

The Value of History

Archiving in the Digital Age



Media management services & solutions

The modern world is awash with information



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In 2007, it was estimated that the planet now stores 275 zettabytes (or 10^{21}) of data - the equivalent of a stack of CDs reaching from earth to beyond the moon! And in a single future generation, our planet will add more information than in all of recorded history, with some experts predicting we will hold 40 trillion gigabytes of digital information.

This means a future where human knowledge indexed by computers and served by the Internet will enrich humanity, yet the source of much of the knowledge and wisdom is still hidden. Worse still, if we fail to act, the soul of nations and culture of generations may well be lost forever.



Preserving the Archive

A Sense of Urgency



The noble cause of the archivist has been tested throughout the ages. Through a turbulent century of two World Wars, regional conflicts, civil rebellions, Coups d'état and geopolitical and religious movements, the notion of the archive as a source of national identity has endured.

Moments in history

Across the globe, the preservation and importance of archives has risen in prominence due to two important factors. The first driver is when archives and the archivist are under most scrutiny during moments in history when retrospection is at its most important. National anniversaries, independence celebrations, major political upheavals; across the world archivists are watching a ticking clock toward the moment when the eyes of the nation will be on them to deliver that speech from half a decade earlier ingrained in the consciousness of a generation, or that image of a young child who would one day lead a nation to independence.

Encoding is failing

The other reason is the continual degradation of the archive media. In an irony of our age, as technology has allowed more information to be stored in greater density, in some aspects, the durability of the medium has declined. Where an inscribed stone tablet from 2000bc Babylon will still be legible today, a 2 ½ inch print from the 1890 will almost certainly be in a state of decay that will render it unwatchable

within a century. Many of the 20 or so tape formats developed for audio and video since the 1950's are now reaching the point where the magnetic encoding is failing as is the physical condition of the cartridges. Even the modern hard disk using electrometric plates, with a storage capacity equivalent to 10 million pages while spinning, will only last a decade at best.

Causes of damage

Even climate controlled and highly sterile environments can't sustain forever the magnetic patterns and chemical compound in film stock that will eventually eat away at the material. The danger is not just ageing. In one of the largest studies of recent times; in 1995 the United Nations Educational, Scientific and Cultural Organization (UNESCO) and International Federation of Library Associations and Institutions (IFLA) gathered information on 6,250 archives and repositories from around the world and found that over 95% had reported significant losses during the previous 50 years. In closer detail; armed conflict, fire, flood, civil disorder and poor storage conditions topped the list of causes of damage.



The Demands of the Video Age



Today, the modern archive has become multimedia. The digital age has allowed millions of pages of text to be stored in the space of a postage stamp. With the huge range of potential subject matters, the archive is breaking down into a myriad of subdivisions.

Valuable archives

Yet, it is video that is set to dominate the next century. YouTube, as the world's most popular video-on-demand website, uploads roughly 4000 hours of video each hour and other popular sites such as DailyMotion and the Chinese site Youku are quickly catching up in terms of viewable material. However, the most valuable archives are still national repositories, often built on less commercial grounds as guardians of history for education and cultural enrichment.

Media degradation

Often working in close co-operation with state broadcasters, over the last 10 years many archives such as British National Archives have added more video content than all of the combined texts collected in the previous century. For every one document or video viewed in its reading room in London, a further 200 are distributed via the internet. This is a result of a major digitisation project which started in 2008 that has helped it to offer a better service, to more researchers, historians and filmmakers while crucially reducing costs. Yet the British Archive, like many others in Singapore and Malaysia, has undertaken digitisation and computerisation projects to meet the bigger threat of media degradation.



Restoration Artisans

The First Step



Before restoration can even begin, the restorer needs to do the groundwork which starts with an investigation of the condition of archive storage such as temperature, humidity and light. The stored metadata attached to each item needs to be understood and catered for in the restoration processes and each tape item needs careful inspection.

Cleaning and preparation

These steps are vital as some restoration processes, although potentially providing the best results, have risks which must be assessed and weighed up by the owner of the content. In some cases, more cumbersome and labour intensive processes need to take place to minimise potential damage. Sometimes tapes may need to be baked in a special oven to remove contaminants with each batch requiring different temperatures, duration and cooling conditions to prepare for digitisations. The careful cleaning and preparation for playback often needs to take place using custom modified equipment that reduces the strain on fragile stock. In fact, a single reel or tape may go through a 30 man-hour process at the hands of several specialists before it even gets to a digitisation step.

Time is running out

Even well-funded archives rarely do these processes in house as the skills and technical equipment are both costly to obtain and challenging to maintain. Restoration of media is not a subject taught on most university syllabuses - yet the need is there! As the ticking clock of media degradation intersects with upcoming national anniversaries and increasing requests for access to the archive, archivists are seeking help. Ultimately, there are more unrestored and deteriorating assets in national archives than there are people with the skills – and time is running out!



Investigation
of condition



Specialist Oven



30 hour process

Inside a National Archive



For all the theory, history and heritage; the experiences in the real world are the most insightful when it comes to understanding how archives are moving forward. A recent example is the transformative project carried out by a major national archive in Asia.

The archive houses the collective memory of its nation, so that current and future generations will understand its different cultures, explore common heritage and appreciate how far it has come in the nation-building process.

Digitised and stored

Today, this archive holds more than 12 million records; including photographs, slides, negatives, maps and building plans and thousands of hours of oral history recordings. Much of this material has been digitised and stored on internet accessible technologies using highly resilient storage architectures.

Serve future generations

The archive also has many thousands of hours of audio-visual recordings but, much of this material was still held on magnetic and celluloid tape, including 1" and 2" Umatic, Betacam, Digibeta and HDCam. Even with a highly professional storage regime in place, this content was degrading and even playback was starting to become unreliable in some

instances for fear of items becoming further damaged using traditional methods. With the support of an agency of the National Government, the archive began a major project to preserve its collection in order to serve current and future generations. The project was to focus on the protection of deteriorating video archives, followed by expansion and opening up accessibility to the public. The multi-year project would involve co-operation between several organisations to meet the technical skills and required timescales.

TVT's Delivery Methodology

The multi-part project started with the implementation of a Project Management Plan (PMP) to create a framework to manage the task efficiently and in a timely fashion. Once agreed, TVT used its own Service Delivery Methodology Suite (TVT SDMS) to create Operations Definition/Requirements and Study and Analysis, Organisation and Planning which would manage execution and allow continual progress tracking by the stakeholder groups.



Transformative Success

and the next steps

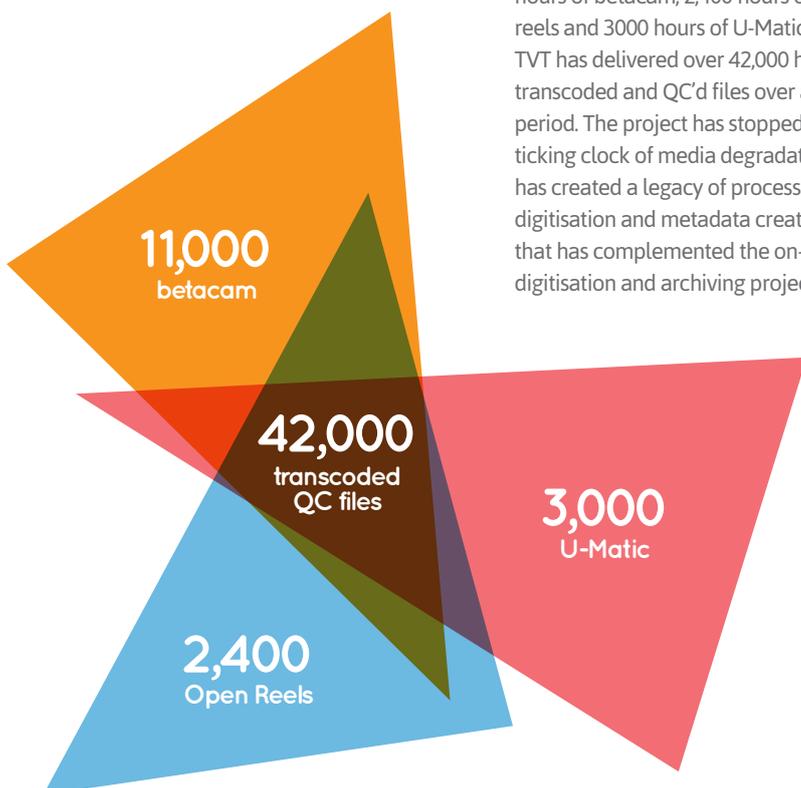


Legacy of process

The process to date includes over 11,000 hours of betacam, 2,400 hours of open reels and 3000 hours of U-Matic. So far, TVT has delivered over 42,000 hours of transcoded and QC'd files over a two year period. The project has stopped the ticking clock of media degradation and has created a legacy of process driven digitisation and metadata creation that has complemented the on-going digitisation and archiving project.

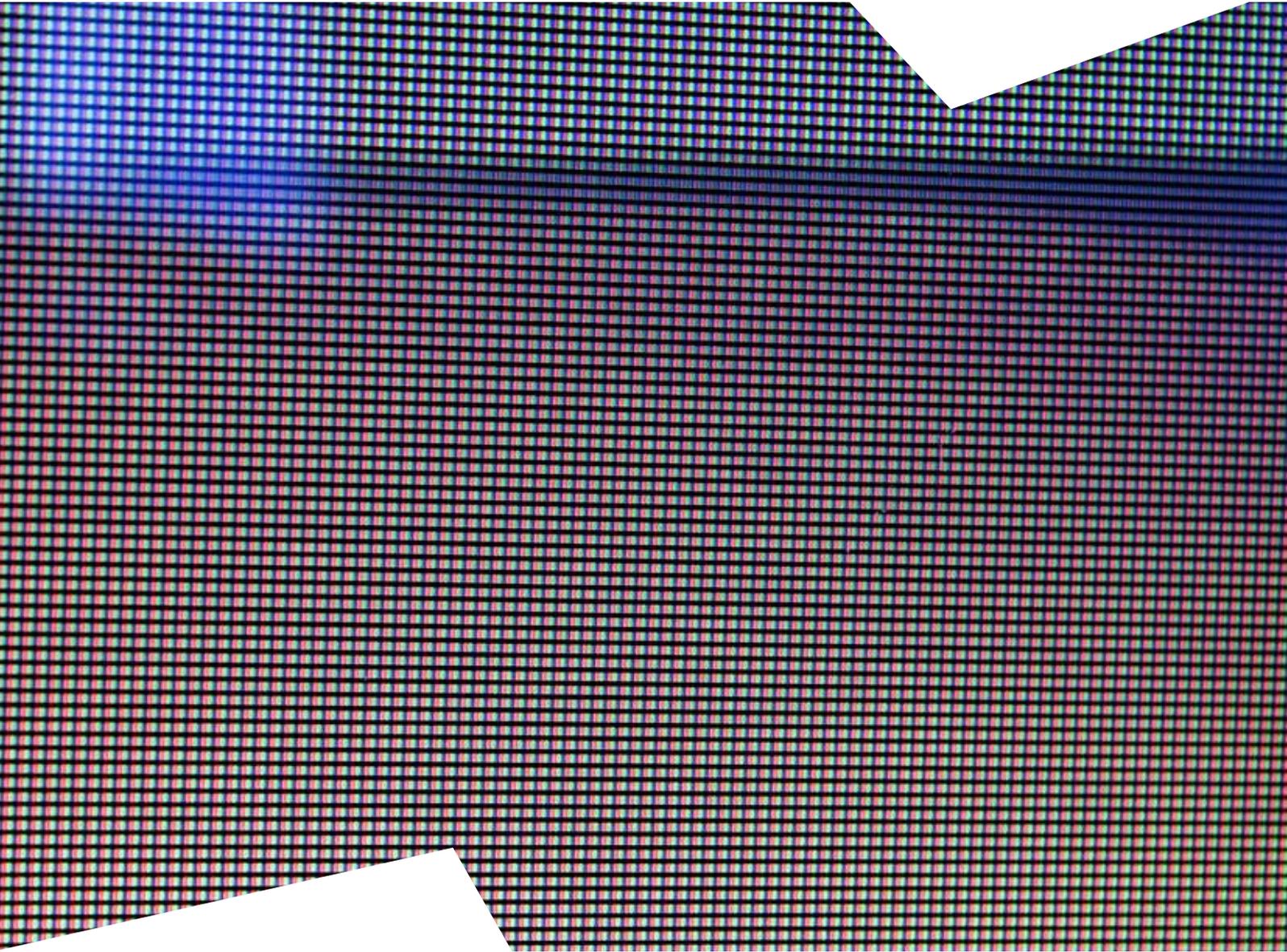
TVT and the next steps

The experiences of the archives in Asia are being replicated all across the world, where the skills and expertise passed on by experts such as TVT, and developed in-house, are helping other archives to deliver transformative successes. The challenges are not insurmountable and the process begins with a desire to protect the past for future generations. Even a single small project to preserve the most valuable works can reap major rewards and provide an insight to what is possible.



Want to know more? Contact TVT.

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