Media Asset Management in China – A case study at Beijing Television Station.

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Table of Contents

Abstract

Under the impact of quickly changing social structure and emergence of new technology, the old way of storing data tapes in the vault is no longer efficient in the eyes of most people. Instead, organizations have started sourcing different ways to manage their media assets that are more efficient and less expensive.

While literature and theories can fully explain the concept and process of Digital Media Asset Management (DMAM) from various perspectives, there are few case studies examining academic concepts from a practical perspective. In addition, as many of the concepts and theories are developed by Western companies, the management literature is already replete with cases of how Western companies manage their teams in implementing DMAM, yet there is a smattering of literature discussing DMAM from an Asian context. Thus, the study will first look at the structure of DMAM from a Chinese perspective, and then explore the role culture contributes in the implementation of new systems.

While this research is a case study, it adopted ethnography's principal for data collection. The researcher believed by adopting ethnography's principle for data collection, it would gear the research to be more relevant to research aims. Nine participants holding different job positions at Beijing Television Station (BTV) were selected to participate in an unstructured interview. During the interview, each participant talked about media asset management from the perspective of the job position they held at that time. This method enhanced the quality of the research as the problems and strategies that BTV had encountered is from various viewpoints. However, as employees directly involved in the planning of DMAM failed to participate in the research, it might place some limitations on the research simply

because the management team's opinions were not taken into account.

After analysing the results obtained from the participants, the researcher found that there were several motives for BTV to acquire DMAM, including; to ensure BTV has the copyright of the material created by its staff (e.g. director, editor); to decrease the cost of storage material; to increase efficiency in production workflow; and to enable BTV to re-purpose its media assets in order to maximize profit.

Since the implementation of DMAM at BTV, many staff have had difficulty using the new system. Their troubles include lack of training and technical support team personnel available for trouble shooting, lack of a consolidated format for its media assets, time-consuming systems impairing productivity, and high maintenance costs. Despite these problems ensuing from BTV's implementation of DMAM, they seemed to have resulted from such factors as lack of communication within BTV, Chinese national cultural characteristic, and BTV's organisational structure.

Finally, it is hoped that in this research could provide insights of the management of digital assets in a communist state-owned TV station. However, as the selected research participants took no part in the planning and implementation of DMAM at BTV, the researcher had difficulty comparing and contrasting the results from participants as they came from different teams of the media asset management. Therefore, it is suggested that further research can be done on such field if the views from those team who were directly involved in the implementation of DMAM at BTV can be secured, so that empirical and consistent views can be arrived at.

1.0 Introduction

Television programmes have become one of the important issues in media studies. The television field, since the 1970s, become the most prominent medium in international business expansion and spreading cultural impact. Increased trade in television programs is the hallmark of TV internationalisation (Negrine and Papathanassapoulos, 1991). Katz and Wedell (1977, p155) emphasize that "buying programmes abroad is one of the most important indicators of the character of a television system, as it is often related to the political environment, regulatory restrictions, and cultural/ideological considerations, as well as economic issues". The contemporary increase in the use of digital movies, photos, audio and text, and their distribution through networks both electronic and physical, will be examined in the context of a convergence of these media with a popular interest in personal and community history and identity. In many areas multimedia technology has made its way into mainstream.

Beijing Television Station (BTV) is China's leading television station. Therefore, in terms of size or influence, it represents the Chinese culture and industry. Since 2008, BTV has engaged in digital integration. The move to adopt digital asset management was looked upon as the first full-range digitalization of the media industry in China. As BTV is the biggest TV station in the capital of China, a brim of the central political aura, it is generally believed that BTV would represent the national culture of China. For this reason, aside from the technology aspect, BTV is a great case to study whatever the outcome is. This study aimed to explore the management of media assets within Beijing Television Station, to focus the case study on the implementation strategy BTV has undertook, and to examine and investigate how the role of Chinese national cultural characteristic contributes when

implementing its media asset management. Results were based on empirical findings on literature that, in the analysis, had proved to corroborate these findings, or on insights gained from these findings. The research design was grounded on an interpretative approach, and the data were gathered through the case study research method.

2.0 Literature Review

This section will provide a theoretical background understanding of Digital Media Asset Management (DMAM), particularly the benefits and structure of media asset systems, as well as how cultural characteristic might affect media asset management strategy within an organization.

2.1 Definition of Multimedia and Media Asset

Before entering into the details of media asset management, the researches thinks it is important and more fruitful to define the terms “multimedia” and “media asset” and to evaluate, in management terms, multiple types of content that are considered valuable by the television station.

Multimedia data by definition incorporates multiple types of content, including text, graphic, audio, and video and etc (Guturu, 2008). However, as it often happens, a strong focus is put on one view only, disregarding many other opportunities and exploitable modalities (Mayer, Neumayer and Rauber, 2008). In the similar vein, video for instance, incorporates visual, auditory, and text info in the case of subtitles or extra information about the current programme via TV text and other channels; audio data itself is not limited solely to sound. Put more precisely, the term “media

asset" refers to any form of multimedia content that includes imagery, audio and video.

2.2 Media Management

Media management is a term that different people understand differently dependent on the context (Austerberry, 2006). This partly stems from the word "media". The word even has several meanings within the concept of asset management. As the plural of medium, it can refer to the way something is communicated, as in the medium of sound or the medium of television. From this, we have "mass media" meaning newspapers, magazines, radio, and television. Thus, media management is about the physical medium that stores the content asset. In the case of video, this means videotape, but it includes file, data tape, CD-ROMs and the DVD. Media management underlies digital-asset management in much the same way as the database management system is used to store persistent data for the control of the content (Austerberry, 2006).

Moreover, media management is not limited to digital assets. Much of the media may be from analogue archives such as movie file, photographs, or paper documents. Due to the nature of this research, the main focus is on the development of media management in television broadcasting. Although many industry sectors have media to manage, the broadcaster has special issues relating to very large file sizes. A movie-length file of uncompressed standard-definition video is around 150 GB which is over 30 standard DVDs. The broadcasters have stuck with 35-mm film and videotape except in certain limited areas. Only recently has the trend of digital cinematography emerged. Television has used conventional computer disk storage in post-production and in the publishing area - master control and transmission. That is now changing, as the use of video files is pervading the entire content chain.

Broadcasters had long ago developed workflows to manage the scheduling and

transmission of programmes and commercials. They made extensive use of software to manage traffic and sales processes relating to television commercials. Meanwhile, video-recording technology evolved from open reel tapes to videocassettes; then the broadcast video server emerged. The tape medium required frequent operator intervention and regular maintenance. The operation of master control leaned heavily on printed lists of tapes and play-out schedules. If the video server and the traffic software could be integrated, there was the possibility of automating the station. The solution is media asset management (Austerberry, 2006).

Until the 1990s, the television broadcaster considered asset management to be a well-run library. The introduction of video servers in mainstream production demanded completely new systems to manage their programme content and workflows. Rather than the physical videocassette, the broadcaster now had to deal with the more ephemeral computer file.

2.3 Media Workflow

By the end of the 20th century, the television workflow comprised of a number of digital islands linked by the medium of videotape. The two main islands were post-production and transmission (Austerberry, 2006). To pass programme material from one stage to another, it was transferred as a tape cassette or as a live video stream, often by a satellite link or fibre circuit (Figure 1)

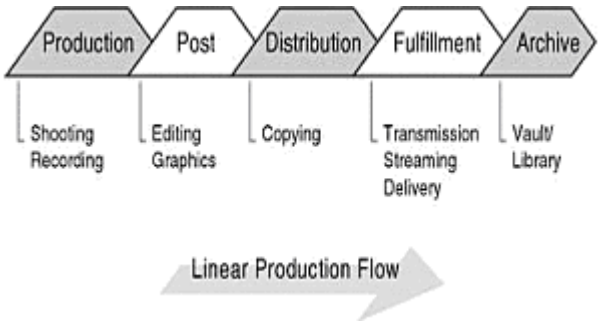

Figure 1: Production flow (Austerberry, 2006)

Material was often shot on film, particularly prime-time programming and

commercials. Using a telecine machine, data were transferred to videotape for downstream distribution. In post-production the materials were transferred to a disk array and cut on a nonlinear editor. The resulting file was conventionally recorded back to videotape, as a real-time transfer, and placed in the tape library or vault. Once a programme was ready for transmission, a copy was dubbed and dispatched to the television station. After transmission, the tapes were sent to archive for long-term storage.

As Mauthe and Thomas (2004) observe, the content creation and distribution processes in the broadcast industry are changing. This is the result of the introduction of new output channels, new digital production methods, and a general demand for an increasing amount of quality content that has to be created faster than ever before. Rather, current technological developments enable more integrated workflow than previously possible (Mauthe and Thomas, 2004).

The DMAM process typically starts with the planning of a programme combined with transmission schedule and production planning. At this stage some initial Meta-data is already created. This set of Meta-data will continuously be enriched during the course of the actual programme production process and remains associated with a content object throughout its lifetime (Mauthe and Thomas, 2004).

Subsequently, material acquired from electronic news gathering teams, external feeds, and in-house productions are integrated into the system and associated with new or already existing content objects. During the integration process, an initial annotation of the content is conventionally generated. This can either be done manually by so-called feed assistants or automatically with the help of specific extraction, indexing, and annotation tools. This information supports basic querying and allows content search and retrieval even while data ingest is still on-going. Hence, a selection of suitable, most up-to-date material parallel to its recording is possible (Mauthe and Thomas, 2004).

The editor accesses the Content Management System (CMS) primarily by querying for Meta-data. The required information is searched using full text or structured search and query operations. The search produces a results list, which can contain newly integrated material as well as existing content from the archive (Mauthe and Thomas, 2004; Austerberry, 2006).

The cataloguing department is responsible for the complete and detailed description of content selected for long-term archiving. Cataloguers create or augment the formal and context-related content description and refine existing Meta-data if required. It is also within their responsibility to verify the quality of annotations extracted by automatic tools.

The Rights and Licence Department adds specific Meta-data concerning the copyright and Intellectual Property Rights (IPR) status of the content. At present the complexity of legal issues related to content makes the autonomous administration of assets within an asset management system difficult. A more pragmatic approach for deriving the IPR status of content is to optimize the information exchange between the CMS and the Rights Department to identify the rights holders and clarify the legal status.

In post-production the created content is conformed into a programme ready for transmission. This results in a new version of a content item being reintroduced into the CMS. The conformed programme material can later be reused as an entire programme or as selected sequences for new productions. Meta-data created at this stage should also be transferred to the CMS.

Further, information that should be maintained in a CMS is the information gathered during the transmission (e.g. as-run logs). Other entities such as those responsible for programmes exchanged and marketing of programme products will also create

additional Meta-data that should be made available in a CMS (Mauthe and Thomas, 2004).

2.31 Sequential vs. Content-Centric Workflow Model

Traditionally the content creation process follows a push model which starts with a plan and draft stage, where the original idea is developed and a project is set up. After approval, the details of the project are developed further and the accrual production process is planned. In each stage of production (capture and analysis) and post-production (synthesis, composition, and packaging), the content is processed before being passed on to the next step. This transfer between the work steps mostly happens on a physical carrier (e.g. tape). The next steps for archiving are concerned with the delivery of the content. Again, the main medium for transferring between the steps is on a physical carrier. This also implies that the content that finally arrives for archiving mainly consists of the actual essence and very few Meta-data elements. Within the archive the material is documented using the available Meta-data and the information that can be retrieved by examining the content. Finally the content is put into storage (Austerberry, 2006).

The drawback of this approach is that it is an entirely sequential workflow with no possibilities to access the content or information about the production process outside a specific work step. Further, since the different workflow steps are traditionally carried out using isolated systems for each step, and since these systems are not designed to share Meta-data, a lot of Meta-data about the creation process is lost during the process. As a consequence, when the content object is finally archived this Meta-data needs to be manually recovered and re-keyed into a database (Austerberry, 2006).

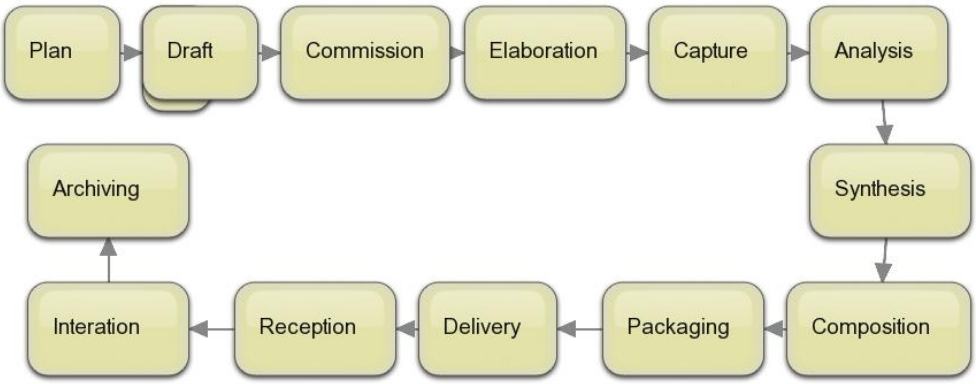

Figure 2: Media workflow (Austerberry, 2006)

2.4 Asset Management

According to Wager (2005), multimedia asset management over the years has been examined at many different levels and loosely described by individuals and businesses as how to manage information in a digital age. From plain asset management to media asset management, from digital asset management to content management, all of these systems attempt to describe the same things. However, each of these reflects a different aspect of managing multimedia asset and it is important for an organization to understand the differences to in order to take the most suitable approach for its organization. Following in the gist of the well-known differences:

Firstly, media asset management (MAM) focuses on media types (audio, video, imagery) either digital or non-digital (e.g. tape). It is considered to be a tactic for an organization and it is a sub-category of Digital Asset Management. As to Austerberry (2004) observed, the advent of the video server created the need for MAM. When video was stored on tape, the tape cassettes could be managed by library software similar to that used for documents or books. Bar codes can be used to check-in and check-out the documents to individual users. Once the server was adopted for production and transmission, the media asset became a file. It could not be managed in the same way as a physical asset. A programme will exist as a master

tape, a security copy, and working copies. These copies may exist in several tape formats such as digital betacam or VHS. The video server originally had a limited storage capacity, so content was usually rotated with only the recently used material stored online. MAM systems incorporate hierarchical storage management to control the purging of unwanted material and the restoration of wanted material from offline storage (usually tape or optical storage). The offline storage may well be on data tapes, rather than videotape.

The term "Digital Asset Management is a business strategy to increase revenue while reducing workflow and process cycle time (Austerberry, 2006). Digital Asset Management (DAM) focuses on the electronic management of any form of a digitally stored piece of information. Both digital and media asset management primarily involve long-term stored content that is used for archiving, preservation and most notably reuse.

Content management (CM), on the other hand, makes the most of stored digital or media asset elements, retrieved and used for a specific time period. With a supportive infrastructure, such as financial and human resource support, the organization is able to successfully link its media assets and ultimately increase the effectiveness of communication within the organization. To sum up, digital asset management as a business strategy is formed by three components, specifically media asset management, content management and supportive infrastructure. These three components form a strategic cycle as shown in Figure 3.

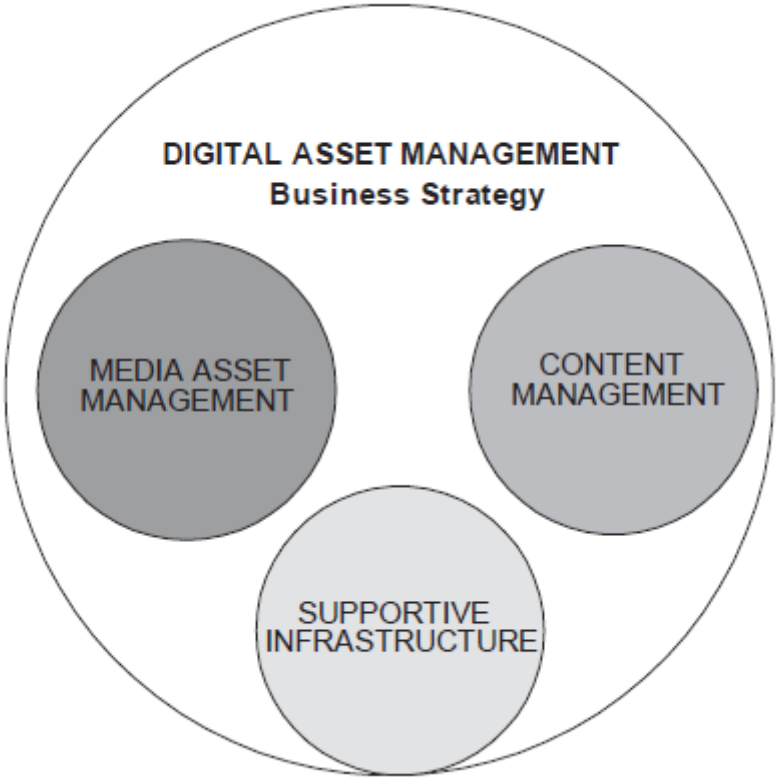

Figure 3: Components of DAM (Austerberry, 2006)

2.5 Benefits of Digital Asset Management

As to Austerberry (2004) has correctly put it, document management has already proved its worth in the traditional print industries. Even the best-designed filing scheme has limitations. This is particularly evident when material is shared across a large enterprise in many formats. The optimum scheme for one user may not be suitable for another. Support of multiple file formats on different platforms would further complicate the scheme (e.g. the file may be dedicated on servers, videotape and CD-ROM). In addition, the user may not know a file name, and it is difficult for the user to retrieve a file without going through the catalogue. However, there are a few benefits of a digital asset management system:

2.5.1 Digital Library

Audio and video content has traditionally been stored on tape. Tape cassettes are treated much like books, stored on library shelves and loaned out. While it may be adequate for a linear production process, it still makes difficult for sharing during the production process. As there can only be one master copy, staffs are required to pass around the master copy like a baton in a race for viewing, editing, and re-purposing only view duplicates of the master. Promisingly, digital asset management can offer parallel processes, allowing several people on the team to work together on the master as long as the users manage with careful role-based permissions, such as file locking or version control of the editing process (Austerberry, 2004; Wager, 2005; Austerberry, 2006).

In short, media management allows removable storage media, both analogue and digital, to be integrated to a digital asset management solution. Media management moves, converts, and stores, whether it's a programme in post-production being moved from the edit bay to the vault, or a finished programme being delivered from the production company to the television station. Media management can also provide new facilities for still images. Images can be dynamically converted from one format to another, without user intervention. This obstructs users from seeing the image formats, so they can concentrate on the content.

2.5.2 Information Retrieval

The biggest strength for a digital management system is the information retrieval ability. Information retrieval is described as the process through which a prospective user of information can convert a request for information into a useful collection of references. As the result, the user may be able to simply enter into the system to "find an image of a man with white jacket" and the system would also be able to

retrieve a list of references in which the files contain the required image. In short, the system is able to ease the information retrieval process by allowing users to use an interactive inquiry system to retrieve multimedia information. The user can interact with the retrieval results and browse data through search results (Scherp, Inoue, Sandhaus, Nack, Girgensohn, Thieme, Nahrstedt, Henrich, Zhou, 2008; Smeulders, Santini, Gupta and Jain, 2000; Hearst, 2006).

As Moores (1951, P25) states "information retrieval embraces the intellectual aspects of the description of information and its specification for search, and also whatever systems, techniques, or machines that are employed to carry out the operation." While Moores was referring to textual document retrieval, his description captures the function of an information retrieval system – namely, to help a user specify an expressive query to locate relevant information. In the research, this notion is also extended to non-textual information source.

Although the query statement arouses similar mental images in most people, a textual specification that always identifies retrieves the right video clip is not easy to formulate. The difficulty arises partly because it is impossible to guarantee the video annotator and the user issuing an ad hoc query to use similar language in describing a clip. Secondly, the information sought is inherently in the form of imagery that a textual language, however powerful, is unable to express adequately, making query processing inefficient (Gupta and Jain, 1997).

2.5.3 Rich Media & Re-purposing Assets

According to David Austerberry (2004), the 20th century saw rapidly accelerating change in the electronic media. First came radio, acquired pictures, and then television. In the last quarter of the century, video became accepted as one of the primary vehicles for corporate communication. In the final decade with the adoption

of hypertext markup (HTML), the web evolved from a means of document exchange for the scientific community into a universally adopted medium. Television now has a back-channel giving interactivity. Combine all these facets and we have rich media - a synchronized presentation of text, graphics, audio and video.

Rich media is now being used by a wider community for corporate communications, marketing and training. The one-time linear flow traditionally used in content creation has not proved cost-effective for a wider application of rich media across a corporation. To leverage the cost of producing content, it can be re-used. This process is called re-purposing. This is not necessarily in the original form, but re-edited with other content and new material. For example, sales departments are finding numerous applications for more compelling presentations (Austerberry, 2004; Wager, 2005; Austerberry, 2006).

Moreover, rather than consigning media content to the trash or filing it into the archive, re-purposing leverages the value of a media asset by re-using it in a fresh production. In many organizations, the departmental structures and systems negate content sharing, even if they have the desire to re-use material. They often end up being quicker and easier to re-create new material rather than finding existing material that would meet their requirements. To successfully re-purpose material, the potential user has to be able to search the media library, identify that the content is the correct material, and then request delivery in the appropriate format (Austerberry, 2004; Wager, 2005; Austerberry, 2006).

2.5.4 Digital TV

Currently one of the major issues broadcasters are facing is that the public view content through many channels, not just over-the-air. They can watch video-on-demand, from a telco, download clips to watch on a portable media player,

watch a DVD, or view on a 3G phone. Broadcasters are expected to have a Web presence and to multicast themed channels. Even conventional television, no matter it is terrestrial; cable or satellite, often offers hundreds of channels. As a result, broadcasters are obliged to re-purpose their assets for different delivery channels, which mean creating more for less money. Thus asset management can provide a solution supporting more efficient workflows and processes (Austerberry, 2006).

2.5.5 Indexing

A catalogue of media assets uses database to store information or Meta-data about the media. Meta-data can be user information or control information employed by the asset management system. Meta-data is used to generate an index to make the catalogue searchable. The index is one of the key features of asset management. Without an index, media can only be found by file name.

The search engine uses an index to locate files. The index is generated automatically during the ingest or capture processes. It can later be edited manually, to correct errors or to add attributes that may be difficult to generate automatically. A basic search on a personal computer may be limited to file names. To improve the ability to search a catalogue an associated index has to be attached. The index can be generated in many ways, but typically keywords are extracted from the content which may include the transcript of a soundtrack (Austerberry, 2006).

Keywords would be entered by the author, generated automatically from the content, or by an archivist. An image asset may need emotional characteristics to aid searching “happy” or “sad” and these have to be entered manually. Video and image can also be searched by attributes. The image analysis engine can index content by colour, shape, texture, brightness structure, and colour structure. Audio can also be analysed. Speech-to-text conversion can automatically create a transcript of a

soundtrack.

In short, although some may see digital asset management as a fancy archive for old content, it is much more than that. Digital asset management is indeed, a productivity tool that can not only bring just-in-time processes to content retrieval but free knowledge workers to concentrate on content creation, editing and re-purposing (Austerberry, 2006).

2.6 The Case for Digital Asset Management

The case for digital asset management, like most business decisions, hinges around return on investment. For document management, the primary gains from asset management are huge: the time to search for content could be dramatically reduced, the precision and recall of the search could be improved and the preparation time of the content for distribution could be reduced. These three factors conspire to boost cost savings and efficiencies (Austerberry, 2006).

By contrast, it is a more tricky case for broadcasters. In principle, the broadcaster using videotape did not need asset management until they move to file-based production and distribution of media data. This means that some form of digital asset management is now virtually essential.

Before making the case for digital asset management, it is important for the decision- maker to assess the degree to which the organization would re-use its media assets. In effect, an asset management system can range from a single-user installation for the filing of a single project with a cost of $50, through to a multimillion-dollar installation for hundreds or even thousands of users (Austerberry, 2004). However, in selecting the system, the type of asset will make a big difference, as will the number of assets. The assets come in many formats such as structured

data, unstructured text files, photographic images and illustrations, or multimedia files, audio, video and animation. As the number of assets increase, so does the complexity of management. A large asset repository requires tools that would represent a complete overkill for a small library. Although a big library may have economies of scale, it will need more complex management applications to take full advantage of digital asset management. Therefore, the relationship between the size of the library and the cost is not necessarily linear.

Asset management is often equated with the digitalization of analog archives, paper, film, and videotape. The advantages of putting assets in a digital format are multi-fold: they can be easily managed, and this management can leverage the availability of affordable information technology. In the past, especially with video asset, special hardware was required to provide functionality that is now expected from asset management.

Digital asset management, in practice, has a very wide coverage ranging from documents to video, through a gradual migration to new systems. Their acceptance has varied between industry sectors. Until the late 1990s, the cost of hosting assets wholly in the digital domain had been prohibitive. Although most sectors have come to realize the merits of asset management, it is still bogged down in obtaining a return on investment. A fully featured digital asset management system for an audiovisual library requires massive amounts of storage and such storage silos were once only found in the systems used by government agencies with strong financial support. Worse still, the system also requires powerful processing hardware to handle video in real time and to provide platforms for artificial intelligence used to catalogue, index, and search the content. Therefore, although the system vendors have known how to manage digital assets for 10 years, even now cost still constitutes a major barrier to adopting a digital management system. With storage and processing power becoming more inexpensive and affordable, it has reached a position where low-cost, high-performance computer products can deliver a return

on the investment in digital asset management in a reasonably short period of time.

While making the decision to employ a digital asset management system, the organization needs to take into account whether the system would be able to meet its specific needs. For example, for a generic business, the digital assets are not a primary product for the business, whereas it is the primary product for the broadcaster. Many businesses, while investigating the implications of purchasing asset management as part of their strategic planning, often raise two questions: "is the investment a must?" and "what will be the return?" (Austerberry, 2004). With a ready pool of software talent to call on, instead of purchasing the commercial system, some organizations have found alternative solutions and built their own systems. For example, in the case of Disney producing animation features, the firm badly needed a system to manage millions of cells that make up a feature-length animation. Furthermore, its artists scattering at three sites across the globe called for close collaboration between the three groups in production workflows. At that time, there were no commercial products that could meet their requirements, so they had no option but to design and build their own system.

In building an in-house solution, organizations need to be aware of the following downside: the labour costs for developing the system are often hidden as existing staff write the code in their spare time and thus the product may be poorly documented; in case the system architect leaves the company, it may prove difficult or even impossible to maintain the system.

In short, many businesses move material into an archive immediately after the first use. Their historical archive is often solely a cost overhead with three elements: storage, and media maintenance, and content movement. The content is stored at some expense in a secure and climate-controlled environment. As media ages, there may be additional costs.

2.7 History of Chinese Media Industry

The development of the media into the most political and commercial importance of all modern industries might provide a unique insight into the reality of "socialism with Chinese characteristics" as well as the challenges China is facing as it emerges as a major global economic and cultural power. In no other sectors are the powerful forces of politics and commerce so graphically and publicly meshed together and presented to the people as a single product as the media.

Donald, Keane and Hong (2002) have succinctly pointed out that since the founding of the People's Republic of China in 1949, the Chinese media have undergone a perpetual state of change. The industry has always been required to act quickly and sensitively to even the slightest fluctuations in political direction, while hewing to the central party line. Since 1978, it has obsessed with an additional challenge of adapting to new economic and technical imperatives, albeit not yet directly from foreign competition. The Chinese media are still undergoing fundamental changes and are likely to continue to do so for decades to come.

Democratization was the key issue in the struggle for media reform in 1989. By 1992, however, commercialization had become the order of the day. Market forces began to rapidly penetrate every aspect of news media operations in China. Despite the breath-taking speed of commercialization, journalism in China remains static in many respects. The Chinese Communist party still insist that the media are its mouthpiece and therefore continue to exercise blunt forms of media censorship. For example, when copies of the U.S. news magazine, Newsweek, were sold in China in mid-1996, their pages containing stories about China were reportedly ripped out. In addition, there was a total news blackout on the health of Deng until his death.

On the other hand, over the years China’s television industry programming has developed by leaps and bounds. Today, China’s television channels can be classified

into four categories - national channels, satellite provincial channels, provincial channels and city channels. In 2006, its television industry reached a new milestone with the development of its own digital TV standard. As a replacement to the analog system, China's terrestrial digital TV standard was coded GB 20600-2006 in August and became a mandatory standard for Chinese broadcasters in August 2007.

As the digital TV industry spreads across the country, network operators, equipment providers, content providers and digital TV users are increasingly becoming key players in this growing industry. Digitalization of cable TV in China underwent rapid stages of development. By the end of 2006, there were about 10 million digital TV users across the country – an increase of 218.0% from the previous year. Revenue from subscription digital TV increased by 60.0% from the previous year, reaching RMB 523.0 million in 2006. Meanwhile, Internet Protocol TV (IPTV) is still in its early stages of development in China, with four operators owning IPTV licenses. They are Shanghai Media Group (SMG), China Central Television International (CCTV), China Radio International (CRI) and Nanfang Broadcast Media (NBM). Despite forecasts of strong growth within the TV sector, there was a slowdown in the IPTV industry due to lack of a sound business model. By the end of 2007, there were approximately 900,000 subscribers, short of the predicted 1.3 million.

Nevertheless, to stay competitive in the face of IPTV's increasing popularity, cable TV network companies in China began to push for further development in providing digital TV services while cable TV operators embarked on bi-directional network reconstruction to live up to digital TV services. Within the television broadcasting industry, China has continued to develop rapidly, evidenced by the claimed of 13.7% in television advertisement revenue (which amounted to RMB 40.4 billion).

2.7.1 Major Players

The flagship domestic TV station, China Central Television (CCTV), is a leading premier broadcasting station in China with more than 400 TV programs. There are signs that it is keen to extend worldwide, now offering TV services in 120 countries and regions. CCTV is the only TV station in China with a nationwide outreach. In 2007, it achieved its highest advertising income in history by exceeding the RMB 10.0 billion mark, clawing an advertising income of RMB 14.1 billion (an increase of 24% from the previous year). In 2006, it registered the highest viewer rate across the country, reaching 95.7%. The following table illustrates the leading position of CCTV in China, with many of its channels receiving the highest viewer rates among the channels available within the country.

China's Top 10 Channels with highest viewer rates in 2006

Rank	Channel	Ratings (%)
1	CCTV-1 Mixture	95.7
2	CCTV-2 Economy	84.3
3	CCTV-5 Sports	82.5
4	CCTV-6 Movies and Series	82.4
5	CCTV-3 Arts	81.8
6	CCTV-8 TV Drama	81.6
7	CCTV-4 International, Chinese	80.2
8	CCTV-7 Military/ Agricultural	79.4
9	CCTV News (24 Hours)	76.5
10	Shandong TV Satellite Channel	74.2

Source: China TV Rating Yearbook 2007

Table: 1 China's top 10 Channels with highest viewer rates in 2006

2.7.2 The Impact Chinese Cultural Characteristics on Media Asset Management

As Hofstede (2005) analysed, Chinese cultural attitudes are characterized by high-power distance, collectivism, masculinity and high-uncertainty avoidance. These cultural values are interesting topics for multinational corporations that are keen to gain a better understanding of the rules and procedures under which a Chinese firm operates. Prior to a discussion of each attitude individually, it is now

appropriate and essential to understand one of the most important concepts of Chinese culture “guanxi”, as it relates to all aspects of its culture values.

According to Lee, Pae and Wong (2001), “guanxi” is the granting of preferential treatment to business partners in exchange for favours and obligations. It requires reciprocity and an obligation to return a favour. If the obligation is not fulfilled within a short period of time, social harmony between managers may be disturbed as the non- reciprocity will cause a loss of face (Lee et al 2001). As Wong, Tjosvold and Yu (2005) state, guanxi networks are considered to be essential for doing business in China. Business in China cannot be conducted while keeping guanxi at bay as personal contacts play an essential role in the Chinese way of doing business. In China many foreign firms have learned that guanxi means developing good relationships with local government officials that include lots of personal contact, gift exchanges and to never doing anything that would cause the Chinese to lose face. As a result, while it is seen as an essential factor for Chinese people, it can also be seen as a slow and often frustrating process from a Westerner’s perspective.

2.7.3 Power Distance

The national culture that is particularly relevant to China is power distance, which is an expectation that power is distributed un-equally (Hofstede, 1984). High levels of power distance are evidence in China’s pervasive centralized authority and hierarchical structures. The Chinese people expect that power is unequally distributed and naturally defer to those they perceive to be their superiors, whom they expect to be benevolent and treat all people fairly, providing them with stability, close supervision and explicit rules (Pun, 2001). It often happens that in nations characterised by high power distance like China, organisational structures generally work best if they are formal and hierarchical. Those in subordinate positions expect the more powerful-high-ranking individuals to take responsibility

for decision making (Very et al, 1997). In addition, according to Zhao, Flynn and Roth (2006), power distance is consistent with the focus on guanxi relationships with upper-level authorities particularly in state-owned enterprises and the strong hierarchical ordering that makes empowerment challenging.

2.7.4 Collectivism

At the heart of guanxi is the cultural value of collectivism. As Hofstede (1984) states, Chinese national culture is highly collective and characterized by a preference for a tight knit social network, an expectation that in-group members will support each other and a strong urge to maintain social harmony and interdependence within the in-group. Collectivism refers to the degree to which the society emphasizes the role of the individual versus the role of the group. Nations with high collectivism are likely to show an emotional attachment to organizations and to emphasize on "we are greater as a group".

2.7.5 Masculinity

Hofstede (2005, p120) has theorized, "a society is called masculine when emotional gender roles are clearly distinct. Men are supposed to be assertive, tough, and focused on material success, whereas women are supposed to be more modest, tender, and concerned with the quality of life". In a masculine society, boys are socialized towards assertiveness, ambition and competition, and they are expected to aspire to career advances, while girls are polarized between those who want a career and the majority who don't. The resolution of conflicts in this culture society is "letting the best men win". Organizations in masculine society stress the result and reward on the basis of equity - rewarding everyone on the basis of performance accordingly. In addition, as the work ethos for the society is "live to work", more money is often preferable to more leisure time.

2.7.6 High-Uncertainty Avoidance

Hofstede (2005) defines uncertainty avoidance as the extent to which the members of a culture feel threatened by ambiguous or unknown situations. This feeling is expressed through nervous stress and a need for predictability, a need for written and unwritten rules. Uncertainty avoidance is different from risk avoidance, as risk is often expressed as a percentage of probability that a particular event may happen, whereas uncertainty has no probability attached to it. Consequently, in this situation it is expected that anything can occur.

In a high-uncertainty avoidance society, the level of stress is considered to be high as people believe that "the uncertainty inherent in life is a continuous threat that must be fought". Furthermore, as the emotional need for rules in a high-uncertainty avoidance culture is strong, people have been programmed since their early childhood to feel comfortable in a structured environment. As a result, people in this society are inured to more formal laws and informal rules controlling the rights and duties of employers and employees as well as more internal regulations controlling work processes. However, this can lead to rule-oriented behaviours that are purely ritual, inconsistent or even dysfunctional and therefore problems can arise even if people may not realize ineffective rules can also satisfy people's emotional needs in this society. Moreover, there is a strong belief in expertise on the work floor and specialists. Furthermore, with a strong need for rules, organizations are often unlikely to reward "intrapreneurs" who dare to break rules. Thus people in high-uncertainty avoidance culture can be less creative and innovative by companion to low-uncertainty culture.

2.8 Issues to be Explored

The various concepts analysed above might contribute to academic research on the benefits of digital media asset management in Chinese media industry. While this literature and associated theories could fully explain the concept and process of digital media asset management from various perspectives, there are few case studies examining the academic concepts from a practical perspective. As many of these concepts and theories are developed by western companies, the management literature is already replete with cases of how Western companies manage their teams in implementing DMAM, yet only a smattering of literature has discussed DMAM from an Asian context. Thus, the study will first look at the structure of the DMAM from a Chinese perspective, and then explore the how Chinese national cultural characteristic contribute to an organisation's DMAM implementation.

2.9 Company Background

Beijing TV Station was established in May 16, 1979. In June 2001 the former Beijing Television merged Beijing Cable Television Station into an influential and competitive, mainstream media. It comprises 14 channels, including 10 standard-definition channels, a high-definition channel, two digital pay-channels and one international channel. At present, Beijing TV actually covers 36 provincial cities, municipalities and separately listed cities that is more than 80% of the prefecture-level cities and more than 70% of the county-level cities, with coverage exceeding eight million viewers. It has a number of channels, programming and technical capabilities with a business income unrivalled by all the provincial level TV stations.

Beijing TV Station is located in the capital of China, Beijing, and an international metropolis with a profound cultural heritage. This is its unique advantage. In recent

years, faced with fierce competition, it has redouble its efforts to rationalize allocation of resources, optimize channel structure, enrich content, expand its multi-profit model, and constantly enhance its capability and market competitiveness in order to achieve a comprehensive, coordinated and sustainable development. As a result, its enormous capacity to produce content gives it a core competitive advantage in the media industry. BTV has won international and domestic press, radio and television awards.

In April 1, 2009, Beijing TV moved its core business literature and art channel, science and education channel, TV drama channel, a sports channel, juvenile channel, high-definition channel into Chaoyang District, CBD - No. 98 Jianguo Road, its official new site. The new site has made it possible for Beijing TV Station to host six standard-definition channels, a high-definition channel. At present, the other four channels - business channel, animation channel, live channel and public television are still broadcast from the Suzhou Street work area.

For the past six years Beijing TV Station has been building a new site covering an area of about 36.1 thousand square meters, including engineering and construction area of 197.9 thousand square meters. Installed are ultra-high pure steel, open-ended news studio, multi-purpose studio theatre, stage machinery with four bright spots, 15 sets of self production and broadcasting high-definition TV shows and HDTV capabilities. Programs are compiled into a web-based broadcast whose entire technical processes of implementing, the course of collecting, editing, broadcasting, storage and management should be characterized, with digitalization as its core, by achieving digitalized signal acquisition, web-based programming, disc-based broadcast, digitalized storage, and intellectualized management. At present the size of Beijing TV, features, and technology-intensive are ranked the forefront among provincial-level TV stations. Its new station site put in use has greatly improved its working conditions and environment, thereby giving grounds for cautions hope for its rapid healthy development.

With new environment, a new start and new opportunity, Beijing TV is set, under the guidance of latest concept of development, to build up the global impact of its strong high-grade platform.

2.10 Research Methodology

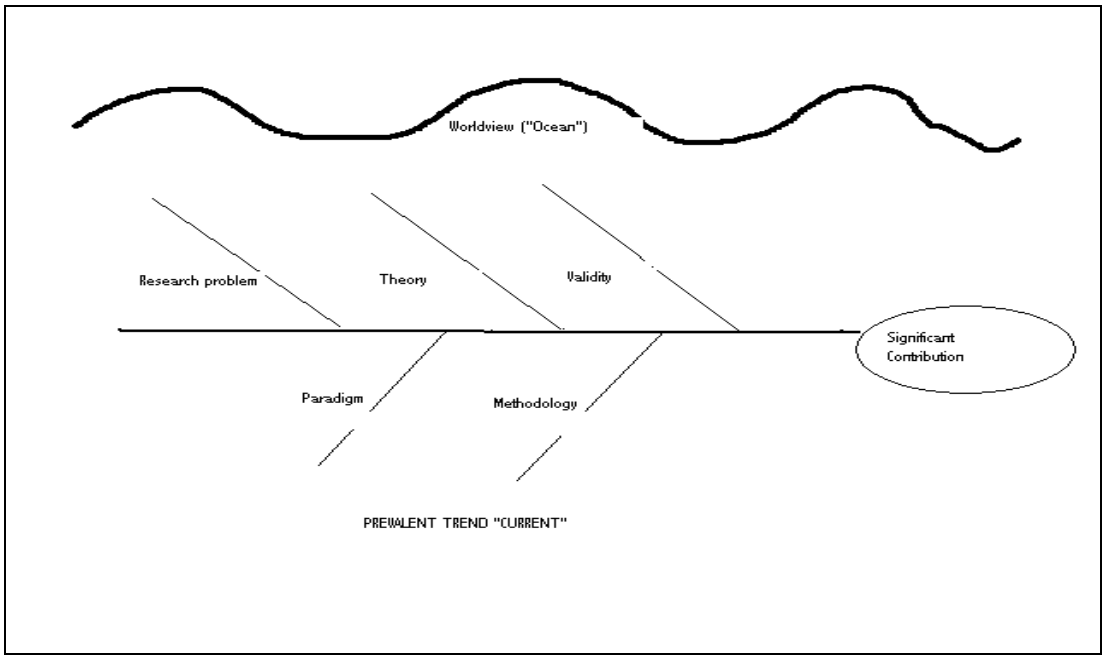

Figure 4: The Research Fish **(Searcy & Mentzer, 2003)**

3.0 Methodology

In structuring the framework of the research paper , an analogy of the Research Fish was applied (Searcy & Mentzer, 2003). As shown in *Figure 4*, the Research Fish swims in the "ocean" through the "current" leading to a significant contribution, to the literature. The fish body comprises research problems, research paradigm, theory, methodology and validity.

An investigation into literature review shows that research problems have thoroughly been discussed. Our research methodology section will dwell on the "ocean" in which the fish swims together with paradigm, methodology and theory. The discussion section will cover the "current" in the ocean and the validity of the research.

The Research Fish analogy (Searcy & Mentzer, 2003) sees the "ocean" where the fish swims as the worldview. Searcy & Mentzer (2003) have argued that the ocean is a blend of three factors, namely ontology, epistemology and paradigms.

The ontology in this research looked at two different views of managing media assets efficiently. But this research was mainly focused on the interpretive (subjective) view of managing media asset by looking at the feelings and experiences of BTV staff managing their media data. The epistemology has adopt an interpretive approach of looked at research problems in terms of differentials, that is, different researchers in defining what constitutes as the most important factor that could help an organisation successfully manage its media assets, with the perceptions from different people. With regards to the research paradigm, an interpretive dimension was considered as the research was relatively focus on people's perceptions towards the new DMAM at BTV.

The methodology (the body of the research fish) can be broken down into four parts: mode, strategy, domain and technique (Searcy & Mentzer, 2003). The inductive mode was adopted in this research when the researcher defined the research problems for exploration. An archival research strategy was undertaken where previously recorded research in journals was examined. With regard to the domain and technique, this research adopted case study as its research strategy that would be judged to the individual domain.

3.1 Method

While there has been a lot of research in the media literature using case study as their research method, few have adopted ethnography as their research method. Ethnography as a method seeks to answer central anthropological questions concerning the ways of life among human beings. It sees what people are doing as well as what and how they say they are doing. Ethnographic questions generally concern the link between culture and behaviour and/or how cultural processes have developed over time. The data base for ethnographies is usually an extensive description of the details of social life or cultural phenomena in a small number of cases. In other words, Ethnographic research, albeit being complex, is one of the most in-depth research methods possible (Myers, 1999).

There are several advantages for adopting ethnography as a research method. Firstly, this method enables the study of phenomenon in the context of no controls, without interfering with the phenomenon of changes in the process. Secondly, the results of this project, no matter the outcome, might mark the beginning of an era. Last but not least, the ethnography method is suitable for individual researchers, with no help from a team.

Currently Beijing Television Station is undergoing the process of digital integration, a project designed to be the first to achieve a full-fledged digitalization in the media industry of China. As BTV is one of the biggest TV stations in China, this study aimed to explore its media asset management. Therefore by adopting ethnography's principal for data collection for this case study, it is hoped, would allow research targeted more specifically relevant to the research aim.

As Myers (1999) stated, ethnographic research is well suited to providing research on information systems with plentiful insights into the human, social, and organizational aspects of information systems. For the purpose of this research, an

unstructured interview was conducted which could enable the researcher to gain more insights into the system in terms of how it was actually implemented, to glean the necessary questions, to clarify doubts, and to ensure that responses were properly understood, by repeating or rephrasing the questions. In addition, the researcher was also being able to pick up nonverbal cues from the respondents. Any discomfort, stress or problems that the respondents experienced could be detected through frowns, nervous tapping, and other body language unconsciously exhibited by him/her. With the unstructured interview, it was assumed that the results obtaining from each participant might be varied as each of them could see things from a different perspective. All this would allow the researcher to view the digitalization technologies in Beijing TV station from a wider perspective, thus allowing a comparison of the results from this case study those of against others in the literature.

However, the ethnographic method also posed some limitations to the research. Firstly, one of drawbacks for face-to-face interviews is that respondents may feel uneasy about the anonymity of their responses when they interact face-to-face with the interviewer. Secondly, interviewees can bias the data when they do not come out with their true opinion but provide information that they think the interviewer expects of them or would like to hear. Thirdly, the level of trust and rapport that interviewer has established with interviewees may also cause bias, thus eliciting answers of varying degrees of openness. Fourthly, the unstructured interview is largely dependent on the openness of the participants, in case participants are less open to conversation, it would pose significant effects on the result (Sekaran, 2003). Finally, as Douglas (1976) pointed out, people hide important facts about themselves in everyday life. People are prone to exaggerate their successes and deny or downplay their failures. The main purpose of this activity is to gain a deep understanding of how the system works and how satisfied the users are with the current system.

Our interview participants included, a programme director, a programmer, a coordinator of the media asset management system, one staff and one manager from the international department, one manager from editorial department, a program technical support manager, a network administrator and a media asset management system administrator. Selecting a wide range of participants enabled the researcher to gain a better distribution of opinions. Following the selection process, each participant was sent an invitation to join the study and an information sheet. In addition, the researcher visited the participants on site to answer any queries about the study.

Due to the nationality of the target interviewees, instead of English, Chinese protocol was adopted in order to create a more familiar environment for the participants and avoid any misunderstanding due to language limitations. Moreover, as the researcher is the same nationality as the participants, any cultural sensitivity issues would be easily avoided.

The length of time each interview took varied from 60-75 minutes. During the interview, a tape recorder was used to allow the researcher to clarify, recall and transfer the conversation to a transcript which was then sent back to the participants for review to confirm the wording as well as meanings. It was estimated that each participants would need around 30 minutes to check the transcript. When participants were reviewing the transcripts, any doubts or misunderstandings of their meaning were corrected immediately and the transcripts were resent to the participant for reconfirmation. As the data were gathered in Chinese, the data analysis was done in Chinese first and then the results were translated into English.

This research method has put data collection and analysis in a wider social and cultural context. In addition, it also allowed the researcher to compare and contrast the consistency between each set of data, thus establishing convergent validity and a sense of reliability of the data.

3.2 Ethical Consideration

Although this research was viewed as low risk, appropriate ethical application process was still considered to be important. It is expected that the identity of the participants should not be identified in the report in any way. In addition, participant sheets had been provided and given to participants before the interview.

Prior to the interview, the participants were informed that the interview would be recorded via a tape recorder. Furthermore, the recording and transcripts would be stored safely and their names and identities would not be disclosed in the report. The researcher also informed the participants that they were welcome to consult with the researcher or the supervisor if they had any confidentiality concerns.

3.3 Data Analysis

During the data analysis stage, the plan of how to conduct the analysis of data was drafted out. Myers (1999) states, as an ethnographer, with a huge amount of data collected, it is impossible to tell the whole story in one paper, and therefore, it is important to set out singular findings in one paper. The process started by making the data manageable. The approach followed the principles elaborated by Bryman and Burgess (1994) who cited a study done by Schatzman and Strauss (1973). According to Bryman and Burgess (1994), Schatzman and Strauss argued that data should be recorded in "distinct packages" of material according to whether they constitute "observational notes" or "theoretical notes". In this way, there would be a separate set of notes for each observation, each of which should serve a different purpose. Theoretical notes constitute an elementary stage of the analytic process through drawing theoretical interferences from the data in an on-going way, while observational notes record events experienced principally through watching and

listening (Bryman and Burgess, 1994).

The observational notes should contain as little interpretation as possible and be as reliable as the observer can construct them. By following the approach Schatzman and Strauss (1973) undertook, two sets of analytical categories, descriptive and conceptual, were devised for this study in order to help the researcher make sense of the data. The descriptive categories were very straightforward, and contained a list of the key substantive topics of interest. Since the topics related to the management of media assets within BTV, there were several themes which were set out according to the literature including: motives; problems anticipated prior to and after acquiring the media asset system; strategies for the problems anticipated; the media data management process and flow; the method BTV followed to index its media assets; the data retrieval methods adopted by BTV; benefits BTV expected from the new system; and the benefits BTV has recognized after the integration of the new system. These themes were developed in order to index the transcripts so that any topics were easily retrievable. However, as Burgess (1994) mentioned, deciding when someone is talking about a particular topic is often a matter of interpretation. As people in everyday discourse very rarely use the precise words with which the researchers have chosen to label their analytical categories, the researcher has to use his/her own judgment to identity which categories the statement belonged. As a result, when organizing the data into appropriate themes, it was assumed that some data might fall into more than one category (e.g. motives and benefits expected from the new system).

By contrast, the conceptual categories aimed to identify, from the qualitative data set, aspects of kin relationships relevant to the research question. As Burgess（1994） described，the conceptual categories were grounded in the theoretical perspectives which were bought to the study, in the sense that they were themes which would help marshal data enabling us to address those questions from a variety of angles. In other words, it was necessary to devise the topic in part through growing familiarity with

the data. Therefore, it is generally believed that conducting the exercise with the conceptual categories first would allow the researcher to be more familiar with the data set. Through developing the themes for conceptual categories, as well as indexing the data into appropriate themes, the researcher was able to create a new topic for the concept category. Since this research is mainly focused on the media asset management at BTV, in particular a state-owned television station， the researcher aimed to find out what was special about the way the Chinese TV station managed its media asset, and its differences from those of other countries in the literature. With this in mind, the researcher set the themes in the concept category as follows: how the Chinese culture affects the way BTV manage their media asset; the influence of Chinese government; copyright; and the benefits for BTV.

In summary, with the descriptive categories, the researcher used these categories systematically to categorise and index the whole of the qualitative data set whereas the conceptual categories were indexed as a separate exercise from descriptive categories.

After organizing the data into appropriate category files, the data in each category was analysed in a different manner. Firstly, for data in the descriptive categories, it seemed practical to analyse the data collected according to the themes identified. In this way, the data could be presented in a more constructive manner so that the researcher could compare the results collected from the interview against the literature. The data was analysed in two ways according to the themes. Results from each participant were compared by theme in order to tell the story and to see if there was consistency between each set of data. A comparison of the data against the literature was also done in order to find out whether there was any new strategy provided by BTV that is different from the literature; and the strengths and weaknesses of the way BTV managed its media asset. Secondly, for data in the conceptual categories, the strategy adopted by Burgess （1994）was used to work out the answers to three main sets of question: Data on what? ; Strength of claim;

and integration of data.

In additional, while a list of interview questions were asked during the interview, often the participants have included more data than what was been expected from the actual question asked. Therefore, there have been large amount of data collected. As the data were analysed according to the themes, when filtering data to be include in the data analyse, only data there were included were either: 1) matched the theme; or 2) were comparable from one set of data to another. This is to ensure the most relevant data were selected to be included in the report.

3.4 Data on What

One way to answer this question was to re-examine and hold up to critical scrutiny the logic of the research has designed. Using a case study research methodology with an unstructured interview technique, the research questions sought to examine the data to see if the appropriate research design was developed.

3.5 Strength of Claim

The purpose of this question aimed to achieve analytical roundedness and rigour which enabled the researcher to ask "what are all the components necessary to generate a viable and convincing explanation and how?" The answers to these questions lay in both the process of data collection and subsequent analysis.

3.6 Integration of Data

This question sought to involve the principle of following up similar themes in the different data sets as a way of linking the data. The researcher aimed to analyse a link or relationship between each data sets.

By doing the data analysis the researcher was able to see any findings from the case study that can be applied to the literature (e.g. whether cultural behaviour would affect the way the TV station manages its media asset), which could allow the researcher to develop conclusions about the research and suggest areas for future study.

4.0 Results

This section provides an analysis of the results obtained from the interviews with nine employees from BTV. In order to ensure the consistency of the result which allowed me to make comparison between the results from each participant, same set of questions were asked to each participant during the interview. However, as the researcher aimed to provide a clear framework of the DMAM in this case study, despite a consistent set of questions asked in the interview, the data were not analysed by questions. Rather, the analysis looked at the media asset management of BTV from four different angles including: participants; motives; problems anticipated; and problems BTV has encountered. It also sought to compare and contrast its management strategies against the literature in order to identify its strengths and weaknesses and tentatively point out the room for future improvement.

4.1 Participants

There were nine participants taking part in the interview process. The length of time each interview took on average was between 60-70 minutes. During the interview, a recorder was used to record the interview while the researcher took additional notes onsite. After the interview, the researcher prepared a workable transcript that was sent back to the participants to confirm the wording. In addition, the researcher also

made notes on each participant's background information, summary of viewpoints as well as any gesture that was shown during the interview.

With regard to the background of participants, the participants were all selected from various departments at BTV and while only a few participants were involved in the initial planning stages of the digital media asset management system, others have been involved in managing media assets. Thus, the researcher believed these subjects would provide a good understanding of the progress of integration of the new system with BTV management.

During the interview, each participant answered the questions from the perspective of the job position they are currently in. For example, the technical support person would focus on the structure of the system itself, while the manager would focus on the problems he was grappling with after the system had been introduced to its users. This would ensure the quality of the research as they answered the questions from different viewpoints. However, there were a few limitations that the researcher has noted from the interview which might affect the reliability of this research. Firstly, although all participants have experience in managing the media asset at BTV, not all of them have actual hands on experience with the newly implemented system. Secondly, as each participant only focused on a specific area of interest that related to their position, none of them understood how the system works as a whole. Therefore, as the participants talked about the system from different angles, the researcher had to put all ideas together, relying on personal judgment in order to understand how the media assets management works at BTV. Lastly, as some participants were considered to be more specialized in the technical area, they did not have management related background or knowledge. Consequently, they were not able to answer some management-related questions.

4.2 Motives

Overall, there were consistencies in the answers provided by the nine interviewees on BTV's motivations behind its acquisition of digital media asset management. Several major motives seem to have driven BTV to make the acquisition: ensure BTV obtained the copyright of the material created by its staff (e.g. director, editor); lower the cost of storage material; increase the efficiency in production workflow; and enable BTV to re-purpose its media assets in order to maximize profit.

4.2.1 Obtaining the Copyright of Self-created Material

All participants agreed that since the modernization of the Chinese economy, attention has been increasingly directed to the importance of copyright. Without the copyright for the material, the TV station is unable to broadcast and re-purpose a given programme and as a result, that has significantly undermined the modernization of the broadcasting industry. Due to the lack of management in storing media data, it has leaded to loss of valuable resource such as history or overseas materials. In addition, even for materials which were source from local area, it may be an impossible mission to re-shoot it due to the insufficient time and budget. For example, as one of participant stated:

> *For each programme, there were hundreds and thousands minutes worth of material being shot for the purpose of edit. As the result, large amount of budget were spent on each project. However, as some directors did not store all materials, whether being used in the programme or not, in the TV station data vault, BTV were not able to re-purpose this material and thus the team has to shoot new materials again which is considered as wasting BTV's resource.*

In practice, all programmes and shooting material are thought as the intellectual property of the TV station. However, due to the management negligence and defects in the system, many media material has remained in the hands of the programme director after shooting. This situation is believed to have resulted in a substantial financial loss to BTV. Therefore, in order to improve the status quo, implementing a digital media asset management system was considered to be the best way to solve this problem. With the new system put in place, the first task required from the director after shooting was to upload the material into the production database. While the director has authority to edit and recall his shooting material at any time, the material was identified as part of BTV's asset from the moment it was uploaded into the database. In addition, in post-production whereby the material is archived into the data centre, the director is also obliged to provide a detailed source of information in order to ensure the material is properly indexed into the right categories so it can be retrieved and reused when it is needed.

4.2.2 Lowering Cost of Storage Material

BTV's international department was the first to recognize the importance of employing a digital media asset management system. Although their duty is to source news material from around the world, it appears unpractical to dispatch a long-term reporter to a country merely to source materials, due to cost and inefficiencies. Consequently, purchasing news materials from other broadcasting companies was considered to be the only solution. It is also costly to purchase materials alone for a length of six hours per day. Media data storage has always been an important topic for BTV. We have been conduting research on how to develop a most efficient way of store its intellectual property. One participant claimed:

> *Due to the high cost and inefficiencies to dispatch a reporter to a particular country to source news, we have been relying on purchase*

materials from other TV station. Currently, the international department has 300,000 minutes of material. As times goes by, this material will become archived and historical material. You can image how much space it requires in order to store those archive files, especially when we store our data on data tape of disks. This has been considered as cost-ineffective and inefficient.

As TV station recognises the benefit of reusing and re-purposes historical materials, therefore all these archived material can become valuable assets to the TV station. In the past, BTV used to store media data on data tape and disks, which required a large amount of storage space and a high maintenance cost. In addition, if the disk or data tape was not carefully stored, there was a great risk of losing the material. Recently, with the development of new technology, BTV has started to convert its material to digital and upload it on its network hard drive. It is estimated there are millions of minute worth of material at BTV that is waiting to be uploaded on its network hard drive. In addition, apart from these large numbers of files, the TV station also continues to produce new programmes on a daily basis. At the moment, the speed of file upload onto the network drive is considered to be slow, as it is estimated that the speed of the current uploading is only few hundred minutes per year.

Therefore, it is predicted that, without a complete set of digital media asset management, it will continue to be difficult for the TV station to maintain its upload up-to-date and it also runs the risks of losing material during upload processes.

4.2.3 Boosting Efficiency in Production Workflow

Traditionally, all audio and video content has been stored on data tape. The tape cassettes are treated much like books, stored on library shelves and loaned out. This has made the production process as inefficient as it is difficult. As one of participant

stated:

> *With data tape, since there can only be one master copy, any editing or re-purposing requires that the master be passed around likes a baton in a race this has leaded to an increase in the time of production process. In additional it also required lots of man-power to pass the data tape around to the product team if there is any change required. (eg often data tape was pass between the director and editor).*

The digital asset management system is able to offer a more parallel process, allowing several people, with delegating authorization to access, to work together on the master. As the material is uploaded on the system, each member of the production team is able to view and edit online without having to obtain the master tape. Thus that has enormously boosted efficiency of the workflow.

4.2.4 Re-purposing Media Assets to Maximize Profit

Digital media asset system will not only increase the efficiency work progress, BTV will further benefit from the system by selling its media resource and create extra income from it. First, by implementing Digital media asset system, it will enable BTV to standardise the procedure of managing its intellectual property and thus with proper copyright obtained, BTV is also to trade its media resources and create additional income. Trading media resources have been part of an important income for many TV stations in other country.

From a systematic point of view, digital media asset system is able to bring profit to the TV station. According to one of the participants who were involved in the planning of the digital media assets management system:

> *BTV has adopted Moore's Law at the evaluation stage of the system. Moore's law predicted that the processing power would double every 18 months thus reducing the cost and doubling the efficiency. A digital media asset management system is able to provide a comprehensive managing and monitoring system that starts from the early planning and continues through the medium-term production, the post-assessment, to the stage where the material can be re-used.*

In addition, many broadcasting industries in Western countries have been selling media resources to other media organizations and have been able to gain a significant a profit from this. If BTV wants to utilize its media resource to make profit, a fully constructed and comprehensive media asset system is required, as it will not only provide easy access storage but also unify its media asset.

4.3.1 Structure of Digital Media Assets Management System at BTV

According to the participants, the current structure of the digital media assets management system at BTV is shown on figure 5.

There are two main components within BTV's digital media asset management system media asset management and supportive infrastructure. While media asset management can be understood as the technical system for managing its media assets, a supportive infrastructure provides a framework of how media assets are managed (e.g. policy, procedures). It is expected that all management administration including, production, human resources, and sales should be based on these two components.

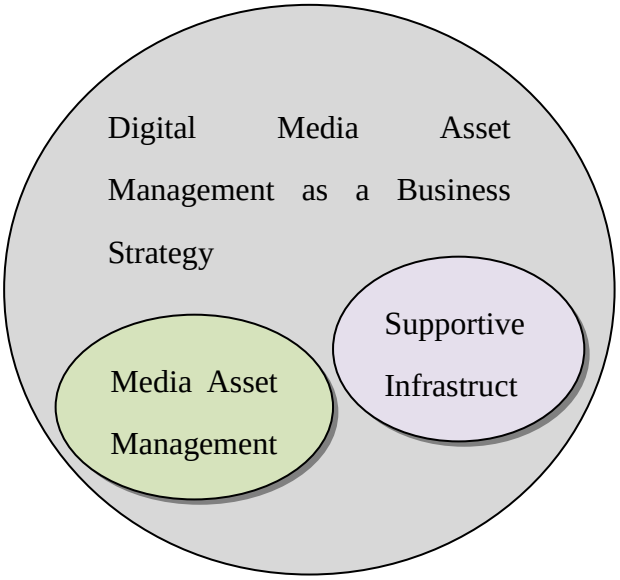

Figure 5: Structure of BTV's digital media asset management

The media asset management at BTV focuses on the management of its media files, either digital or non-digital (e.g. tape, disk). It incorporates hierarchical storage management to control the purging of unwanted material and the restoration of wanted material from offline storage. So far the basic platform of the media asset management system at BTV has been successfully built. In addition, the design of the media asset management system at BTV includes the function of a content management system such as indexing, storage and retrieval. Therefore, this new technical platform would be able to support the entire media production workflow starting from the initial planning stage, right through to the archiving and evaluating stage.

The supportive infrastructure aims to serve as a framework which directs teams at BTV in the procedures of the entire workflow. Whenever a team has an idea about a specific project, they start by sourcing the material and planning its content. The team will then submit the draft to the department manager for approval. After the project has been approved, the team will then enter into the production stage. The main media data are created from the planning stage, and as the new system

requires all material to be uploaded onto the system starting from the planning stage, material continues to be enriched during the production process. In this way, BTV will be able to capture all material and allow the TV station to be able to re-purpose it in future.

The three-level review process at BTV is considered as part of Chinese national cultural characteristic. For Chinese government, it is important for the media to deliver message and material that unify with its national and political ideology.

In the production stage, when the programme is completed, the files will then be submitted for review and approval. As one of participant explained:

> *This review process is typically done up to the Chinese broadcast industry standard. During the review processes, the material has to be reviewed and approved by the manager at three levels, the programmer director, the programme manager and the department manager. In some cases where the material is politically sensitive, the programme will also need to be reviewed and approved by the Broad of Trustees at BTV. The reason for this extremely strict procedure is the Chinese communist national characteristic which requires the media to act with sensitivity towards any political and market related matters. It is well-established that users should be granted by different levels of delegated authority the right to access to the system during the review process.*

Therefore, instead of managers simply signing off for approval without reviewing the file, the new system is designed in such a way as to enforce the reviewing process before the managers are able to tick off for approval.

After the material has been approved, it will then be packaged and scheduled to be

ready for broadcast. When the material is uploaded to the waitlist, another copy will be saved in the system ready for archive in the database. Currently, BTV has outsourced an indexing team focused on the indexing of all media data. The indexing team reports directly to the manager in the data centre. The members of the team analyse in detail each screenshot for specific content and then carefully categorise and index the material accordingly. The manager of the team will then review each screenshot before passing the file on to the manager of data centre at BTV. The Data Centre Manager will run a random check of the file to ensure the consistency and reliability of the indexing. Moreover, after the programme is broadcast, the audience rating of the programme will then be sent to the evaluation stage and then incorporated into the planning stage to help develop new ideas. In short, this process is a cycle.

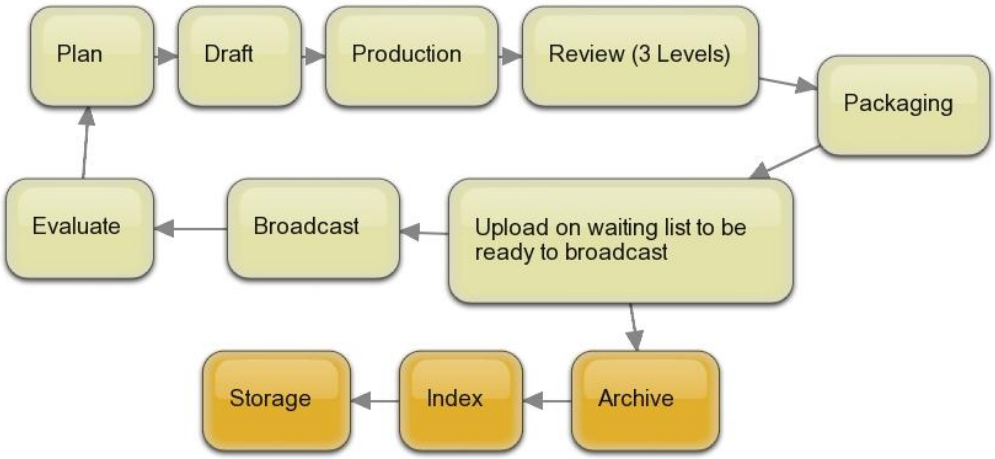

Figure 6: Media Workflow at BTV

According to one of the participants:

> *The supportive infrastructure within the digital asset management system has not yet been fully constructed. As a result, although there is a complete technical platform for BTV's media assets, without the established framework, the TV station is unable to standardize the*

procedures for managing its media assets.

When the infrastructure is completely set up, it will link not only to the media asset management system, but also to other systems such as human resources and finance. Consequently, all information for a given project, including the names of team members participating, name of the sponsor, budget, resource allocation and equipment information will be recorded in the system as soon as the project begins. In this way, it makes it easier for teams or managers to track down information when required, as all information is centralized on one system. Better still, it will also lead to increased transparency of the information and will make it easier for future referencing when it is required.

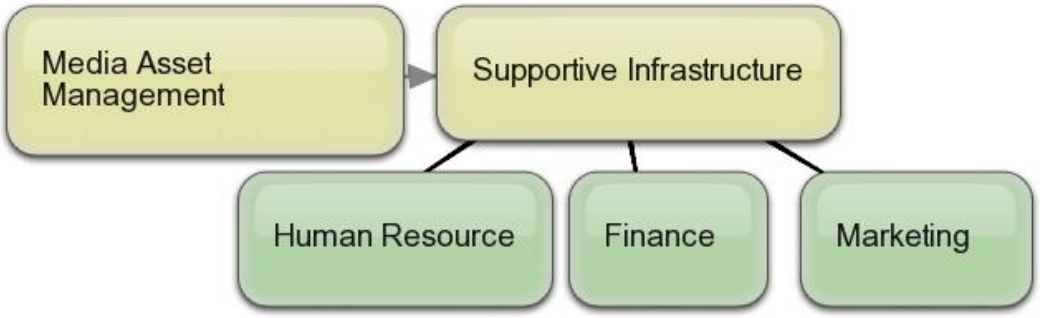

Figure 7: Future Plan of Digital Media Asset Management at BTV

4.4 DMAM Structure A Comparison between BTV and the Literature (e.g. Similarities & Differences)

After comparing and contrasting the structure of DMAM between BTV and the literature, it was found that the overall structure of DMAM at BTV appears to be similar to what has been suggested in the literature by Austerberry (2004).

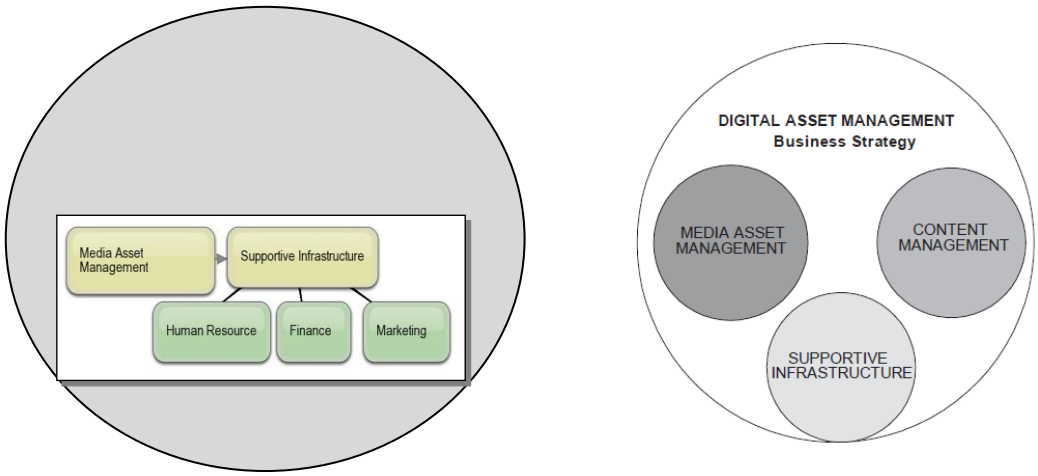

Figure 8: BTV MAM VS. Literatures

As shown in the two graphs above, DMAM is an overall business strategy which includes three main elements: media asset management; content management and supportive infrastructure. According to Austerberry (2004), media asset management focuses on creation of any media data; content management is devoted to storage and retrieval of media data; supportive infrastructure provides a framework which links media asset management and content management together in order to increase efficiency for the organization. It is expected that media asset management and content management would create a technical platform for the management of the media asset while the supportive infrastructure sets policy and procedure of how to manage it. These three components form a cycle that could maximize the benefit of a DMAM, by working effectively together.

Although the DMAN structure of BTV seems is similar to what has been discussed in the literature, there are a few differences between them. Firstly, instead of three main components within the DMAM, BTV has only two components within its strategy, media asset management and supportive infrastructure. Nevertheless, the media asset management has played the role that for both media asset management and content management play in the literature. Secondly, the results from the

participants suggested the supportive infrastructure was more important than the media asset management. This provide a lesson to be learned: when designing the DMAM for an organization, it might be more vital to lay down the policy and procedures about managing the media data first and then use this to lay the base for designing the technical platform to support its policy (i.e. media asset management and content management). Finally, as shown on the DMAM structure of BTV, when its DMAM is fully constructed, it will to link together all other departments such as human resources, finance and marketing. Therefore, it would allow the organization to retrieve all related information under one system and use it for strategic planning.

In summary, it appears that BTV has set up its DMAM based on the theoretical perspective. To make it suited to its situation and practical use, BTV has made adjustments to the general DMAM strategy in order to fit its specific environment. Although, BTV planned to link its supportive infrastructure to other departments within the organization, as one participant stated, since BTV is a state owned TV station with its finance department operating independently from the main TV station operation, it thus is difficult for BTV to integrate this department into its DMAM.

4.5 Actual Problems Encountered

According to the information provided by the participants, users have been suffering problems with the new systems, which have raised great concerns. After analysis of the information provided by the participants, users have teased out seven major problems since the introduction of the DMAM at BTV lack of training and support; system speed being dependent on the network bandwidth; lack of flexibility for last minute adjustment; more time-consuming and complex; lack of back-up systems; lack of consolidated format; and more employees required at the broadcasting centre. These problems will be illustrated in details below:

Firstly, participants agreed that BTV had failed to provide sufficient training for up-skill users on the new system. Unfortunately, BTV has spent too much money in building a new building with the latest technology installed in order to make it easier to implement the DMAM. With the construction of the new TV station being completed, teams began to move into the building by department. Those who had already moved into the new TV station and operated the new system regretted that only user names and passwords were given to the staff by the development team without training or a user manual to explain how to use the new system. As a result, users have to grope for the key to understanding how the new system works and thus, much time has been wasted on this, there by affecting their work efficiency.

When the organisation first implement the digital media asset management system, it was not easy for its front line employee to adopt with the changes. The front line users not only required to adopt changes with operating the system, it also required users to change the ways they do their work. In order to help its employee to transit smoothly, I believed training is essential. An example raise by one participant:

> *When first moved into the new building and start using the new system. Due to the lack of training provided to the user, there was one director who ended up losing all material after hours of efforts put in editing as she did not save the file properly into the system. This created lots of stress and pressure for that director and her team as it lead to delay in its schedule to launch.*

Worse still, some participants complained that they were unable to contact the development team for assistance with problem-solving or to give feedback on the system. For example, with the new MAM system, there was no auto save function within the system and it required the user to manually save the material regularly. Due to the lack of training given to the user, some editors even did not realise this

defect and thus, in cases where there were problems with PCs, all material that they were working on was lost. This interesting example has illustrated the importance of providing training to system users.

Secondly, some participants have contended the speed of the new system is largely dependent on the bandwidth within BTV network. Media data is normally a mammoth file, so the speed of the intranet matters most, especially where the DMAM system requires the material to be uploaded on this network before it allows editing. As a result, if there are too many users simultaneously on the network, it will significantly slow down the speed of the system and thus lessen staff's efficiency.

Thirdly, when the material was stored on to traditional data tape, it could be ready for broadcast at any time as long as the broadcasting centre received the tape. And most material would be uploaded in advance of going to broadcast, but it sometimes happens to a news team that there is urgent news that must go live immediately. It is ironic that BTV's the DMAM system has made it hard for the news team to do that. While the new Digital media asset management system increased the efficiency of media asset management, it also rigorous every step of the workflow and thus the system requires the users at each level to strictly follow the procedure. This has leaded to inconvenience for many users during the transition stage. As one of the participant claimed that:

> *In the past, with data store on the data tape in case of any urgent news which is required to go on live immediately, it was easy to slot in and go live immediately. However, with current DMAM at BTV, the system does not allow this flexibility and thus created lots of stress to the editor, especially the news team.*

All material, regardless the length of time in each programme is required to be

mothballed in the system for at least four hours on the waiting list before it goes on live. One simple reason for that is the bandwidth of the network makes it difficult to estimate the time the material takes to queue on the broadcast waiting list.

Fourthly, as the new system has set strict procedure on the media workflow, some participants made the gripes that the more complex the procedure became the more time-consuming the system was. As mention earlier, the review process within the broadcasting industry in China is deemed very critical. In the past media data was managed on the data tape basis; during the review process, some managers approved the material without even reviewing the file. This behaviour is totally unacceptable, for it could pose a significant problem to society if the material is politically sensitive. To avoid this, the DMAM was originally designed in such a way to ensure staff to complete and confirm the review at a given stage before entering the next one. During the review process, the new system requires the manager to play the material, click approve and then enter the user name and password in order to complete the review process. To ensure the manager to scrutinize the material before approval and takes responsibility for this, the manager cannot tick the approval option without playing the material. Although this can ensure the quality of the material, some participants still thought that the system was inflexible and unbearably time-consuming.

Fifthly, one of the motives for developing the DMAM system was to achieve a tapeless network when all material is uploaded on to the network hard drive, with no back up by data tape. This may pose a significant security danger to BTV, especially in the case of a hardware disk breakdown which will result in a loss of its media asset. Conversely the technical team assures there is a strategy to prevent this from taking place, but its actual tactics are unknown. One participant said that some members of the planning team for lack of plans to prevent political hazards keep an additional copy of the material in their department while uploading it to the network drive.

In order to reduce the time required for uploading, a professional hard drive with ultra-fast speed is required. However, during each upload of information, it required continuously high-speed running of the hard drive which is expected to lead to sizeable damage to the hard drive. As the result, it would further leaded to an increase in the maintenance costs for the hardware for BTV.

Sixthly, in the past when tape data was used to record material, standard procedures ensured materials were standardized into the same format. However, as one of participant claimed that:

> *Under the DMAM system, it is difficult to ensure everyone is using the same format for the materials during the editing and packaging stage.*

As a result, without a standardised format for its material, it is hard to re-purpose material for future use. One major reason behind this is at the planning stage of the DMAM, BTV broke down the system into different parts and outsourced various parts to different suppliers. For example, while the news department is using one supplier, the content management is developed by others. Consequently, not only each part of the system was customized to suit the needs of each department, the vendors who develop the system also adopted different software. As the result, this has leaded to a unstandardized formats of the media assets at BTV.

Lastly, the management of media file on data tape required only one person to look after the waiting list at the broadcast centre. As long as the tape was received by the staff at the broadcast centre, the tape simply needed to be loaded to play. However, the DMAM required a team of staff working at the broadcasting centre to ensure the media files got in the correct order on the waiting list. The team should be in line to monitor the network and prioritise any material that needed to be broadcast immediately (e.g. any urgent news). That would set out a surge in and labour costs.

In summary, despite the fact that BTV's ultimate goal of a DMAM is to boost the efficiency of the workflow and standardise its media assets, its DMAM beset with many difficulties, is suffering from teething troubles because at the moment it is still being implemented. Some problems are caused by a lack of planning, while others may be a lack of staff training at the TV station. A newly introduced system definitely has its strengths and weaknesses and its future will largely depend on whether the management team could design an integrated strategy to help come to grips with teething problems.

4.6 A Comparison between Actual Problems and Theoretical Problems in the Literature (e.g. Similarities & Differences)

When analysing the results from the participants relating to their problems with the DMAM, the researcher has identified seven problems, along with the factors behind these problems. It is hoped these could help BTV devise plans for improvements to its DMAM. In addition, it might also contribute to the literature in area of studies relating to DMAM in China.

4.6.1 Lack of Consolidation in System Format

According to Austerberry (2006), DMAM provides an integrated system which enables users to manage its media data from a single information portal. As mentioned in the previous sections, at the beginning of the planning stage, BTV contracted several vendors to construct its technical platform. It is understandable that each vendor may be using different development software to develop the system. As a result, the system that was so developed also varied in the format of the file it

adopted and in individually designed applications. That has eventually led to many variations under one system.

Austerbery (2006) stated, over the years new software applications spawned new file formats for images and video. As users demand interoperability and standardization, a handful of formats have emerged for the interchange and archiving of digital assets. In the interest of simplicity and efficiency, the organization can restrict the system to a handful of formats such as JPEG, TIFF, JFIF and RMVB. While there can be many file varieties during the production stage, the file can be standardized into a specific format during the ingest point. Restricting the asset repository to just these few formats is not going to place great limitations on the later distribution or reuse of the content.

However, Austerbery (2006) also claimed that knowledge workers should be free to concentrate on authoring original material and the production of finished content. Manipulating content into a myriad of formats for interchange is a waste of valuable time. Therefore, the digital asset management system should automate the underlying processes of file interchange.

In short, Meta-data is essential to digital asset management. A DMAM system should be extensive and cater for all the different contact formats that the organization may be using. Although it may prove more efficient to limit the number of formats and convert legacy assets to the chosen format, it is suggested that the organisation adopt software applications that support internationally agreed formats such as AAF and MXF, standards which have been developed by the video industry.

4.6.2 Lack of Training and Technical Support Team Available for Trouble Shooting

Literature has confirmed the direct relationship between training opportunities and employee outcomes (Guest, 1997; Purcell, 1999). Higher levels of training opportunities will lead to superior organizational performance. Hence, training has a positive impact on employee and organizational performance.

According to participant results, the users of the DMAM system at BTV did not receive any training nor did they get a user manual when the system was introduced. So great a lack of training has significantly impaired the employee's performance as they need to do their own "exploration" and "play around" in order to understand how to use the system. The users not only have spent a great deal of time finding their way around within the system, but have also run a risk of losing data as they did not know the proper way to save the material that had been created. In addition, the employees are still having difficulty finding support for problem- or trouble-shooting.

This aspect has already raised the concern of many employees and has exerted a negative impact on employee performances and eventually on organizational performance. Worse of all, without proper training, the employee will not understand all the functions available in the system and thus they cannot fully benefit from the system.

According to Rudman (2003), employees have two sets of training needs: an immediate need for skills and knowledge to perform assigned tasks; and a longer-term need for personal development in an occupation or organisation. In addition, as Woodruffe (1990) stated, "a competency is the set of behaviour patterns that the incumbent needs to bring to a position in order to perform its tasks and

functions with competence". In the case of BTV, the purpose of providing the training on the DMAM is to serve employees immediate needs, that is, how to use the system. Training also increases employees' competence in using the system to perform tasks and functions.

Luckily most BTV employees have a good knowledge and skills to perform their job tasks, but what looks most important to them are: a brief from the technical support team on how to use the system, what functions are available to them, and whether there are any special needs about the system. Therefore, it is suggested that BTV adopt a computer-based training programme or interactive video training programme. In this way, employees could manage and pace their own learning and thus increase the flexibility to suit different needs. For example, some people may need to replay the training programme more than once. It would be also useful for BTV to appoint a staff member from the technical support department to act as a mentor, available for any trouble shooting enquiry.

In short, it seems that training is vital to the members of the organisation especially when implementing a new system. Providing training will not only increase employee knowledge and skills when performing tasks, but will also increase their confidence and autonomy in operating the system to perform their job tasks.

4.6.3 Lack of Communication at BTV

Rudman (2002) has described communication as the lifeblood of organizations, or a lubricant that keeps its various parts working smoothly and in line with the organisation's plans and objectives. Effective communication is considered to be a two way process in which the sender sends out information and the receiver feedbacks information to the sender.

The results of the research showed that, there was a lack of communication between the BTV's management team and its employees during the planning stage of implementing the DMAM. For example, one of the participants claimed that:

> *At the beginning of planning the DMAM, I was enthusiastic about making a contribution and expressing his opinion about the DMAM. However, later I ceased doing so as I felt the management team did not respond".* Admittedly, another participant has pointed out that *"I believed that it may be cause by the Chinese cultural characteristic-high power distance in which under the sway of the typical Chinese cultural characteristic, staffs are less likely to express their opinions to a manager at the top of the hierarchy.*

In nations characterised by high power distance such as China, it is expected to have centralized authority and hierarchical structures within an organisation. The Chinese people expect that power is unequally distributed and naturally defer to those they perceive to be their superiors, whom they expect to be benevolent and treat all people fairly providing them with stability, close supervision and explicit rules (Pun, 2001). Those in subordinate positions expect the more powerful-high-ranking individuals to take responsibility for decision making (Very et al, 1997).The examples given by the participants have shown that current communication within BTV is nothing but a one-way process, as only employees are receiving information from the manager at the top of the hierarchy, for the decision making process is centralized at the top of the hierarchy at the organization. According to the participants, during the planning stage, the management teams did research on other organizations in China that had employed a DMAM to understand how the DMAM worked in other organizations and how the vendors developed the system. Afterwards the management team then worked with the vendors to customize the system to be more suitable to BTV's condition. As one of participant claimed:

> *During the planning stage, the communication process was only between the management team and the vendors that were selected for developing the system for BTV. Neither research nor a survey was done to understand employee opinions or expectations from a user's perspectives in terms of the requirement for a new system".*

As a result, after the system had been implemented, many users complained that the system was not user-friendly and they could not see any benefits provided by the system.

As Rudman (2002) stated, feedback shows how much and how well the received message is understood. It also gives the receiver an opportunity to come up with ideas and suggestions. A sender who seeks regular feedback is checking the effectiveness of the communication, which might be significantly shortened if the receiver picks up the meaning quickly. It can be understood that due to the status differentials, almost inevitably, some people in an organisation will have more information, and need to have more information, than others. It is important, however, that status differentials themselves are not allowed to be a barrier to communication. As people send information up through the hierarchy, they tend to leave out important pieces of information, especially if it reflects negatively on the sender. In a tall organisational structure, messages can get quite distorted by the time they reach the top of the hierarchy.

Therefore, as the literature suggests, it may be helpful to include employees' opinions at the planning stage so the management teams can understand what is needed from a user's point of view. With such a large number of employees at BTV, it seemed impossible to have enlisted all potential system users in the planning meeting. Therefore, rather than trying to include all employees in the meeting, it would be useful to conduct an internal survey to find out the users' expectation and

their preferences for the system. It is not too late to recommend that BTV set up an internal discussion forum specifically for the DMAM. By doing so, it will allow system users to post any questions about how to operate the system and give feedback about the system (e.g. perceptions, strengths and weaknesses of the system). In this way, it will create a three-way communication platform linking the users, the technical support team and the management team. Thus, this platform would not only aid training and trouble shooting, but also enable the management teams to have an understanding about user feedback which could be of great use to improving the system further.

4.6.4 Indexing and Media Retrieval at BTV

According to the participants, the television industry has a unified indexing method adopted by all Television stations in China. Over the years, the radio and television media industry has grown rapidly and a method of modernized information management is urgently needed. A standardised classification of information and data is an important prerequisite for the modernization of the media industry. As a result, the Ministry of Broadcasting in China has been conducting research and developing suitable standards for information classification. As one participant explained:

> *In the past each radio or television station had its own indexing standards, and the information was indexed according to their customary methods. Each followed its own principle of categorizing data, making it difficult to ensure the quality of the categorization. Consequently, this has created great variation in categorisation and quality, and thus increased the difficulty for radio or TV stations to exchange information.*

The main purpose of the classification standard is to organize program information categories for indexing programs. In every TV station, there would be a team who is well knowledge in the unified classification method to accurately record the content information into different elements of the program information division in order to facilitate future retrieval.

While there are different indexing methods available such as text and image, the Chinese broadcasting industry has chosen text as the main indexing method. In general, a complete cataloguing system needs to include recorded rules, subject matching criteria and classification standards. These rules are also required by an ordinary information retrieval system. The main purpose of developing the specific indexing method is to provide a useful indexing tool for the radio and television industry to store and categorise their data into an appropriate order that is easy to retrieve in the future as needed. The ability to describe the content of the programme in simple terms and categorize the information according to its related objects or themes is important, as it will significantly affect the capability for future retrieval.

4.6.4. Principle and Function

As stated by one of the participant, *"Radio and Television Program Information Classification" is the way to achieve standardization and systematization of data management program.*

The classification standard has been formulated in two ways – 1) to build a trestle program for the radio or television stations to manage its information; and 2) to set up a program information retrieval system. The full text of the retrieval system embraces the feature of showing content such as the name of the programme, the creation time, as well as base content characteristics (e.g. classification, themes).

In principle, classification retrieval language consists of three elements: a set of characters, such as numbers and letters, which is composed of the basic elements of search terms; a certain amount of vocabulary to express basic concepts; and a set of syntax group of vocabulary to express complex concepts. Standardized retrieval language, stated in natural language, is needed for dictionary searches, so the program information retrieval language can be effectively controlled.

Compared with the natural language, program information retrieval language has the following characteristics: an ability to understand and express relatively simply program information specifically related to key concepts; terms and concepts as opposed to a one-righteousness, rejection of multi-word meaning, polysemy, and inconsistency with the vague meaning such as phenomena; clear indication of the relationship between various concepts; an easily-arranged concept system; an information retrieval easily shown in marked quotations in line with the search term for comparison; a program administrator that can quickly and accurately carry out programs of information classification; indexing, and retrieval. Most importantly, the quality of retrieval language and retrieval dictionary in all the programs and their proper use play a decisive role in the efficiency of program-information retrieval.

The Classification method, the most important program information retrieval language, comprises three elements, namely, categories, category number and annotated footnotes. The retrieval language is based on information content that reflects the characteristics of program categories by using classifying numbers in indexing and retrieval. The Classification method is tantamount to a corpus of indexing and retrieving program information that can reflect the systematization of categories, clearly reveal the contents of program information as well as the relationship between subordinate and derivative, and above all facilitate retrieval in accordance with related categories. Its basic structure is much more in step with the logical order of categories, from total to division, from general to specific, and from

simple to complicate. It has gradually developed, and expanded into a multi-layer retrieval system of category numbers.

As mentioned earlier, Chinese government has developed a unified index method which applied to all TV station across the whole television industry. This fact has displayed an important national cultural characteristic of China-Collectivism. In a national with individualism, it is unlikely that the government are able to pose a rules/or standard of practices to all organisations in a particular industry, especially in the case of indexing media data. Organisations with individualism culture often have its own ways of managing is media data which may vary from others. However, in a communist country like China, it is characterized by a preference for a tight knit social network, an expectation that in-group members will support each other and a strong urge to maintain social harmony and interdependence within the in-group. As the result, organisations are expected and are willing to respect and follow any policy pose by its government. Therefore, it is considered as the main reason that Chinese TV station has a unified indexing method which applies across the whole industry.

In addition, according to the participants, being capable of using Classification method has been considered as one of the main entrant skills requirement for candidates who work in the TV industry. This is an interesting points raised by the participant. It is believed that the main reason of this requirement is because the Classification method has been set by it government, and due to the collectivism nature of the national cultural characteristic, the Classification method has become a “must-learn” skills for a candidate in order to enter into the TV industry.

5.0 Discussion

Research on digital media asset management has been becoming popular since the

1990s. While there are many DMAM studies in western countries, only few case studies have been done in Asian countries. The introduction of DMAM at BTV can certainly provide an interesting case study for the Chinese broadcasting industry, as BTV is a state owned TV station where most information is unknown to outsiders.

5.1 Chinese National Cultural Characteristics

A comparison of the results from each participant shows that each could express different opinions from various perspectives. Most of the nine participants, displayed a positive attitude toward the DMAM system at BTV. However, several participants had an extremely negative attitude towards the system. In comparing the findings of the BTV study with those of the literature, some different stand may be typically due to the Chinese national cultural characteristics.

Firstly, according to the results obtained from the participants, there has been a lack of communication between the BTV management team and staff at the middle or lower hierarchy level.

It is well-known that culture influences communication and interpersonal processes. As mentioned earlier, culture is a collective programming of the mind that distinguishes the members of one group from another. Culture represents an imperfectly shared system of interrelated understanding that is shaped by its members, history, and also by experience. Although an individual is rarely conscious of their own culture, as it is deeply rooted in values, it affects the way people interact with others.

The national culture that is particularly relevant to China is power distance, which is the expectation that power is distributed un-equally (Hofstede, 1984). High levels of power distance are evident in China’s pervasive centralized authority and

hierarchical structures. The Chinese people expect that power is unequally distributed and naturally defer to those they perceive to be their superiors, whom they expect to be benevolent and treat all people fairly providing them with stability, close supervision and explicit rules (Pun, 2001). In nations characterised by high power distance like China, organisational structures generally work best if they are formal and hierarchical. Those in subordinate positions expect the more powerful-high-ranking individuals to take responsibility for decision making (Very et al, 1997).In addition, according to Zhao, Flynn and Roth (2006), power distance is consistent with the focus on guanxi relationships with upper-level authorities particularly in state-owned enterprise and the strong hierarchical ordering that makes empowerment challenging.

Moreover, at the heart of guanxi is the cultural value of collectivism. Chinese national culture is highly collective and is characterized by a preference for a tightly knit social network, an expectation that in-group members will support each other and a strong urge to maintain social harmony and interdependence within the in-group (Hofstede, 1984). Collectivism refers to the degree to which the society emphasizes the role of the individual versus the role of the group. Nations with high collectivism are likely to show an emotional attachment to organizations and to emphasize "we are greater as a group".

These typical Chinese national cultural characteristic as discussed above act as factors affecting the management process displayed by BTV members. At BTV, decisions are made by centralized power at the top end of the hierarchy and then passed down from the top end of hierarchy to employees at lower and middle end of hierarchy. The latter would simply accept policy changes. As a result, unlike other national cultures, employees in China are less likely to have strong resistance to changes made by the organisation. The employees will accept whatever changes made by the management team even if they do not agree with the changes. This in turn, strengthens the typical cultural characteristic of people with collectivism

values. However, although employees may agree with the changes, it does not mean they will support the changes. Under these circumstances, this will become a barrier to organisation's efficiency in the course of change and development.

5.2 Organisational structure

Organisational structure is important to managers as it is the way they match work with resources by making plans and decisions and effectively carrying them out. It is a formal pattern of interactions and co-ordination that management designs to link the tasks of individuals and groups to achieve organizational goals (Martin, 2001). The word "formal" refers to structures created by management for a specific purpose and which therefore are official or formal outcomes of the organizing function.

When analysing the organisation structure of BTV, it appeared that the organizational structure of BTV is similar to a functional structure, a type of departmentalization where positions are combined on the basis of similarity of expertise, skill and work activity. As shown from the organisation chart below, overall BTV has two major sets of organizational structure--operational department and management department. Under these two main functions, there are several departments listed by sub-categories. For example, in the operational department, there is information for the network management team, the broadcasting team, the production department, the equipment management department and the ministry of broadcast transmission department. In each of these sub-departments, there is one department manager and one associate director who look after the daily operation of a particular department. The subordinates report to associate directors who directly report to the department managers. Managers in each of the sub-functional teams report to the chief engineer who is directly under the authorization of the CEO of BTV.

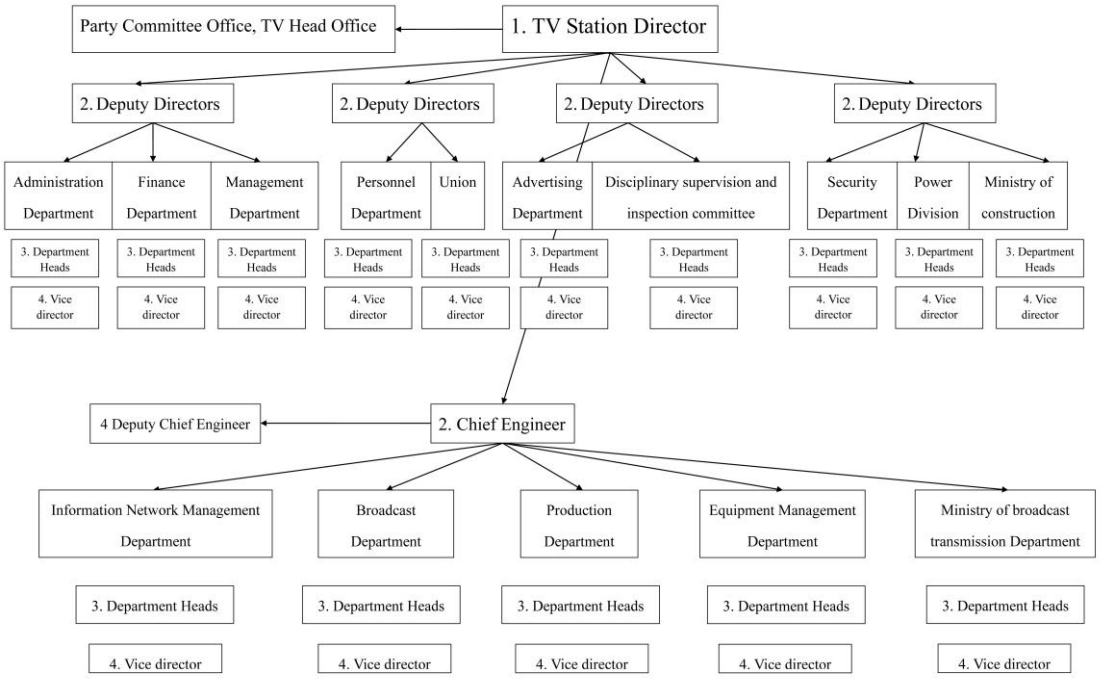

Figure 10: Organisational structure of BTV

Under the management department structure, included are the administration department, finance department, business management department, personnel department, labour union, advertising department, disciplinary supervision and inspection committee, security department, power plant department, and infrastructure ministry department. As can be seen from BTV's organizational structure, the CEO and broadcasting committee officer are at the top of the hierarchy, they are the key decision-makers of the organisation. In addition, there are four deputy directors on the second level of the hierarchy and each of them looks after several management departments. Trust like the structure of the operational departments, there is also a department manager and an associate director in each department.

It is laid down by the organizational structure rules that employees from each team have report to the associate director, who in turn reports to the department manager. The information in this way is then forwarded to the upper level of the hierarchy from department managers to deputy directors, then further to the broadcasting committee officer and the CEO of BTV. By contrast, the decisions are made by the

top level of the organisation hierarchy and passed down to the middle and lower levels of the organisation hierarchy.

Centralisation is the extent to which power and authority will be retained at upper levels. Its advantage is to enable organisation to gain a broader perspective of top level managers who can better balance the needs of various organisational departments.

When members of an organization embark on communication during intense change, they will generate organizing themes about uncertainty or a lack of information about specific changes. Uncertainty is an inability to describe, predict, or explain (Salem and Williams, 1984), and usually including complaints about inadequate information. This behaviour is commonly displayed by members of organizations when their company is implementing change (Daniels and Spiker, 1983). Salem (2008) says that communication is a social process in which individuals can make sense together, and the only opportunity for making sense is through conversation. In other words, complaints about inadequate information are complaints about the lack of opportunities to make sense together.

It is assumed by many approaches to change management will direct and control the process (Miller and Cardinal, 1994). Often, it is impossible to involve many people in making everyday decisions, and managers or a small group tends to simply "download" decisions to others. Management expects compliance, but this approach fails to gain acceptance or support for routine management decisions or decisions during change processes (Clampitt and Williams, 2007; Robbins and Finely, 1996). Commitment to transformational change will not happen without communication, and lots of it.

Uncertainty, a lack of information, or a sense that there are few opportunities to reduce uncertainty, are common themes in all the studies. Organizations fail to

change when many people believe they are not getting enough information about the changes. It may be impossible to meet everyone's information needs. However, the need to know more is less disruptive when there are many opportunities for everyone to make sense of the changes. Without the entire organization participating in conversations about change, transformational change will not occur.

As seen from the BTV's organizational structure, there are two managers in each level of the hierarchy. This is another special feature displayed in Chinese state-owned organizations. The reason behind this is that while one manager focuses on operational related matters, another manager focuses on the internal management within the department such as human resources and communications. Consequently, when implementing an organizational strategy or tactic, these two managers will work closely together to ensure all perspectives are being looked after. In addition, this set up within a government sector also serves as a tactic for monitoring purposes, to ensure that when a manager makes decisions, there is no bias or conflicting personal interest.

Furthermore, as mention earlier in the literature, the media industry in China has been extremely sensitive to any politically related matter. Since the Chinese Communist party still insists that the media is its mouthpiece, it continues to exercise blunt forms of media censorship. As a result, the TV industry needs to act fast and sensitively towards any political and market related information.

As discussed previously, BTV has placed an important emphasis on its programme review process called "the three-level review processes". According to the research participants, in the past there was lack of management process in cases where the programme manager signed off programs without actually reviewing the content. To ensure the three-level review process is done correctly, the DMAM system was introduced at the TV station. With the DMAM, all managers are allocated personal user names and passwords. These enable managers to review the

programme at their convenience. Without the need to obtain a data tape, managers can log on to their account and review the programme at any time. In addition, with the allocation of user accounts and passwords, managers are encouraged to be more accountable for his/her authorization. Moreover, the DMAM design as an important feature which enforces managers to play the content before allowing them to approve the data. As a result, the manager has actually reviewed the content and ensures any political sensitive content has to be removed, before it can be signed off for broadcast.

In summary, as can be seen from the discussion, due to the national cultural characteristic and the political environment of China, the DMAM of BTV has been designed in such a way that suits the environment. As a result, it could differ from other examples discussed in the literature.

5.3 Strengths of this Research

As stated in previous sections, there has been much research on digital media asset management from Western perspectives, whereas there are few studies that have looked at digital media asset management from a Chinese perspective. Since the Chinese government opened up its economy to the international market, its economy has been growing enormously. As the broadcasting industry is a state-owned industry in China, it provides an interesting case of an industry that is especially sensitive to its national political environment.

The differences in national culture such as language and values certainly affect the management process of media assets in China (indexing, retrieval). Therefore, this research might be able to contribute to the literature by providing a practical case of how a Chinese broadcasting organization manages its media asset, especially where the organization is government owned.

5.4 Weaknesses of this Research

The research inevitably has its own flaws simply because the results obtained from BTV are rather limited. These weaknesses may be attributed to three reasons.

Firstly, the participants selected were not directly involved in the senior management team that planned and implemented the integration strategy for its DMAM. As such, they may not have had full knowledge of how it was being implemented.

Secondly, the researcher has no experience in conducting face-to-face interviews that may affect the results obtained.

Therefore, there is still an ample room for further research on BTV's DMAM process that will enable further judgments to be made on the success of media asset management from a Chinese perspective.

6.0 Conclusion

In conclusion, the traditional way of managing media assets has begun to change. With social structure changing rapidly and new technology continuously emerging, the old way of storing data tapes in the vault is no longer efficient. Instead, organizations need to start to source more efficient and less expensive ways to manage their media assets.

In the past few years, media asset management has become one of the important issues in media studies. With good management of its media assets, organisations

are able to profit from either lowering the cost of storage or by re-purposing the data. Now, it looks beneficial for organizations to pay attention to designing a suitable strategy to manage their media assets. Since 2008, BTV has undertaken a transformation to digital integration. The move to adopt digital asset management was considered to be the first full-range digitization in the media industry of China. From this case study of Beijing TV Station, a number of important conclusions could be drawn.

Firstly, the main motive behind BTV's adoption of DMAM was to ensure the TV station obtained the copyright of its media asset, lower storage costs, increase work productivity and efficiencies, and allow the TV station to re-purpose its media asset.

Secondly, in designing the structure of the DMAM at BTV, two main components were considered to be significant, the technical system and supportive infrastructure. While the technical system provided a platform of managing the media data, the supportive infrastructure focused on policy and framework to help the organization manage its media assets. BTV aimed to link up its departments to its supportive infrastructure in order to ensure all relevant information to any given media assets are easily retrieve and provide guidance for teams planning for each project. However, after the technical system of the DMAM at BTV had been set up, BTV's supportive infrastructure was left incomplete. The delay in setting up the supportive infrastructure line was due to BTV's lack of planning and budget to continue project.

Thirdly, since the integration of DMAM at BTV, many staff has encountered problems using the new system, including a lack of training and lack of technical support team available for trouble shooting, lack of a consolidated format for managing media assets, lack of consideration for factors affecting productivity. All of these point to a lack of communication.

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20#Television

8.0 Appendices