More Cautious Data Processing** Currently, big data development in China's news reporting is still in its early stages and needs continuous improvement. Data from various websites and social organizations is a major source, but some data is not original and contains processors' subjective opinions, reducing objectivity. News producers should maintain skepticism, conduct in-depth

analysis, and carefully examine data information. To ensure accuracy, useless interference data should be filtered out, and selected data should be deeply processed using professional software.

**1.3 Multi-Angle Presentation of News Data** In the current big data era, data information is displayed in diverse ways in news reporting. Dynamic charts, data maps, and infographics are three main expression methods. Data maps are mainly used in spatial geographic data news, effectively displaying spatial geographic data for intuitive understanding. Infographics can simplify complex news data.

## 2. Potential Problems in Big Data News Reporting

**2.1 Incomplete Big Data May Cause News Bias** Big data is not all-encompassing. News staff should respect information objectivity and comprehensiveness while finding the most favorable resources. Once incomplete big data appears, news content distortion and bias can easily occur.

**2.2 Correlation vs. Causation** After obtaining big data information, news staff must analyze and summarize content. If used directly without analysis, it will seriously affect news authenticity. Scientific methods must be established first, followed by careful analysis to improve news accuracy.

**2.3 Journalist Ethics** With rapid network development, data acquisition has become easier. Since media are not direct data holders, news professionals must meet certain ethical standards. When encountering personal privacy related to data content, scientific choices must be made.

**2.4 Big Data Reporting Not Updating with Time** For media, the focus of news reporting is understanding social development dynamics and mastering the latest news. News reporting should analyze data comprehensively from multiple angles. Content that is too singular cannot change with time. News must keep up with time changes and report the latest news to adapt to public needs.

## 3. Strategies for Big Data News Development

**3.1 Actively Break Conventions** With rapid scientific and technological development driving network information technology, public demand for news is also changing significantly. News workers should break traditional forms limited to text and images, and adopt more interactive and intuitive news forms to attract people.

**3.2 Build a New News Production Team** In collecting big data, news personnel, computer professionals, and IT personnel are all needed to provide

more materials for news reporting. With the rapid development of modern media, news production teams are expanding. The organic combination of IT personnel and news personnel has formed a new team, providing more materials for news reporting under IT technical assistance.

#### 4. Conclusion

In summary, in the current big data era, news reporting has changed greatly over time, both in publishing work and in data collection and organization. Effective use of big data can enhance news authenticity and greatly improve reporting efficiency.

**References:** [1] Tian Longguo, Du Juan. Practice of Data News Reporting in the Big Data Era—A Case Study of Caixin Online[J]. News Research Guide, 2016(08): 126-127. [2] Fu Xiaojing, Zhang Xiaobin. Sports News Reporting in the Big Data Era—A Case Study of Visual Data News in Brazil World Cup Coverage[J]. Youth Journalist, 2015(09): 46-47. [3] He Pengfei. Big Data News: Reconstructing CCTV's News Reporting Path—A Case Study of “Data Says Two Sessions”[J]. Modern Audio-Video, 2014(06): 6-10. [4] Wen Weihua, Li Bing. Data News Reporting in the Big Data Era from the Perspective of US Presidential Election[J]. Chinese Journalist, 2013(06): 80-81.

**Author Affiliation:** Yicheng Radio and Television Station, Zaozhuang City, Shandong Province

---

## Research on Dissemination Strategies for Huxiang Culture-themed Microfilms

**Abstract:** Through in-depth research on the characteristics of Huxiang culture-themed microfilms, this paper analyzes value significance and promotion to explore strategies for improving microfilm practice creation and promoting Huxiang culture dissemination.

**Keywords:** regional culture; Huxiang culture; microfilm; dissemination strategy

### 1. Value Significance of Huxiang Culture-themed Microfilms

**1.1 Cultural Connotation** Huxiang culture, as an important component of Chinese traditional culture, influences generations of Chinese people with its “simple and righteous,” “brave and martial,” “practical and pragmatic,” and “self-improving” cultural essence. With the emergence of microfilms as a new art form, their short, concise, and flexible characteristics have gradually entered people’s lives. Unique narrative techniques, innovative shooting and editing methods, combined with Huxiang cultural elements, meet the aesthetic tastes of younger generations and greatly enhance viewing interest.

**1.2 Application Value** **1.2.1 Economic Value:** Microfilms integrate WeChat, Weibo, video websites, and other public platforms. They can promote Huxiang culture development and prosperity, enhancing Hunan's cultural soft power. As excellent microfilms spread widely, Hunan's culture, tourism, and ethnic crafts can be promoted through this emerging means.

**1.2.2 Social Value:** The “simple and righteous,” “brave and martial,” “practical and pragmatic,” and “self-improving” spirit of Huxiang culture embodies the core socialist values. As Huxiang culture-themed microfilms spread widely, they gradually awaken viewers' inner national cultural consciousness, helping to promote core socialist values, spread positive energy, and build a harmonious socialist society.

## 2. Dissemination Strategies for Huxiang Culture-themed Microfilms

**2.1 Media Dissemination Strategy** Microfilm dissemination methods are rich and diverse. Under the situation of integrated development between traditional and new media, we should focus on comprehensive, three-dimensional, multi-platform promotion methods, keeping pace with internet development.

**2.1.1 Traditional Media:** Newspapers, journals, TV, and radio are recognized as the four major traditional media. Huxiang culture microfilms can use local mainstream media for special interviews and reports. For example, Hunan's leading print media *Xiaoxiang Morning Post* can publicize microfilm award information, main creators, shooting experiences, and work characteristics through its cultural and special report sections.

**2.1.2 New Media:** New media covers a wide range, including network media, mobile media, and all digitized traditional media. Huxiang culture microfilms can use websites, WeChat, Weibo, forums, mobile games, and other new media platform tools to plan online and offline activities related to microfilms, creating topics or events for promotion and marketing.

**2.2 Industrialization Development Strategy** Microfilms possess both cultural and economic functions. While focusing on cultural communication, their economic functions should also develop in parallel, actively considering diversified industrial models. The industrial chain can extend upstream through deep strategic cooperation with Hunan's “TV Army” platform, and downstream through developing offline products related to microfilms such as cultural programs, online games, characteristic tourism, and animation.

**2.3 Brand Communication Strategy** Brand building lies in quality and image. Huxiang culture-themed microfilms must strive to explore unique cultural connotations, create excellent cultural works, and establish distinct cultural character to gain social recognition.

**2.3.1 Finding Positioning:** Huxiang culture microfilms should be rooted in

local culture based on audience market research, deeply exploring Huxiang figures, stories, and spirit to create a distinctive brand.

**2.3.2 Creating “Masterpieces,” “Masters,” and “Famous Enterprises”:** Local areas should implement a “name card project” to create a batch of excellent Huxiang culture microfilms, cultivate outstanding directors, screenwriters, and photographers, and support excellent film production enterprises to become local name cards.

**2.4 Event Communication Strategy 2.4.1 Implementing “Huxiang Culture Microfilm Creation Support Plan”:** Drawing from China’s Ethnic Minority Film Project, local government departments and relevant associations can jointly implement a support plan to cultivate excellent directors and screenwriters, create outstanding works, and inherit Huxiang culture.

**2.4.2 Holding Huxiang Culture-themed Microfilm Competitions:** Jointly organize competitions with government, universities, and enterprises, with diverse segments including competition units, seminars, and creation meetings to enhance creators’ practical abilities and spread Huxiang culture.

**2.4.3 Implementing Huxiang Culture Microfilm Campus Series Activities:** College students are the mainstay of the film market. Implementing campus activities can not only hear authentic voices from students but also provide suggestions for creation and cultural communication.

### 3. Conclusion

Huxiang culture microfilms present not only the beautiful natural scenery of Hunan but also its long history and simple, beautiful Huxiang spirit. As an important component of excellent Chinese traditional culture, Huxiang culture is optimistic, confident, and self-improving. Through the emerging medium of microfilms, it can be widely spread and inherited, allowing the world to feel and touch the ancient charm of Huxiang culture in this visual feast. Huxiang culture will surely become more charming with microfilms.

**Author Affiliation:** Hunan Vocational College of Art

---

## Analysis of Innovative Visual Arts in Digital Media Context

**Abstract:** With rapid socio-economic and technological development, people’s living standards have gradually improved. As material needs are satisfied, demands for spiritual life quality are also increasing. With the creation and development of digital media, visual arts have gained broader development space. In this ever-changing era, visual arts should keep pace with trends and continuously undergo effective reform and innovation to adapt to the digital media era.

**Keywords:** digital media; context; visual art; innovation

## 1. Digital Media Context

Digital media refers to the carrier that records, processes, disseminates, and obtains digital text, graphics, images, sound, video, animation, and other information in binary form. As a new media communication form, digital media has greatly increased information volume compared with traditional media, with precise search functions and accurate information classification, becoming an important factor in contemporary life and art communication under various advantageous conditions.

## 2. Current Situation of Visual Arts in Digital Media Context

From the development history of the media field, mass media art shows different postures in different periods, but all influence people's lives and entertainment. Whether newspaper printing, TV content broadcasting, or cinema film screening, they have all changed humanities, arts, and social thought. In today's world, the rapid development of science and technology and information technology has brought huge opportunities and challenges to visual art innovation.

## 3. Innovation Forms of Visual Arts in Digital Media Context

First, no art form can survive forever without change. Visual art innovation also needs to experience the process from new to old, but this process should not be *轻视* ed. The classics and essence inherited from old art should be carried forward and play a crucial role in future updates. Second, art itself has humanistic color and social value, and innovation in the digital media context should not deviate from these. Art should be combined with the soul to show inner beauty to the audience. Finally, traditional visual art resources should be classified and integrated, effectively fused with new modern concepts, and their expression and communication methods transformed into digital media forms.

## 4. Development of Visual Arts in Digital Media Context

The emergence of digital media technology has greatly reduced resource consumption and waste. With the development of computer application technology and network technology, digital media has exploded, and social media as an important part has rapidly popularized. Social media has become an indispensable part of people's lives due to its convenient usage, extremely fast information dissemination speed, and information popularization ability, making it an important channel for visual art communication.

## 5. Conclusion

With the development of the information era, the media industry has become more perfect. Traditional visual arts must change under its influence, and vi-

sual art innovation in the digital media context will become the core direction of traditional visual art change. In the digital media environment, the innovation process has more stable and broader development space. Under the effect of digital media technology, visual arts can complete work dissemination and communication more quickly and effectively, continuously improving in innovation, sublimating in improvement, and steadily facing opportunities and challenges brought by the digital media era.

**References:** [1] Ding Lei. Visual Art Innovation in the Digital Media Context[D]. Nanjing Arts Institute, 2015. [2] Ye Yang. Visual Art Innovation in the Digital Media Context[J]. Art Education Research, 2014(14): 44. [3] Xiao Dongsheng. On Visual Art Innovation in the Digital Media Context[J]. Shenzhen (Late Issue), 2016(5): 125. [4] Sun Ying. Visual Art Innovation in the Digital Media Context[J]. News Research Guide, 2014(18): 102. [5] Ji Xiaoyi. Research on Visual Art Innovation in the Digital Media Context[J]. Art Science and Technology, 2015(3): 189.

**Author Affiliation:** Southern College of Sun Yat-sen University, Art Department

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

*Source: ChinaXiv — Machine translation. Verify with original.*