Deliverable D22.9

AV Preservation Status 2008

Annual Report on Preservation Issues for European Audiovisual Collections (2008)

DOCUMENT IDENTIFIER	PS_WP22_BBC_D22.9_Preservation_Status_2008_v2.01
DATE	28/12/2007
ABSTRACT	This is the fourth annual on the preservation status of European audiovisual material. It concentrates on the preservation of audiovisual files, the brave new world that archives enter when they digitise their content.
KEYWORDS	Preservation Audiovisual Archives Status Europe Files Digital

WORKPACKAGE / TASK	WP22
AUTHOR, COMPANY	Richard Wright, BBC
NATURE	Report
DISSEMINATION	PU : Public
INTERNAL REVIEWERS	Philippe Poncin, INA; David Jordan, BBC

DOCUMENT HISTORY

	Reason of change
18/12/2007	First Draft
27/12/2007	Incorporates Reviewers Additions
28/12/2007	Delivered

Contents Table

1.Document Scope

This report is an annual public document, aimed at persons responsible for audiovisual collections and giving a status report on audiovisual preservation across all EC countries.

This document is the fourth report. In addition to giving a summary of progress on audiovisual preservation in Europe and globally, this report considers the future for audiovisual archives post-digitisation: **the new world of electronic files** instead of the old world of media on shelves.

2.Executive Summary

This report summarises the preservation status of European audiovisual material.

This is the fourth and final PrestoSpace annual report, coming at the end of the PrestoSpace project. There are three general areas of reporting:

1. An **update on audiovisual preservation and access status:** the basic issues have been covered in all the reports. This year we find that:
   - *Audio archives have adopted digital technology*, and all the issues for them are around 'better, faster, cheaper' – the core PrestoSpace goals.
   - *Video archives have problems with implementation*: which encoding, compression, file format or wrapper? Lossless coding has been accepted in principle, but is challenging in practice, especially when dealing with lower quality analogue originals such as VHS. MXF as a wrapper has also been accepted widely (in broadcasting and cinema), but again it poses real problems for small, non-specialist archives.
   - *Film archives are in a quandary*. Estimates of the cost of 'digital film' range from 'half the price of analogue'[1] to nearly 'twelve times higher'.[2] Other issues are the life-expectancy of film production and the expected drop in cost of high-definition scanning equipment (as television moves wholesale into HD).   Film archives are beginning to move from a 'wait and see' to a 'lets start some trials' approach.

   Sections 3, 4 and 6 of this report give the detail on preservation projects, supporting activity and on developments in access (respectively).

---

[1] "Archiving Movies in a Digital World". David Cavena et al. SUN Microsystems report, VERSION 2.1, June 8, 2007; 29pp David.Cavena@Sun.COM
http://wikis.sun.com/display/SunMediaSpace/2007/11/05/Archiving+Movies+in+a+Digital+World

[2] "The Digital Dilemma: Strategic Issues in Archiving and Accessing Digital Motion Picture Materials" Academy of Motion Picture Arts & Sciences, 2007; 74pp available from the academy:
http://www.oscars.org/contact/council.html

2. A **look into the digital future** (Section 5): PrestoSpace has promoted the technology, information, policy, standards and infrastructure for the use of digitisation as a step – a fundamental and very significant step – in the continuing issue of preservation of audiovisual content. As archives move from tapes (and other media) on shelves, to invisible electronic files on digital storage (often on mass storage) – it is time to consider files in detail:
   - the definition of a file – which turns out to be difficult
   - the methods for keeping files usable
   - a brief introduction to *digital preservation* – the discipline that all archives will have to understand.

Digital preservation is important to audiovisual archives, but *audiovisual archives and audiovisual files are important to digital preservation*. We have the very large and complex files (and lots of them) that represent, in some dimensions, the greatest challenges to digital preservation. Processes and systems that cope with audiovisual files are then in very good shape to cope with other, less-demanding digital content.

Audiovisual files also offer certain advantages: they are time based, with a well-defined, uniform internal structure. Video files have frames and lines and pixels, occurring in a completely predictable sequence. This predictability could be used as a basis for technical measures for 'mitigation of loss'. *Indeed, audiovisual files could pioneer an approach – the use of internal structure to minimise loss – that could improve preservation for all files.*

3. Finally, **the significance of PrestoSpace:** the events of the last PrestoSpace year are given in Section 7, but there are wider issues:
   - the effect of PrestoSpace on digitisation
   - life after PrestoSpace

It could be argued that anyone undertaking large-scale project would look for 'economies of scale' – everything from bulk-buying discounts to specialisation and workflow optimisation. Certainly PrestoSpace did not invent workflow optimisation. However it can well be argued that everyone in the library world undertaking large digitisation projects would be aware of the fact that broadcasters and audiovisual archives have been doing large-scale digitisation for years, and have gotten very good at it.

Indeed, we developed the *preservation factory* approach, which we mention here because book digitisation projects, ranging from Google Books to the new EC project IMPACT, are talking about "*mass-digitisation programmes".* IMPACT specifically aims to bring together "*centres of competence with unequalled experience of large-scale text digitisation processes and technologies."* Apart from the word 'text', this is a description of PrestoSpace.

The fruitful approach for 'life after PrestoSpace' (Section 8) would link the proven mass-digitisation experience of the audiovisual/broadcast sector, with the well-developed digital preservation technology coming from the library sector – to the greater benefit of both.

3.Update on audiovisual digitisation projects and technology

Successful audiovisual digitisation requires many things – besides money.
- Automation and the 'preservation factory' approach (central to the PrestoSpace project) are vital to best use of funding.
- Knowledge of what to do and how to do it are of course essential, and one way to gain knowledge is to learn from other projects.

This section provides an update on automation technology – and on a selection of the significant audiovisual digitisation projects across Europe.

3.1.Automation

The ultimate in automation is a robot that does everything. There are now at least two robotic systems for audiovisual preservation:
- one commercial product (SAMMA)
- one systems purpose built for individual projects
  - Swedish National Archive of Recorded Sound and Moving Images (SLBA)
  - Radio Television Swiss Italian (properly: Radiotelevisione svizzera di lingua italiana = RTSI)

"Full automation" covers two areas: tape handling, and system monitoring (for quality control and proper equipment performance. The SAMMA approach and the SLBA system aim for full automation. However there is also a role for partial automation, of just the handing, or just the monitoring. Two examples of partial automation technology are presented in Section **3.2 Semi-automation.**

SAMMA
The SAMMA system from Media Matters (a PrestoSpace partner) doesn't take material from the shelves, and doesn't make tea – but it does:
- work on batches of cassette-based video material
- automatically verify playback equipment alignment
- automatically detect playback problems
- corrects many playback problems with a custom TBC = Time Base Corrector
- automatically cope with tapes that are starting to shed their oxide layer
- clean tapes where needed
- clean heads where needed
- log all problems and defects
- provide a range of digital output formats, including multiple encodings
- write the output file(s) to the user's choice of digital storage device(s)

This equipment has not been widely used in Europe, but it is has been used in many North American projects, including the largest: the continuing programme to preserver 600 000 videotapes of the US Library of Congress (LOC).

This year (2007) marked the opening of new the new Packard Campus (Culpeper Project) of the Library of Congress: http://www.loc.gov/today/pr/2007/07-149.html

More information on the use of SAMMA by the LOC is here: http://www.loc.gov/avconservation/preservation/projects.html

Disclaimer: SAMMA is a development of Media Matters, a PrestoSpace partner. Some of the recent development of SAMMA, in particular integration with other PrestoSpace technology, has been supported by the PrestoSpace project.

SLBA

This Swedish project has the highest throughput of any audiovisual digitisation project, and in consequence the lowest cost-per-hour or cost-per-tape. However it cannot be applied universally in exactly its present form, because much of the project is tailored to the fact that the material being transferred to new storage is low quality legal deposit material, rather than broadcast quality material.

From their public information:

> 1.5 million hours of audiovisual material is to be digitized over three years at the Swedish National Archive of Recorded Sound and Moving Images (SLBA) "Radio and television programs are an irreplaceable part of the twentieth-century's cultural heritage, and a very important source material for today's and tomorrow's researchers," says SLBA's General Director Sven Allerstrand. "Therefore it gives great pleasure that SLBA can, made possible through financing by the Swedish government, ensure continued access to this material for coming generations. The effective systems and methods that SLBA has created give researchers completely new possibilities through direct access to very large amounts of radio and television material."

More detail can be found on the extremely valuable ECPA website: http://www.knaw.nl/cfdata/epic/announcerechts.cfm#267

The project leader is Martin Jacobson, who provides the following detail:

> Most of the digitization process is automated. In full production, 200 tapes per day, or 2,800 hours, are digitized by a staff averaging just five people. A number of relatively unconventional methods are being used, including the high-speed transfer of open-reel audiotapes, robotic automation of cassette-based audio and video transfer, and a suite of custom scripts that process the digitized files automatically. The infrastructure includes a migration asset management system developed in-house that handles such things as communication with production systems, logistics (of both original carriers and resultant files), and metadata input and transfer. Once the digitization process is completed, automatic functions create new carrier database records, insert metadata, direct the new archive and browsing files to their final mass storage locations, and link files to the MARC based database for direct access.

Presently, two 1/4 inch open-reel audio formats are being migrated to Broadcast Wave files at a rate of 1,500 hours per day in a single shift. An additional 576 hours of audio are being migrated per day from the data tape format QIC. VHS tapes are being migrated robotically to MPEG-2 and browsing files at a rate of 252 hours per day through 12 VHS players running 24 hours per day, seven days a week. Moreover, SLBA also intends to migrate digital video formats such as Digital Betacam and DVC-Pro. With the help of some external consultation, SLBA developed the robotic system it uses for video migration by adapting a data-tape robot, developing its own machine control and communication software, as well as automated quality control functions.

3.2.Semi-automation

RTSI
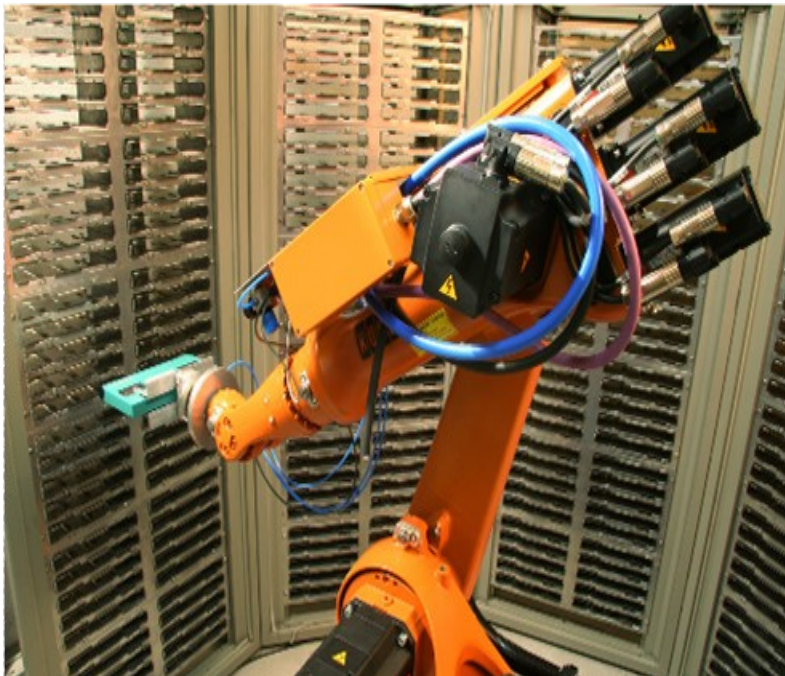
This project uses a robot to automate tape handling.

Digital data tape robots are nothing new, but this project uses the same basic equipment to handle analogue videotape

The project will: "porte sur la numérisation automatique et sécurisée d'au moins 20'000 heures par an de matériel vidéo signé TSR, SF et RTSI. Ce projet a vu le jour dans le cadre du réseau Documentation + Archives (D+A), et sa mise en oeuvre a été confiée à un groupe de spécialistes placé sous la direction de RTSI. " http://www.tsr.ch/tsr/index.html?siteSect=405001&sid=8414569

Theo Mäusli of RTSI presented this work at the October 2007 conference of FIAT-IFTA: *Beta Suisse: a „synergies versus outsourcing" project of automated transfer of Video Tape to File Formats* http://fiatifta.org/restricted/lisbon_2007/D2W06TM.ppt

SAMMA Solo
This system is the electronic part of SAMMA without the mechanical part: it handles all the signal processing for quality monitoring and logging.
http://www.broadcastbuyer.tv/publish/IBC2007_176/SAMMA_Solo_Receives_Broadcast_Engineering_s_Pick_Hit_13467.shtml

Why SAMMA Solo? Because it extends the automation of SAMMA to projects where a full SAMMA would not be appropriate:

- open-reel tape formats
- tape formats that were not widely used, like MII
- projects with multiple formats
- projects where manual tape handling costs are low, but where the TBC, quality control, logging and digital file encoding and managements aspects are all the more important

Virtually all video transfer projects would benefit from the Media Matters approach to time base correction – namely optimising the design to fit the needs of archive preservation. For any project that needs to acquire such equipment, and equipment for making files, encoding in one or more formats, and controlling the writing of the files to mass storage, the SAMMA Solo offers an all-in-one package, plus its unique features for quality control automation. A full spec is here: http://www.sammasystems.com/sammaproducts_solo.html

Disclaimer: SAMMA Solo is a development of Media Matters, a PrestoSpace partner. While SAMMA Solo has not been developed as part of the PrestoSpace project, it is a development based on SAMMA.   Some of the recent development of SAMMA, in particular integration with other PrestoSpace technology, has been supported by the PrestoSpace project.

3.3.Preservation

The year 2007 has been one of notable progress in digitisation for audiovisual preservation, and in the general conversion to use of files for the general workflow of audiovisual institutions. A wide range of current projects gave reports at European meetings of FIAT-IFTA, the television archive professional body, and IASA – the international body that represents the bulk of audio archives.

At the FIAT-IFTA meeting in Lisbon (October 2007), there were reports of major projects:

Lasse Nilsson, SVT (Stockholm): **Migration Factory Sweden shared by SVT**

Noreen Adams, BBC: **The digital library of BBC Scotland**

These projects and more are described on the FIAT-IFTA website: http://www.fiatifta.org/conferences/conferences/past/lisbon_2007/lisbonpapers.html

The major PrestoSpace partners started digitisation projects some time ago.

- The Institut National de l'Audiovisuel (INA) has approximately 80 persons involved full time in the program internally and agreements have been made with 30 service providers to achieve the digitisation of the different kinds of carriers, either audio, video or film. The use of industrial processes wherever possible – from preparation of the original materials to the final quality control – allows the transfer each year of nearly 50 000 hours of programs, within a budget of 8M euros. A total amount of 400 thousand

hours has now (2007) been digitised. The results are available on line for professional access (Inathèque: inatheque.ina.fr/).

In September 2007 there was an annual meeting of IASA (the International Association of Sound & Audiovisual Archives) in Riga, Latvia, reported here: http://www.baacouncil.org/conference/index.php?m=36

More than a dozen digitisation and online audio management projects were reported, covering:
- all the Baltic countries (Latvia, Estonia, Lithuania)
- and all the Scandinavian countries (Finland, Norway, Sweden, Denmark)
- and more projects across Europe: France, UK, Austria, Switzerland, Russia
- and projects outside Europe: Canada, Mexico, USA, Israel, South Africa, India and Papua New Guinea
- and more!

Radio has arrived, digitally. There is a range of service providers, technology providers, audio workstations optimised for mass transfers and companies supplying online media management systems well-developed for audio. There are well-developed standards (the use of uncompressed audio, at CD quality or better) and plenty of technical guidance (IASA TC-04, and the Sound Directions document). More details below.

IASA-TC 04: Guidelines on the Production and Preservation of Digital Objects
IASA Technical Committee August 2004 Ed. by Kevin Bradley
Printed in South Africa, 2004, 80 pp   ISBN 87-990309-1-8
> *The Guidelines addresses the production of digital copies from analogue originals for the purposes of preservation, the transfer of digital originals to storage systems, as well as the recording of original material in digital form intended for long-term archival storage.*
> http://www.iasa-web.org/pages/06pubs_03_new.htm

The **Sound Directions** project at Harvard University and Indiana University announces the publication of Sound Directions: Best Practices for Audio Preservation, available at www.dlib.indiana.edu/projects/sounddirections/.
> *This 168-page publication presents the results of two years of research and development funded by the National Endowment for the Humanities in the United States. This work was carried out by project and permanent staff at both institutions in consultation with an advisory board of experts in audio engineering, audio preservation, and digital libraries.*

4.Activities supporting audiovisual preservation

This section gives notification of a range of 2007 activity, ranging from European conferences to activity around the new European Digital Library, and actions on a global scale (by UNESCO and other organisations).

Much of this information was brought to the attention of PrestoSpace by the exceedingly useful EPIC information service of the European Commission on Preservation and Access, the ECPA. www.knaw.nl/ecpa/news.html

Other information was collected from within the BBC by Lindsey Sellors of BBC Information and Archives.

4.1.Reports, Conferences and Surveys

The following is a 'short list' of major conferences and reports, concentrating on audiovisual material, but including major 'digital preservation' activity, as audiovisual archives that have digitised will now have to master the skills of digital preservation.

- **Addressing the uncertain future of preserving the past: Towards a robust strategy for digital archiving and preservation** By: Stijn Hoorens, Jeff Rothenberg, Constantijn van Oranje-Nassau, Martin van der Mandele, Ruth Levitt Storing and curating authentic academic literature and making it accessible for the long term has been a time-honoured task of national libraries. By guarding existing knowledge and facilitating its use to produce new insights, national and university libraries have formed an integral part of the research environment, complementing the roles of other stakeholders such as researchers, publishers and funders. However, recently the digital revolution has modified fundamentally the way that research results are circulated, reviewed, accessed and preserved. Hitherto established models of market dynamics and stewardship need to be rethought and part of the responsibilities of national libraries redefined. This document examines key determinants of the sustainable digital preservation of scholarly records, with specific reference to developing a robust approach to the archiving of such records at the Koninklijke Bibliotheek in The Netherlands.

- **All About Video Formatting and Preservation**. A presentation (slides and text) by LC's Carl Fleischhauer. It was delivered earlier this month at the Digital Library Federation Forum, Fall 2007.

- **AMPS: Archive before its too late** is a very interesting piece about The Science and Technology Council of the Academy of Motion Picture Arts and Sciences report titled "The Digital Dilemma: Strategic Issues in Archiving and Accessing Digital Motion Picture Materials."

- **The future of screen heritage in the UK:** the report
  The MeCCSA Symposium, September 2007

  Report by Ian W. Macdonald
  Louis Le Prince Centre
  Institute of Communications Studies
  University of Leeds
  October 2007
  http://ics.leeds.ac.uk/papers/vp01.cfm?
  outfit=llp&requesttimeout=500&folder=26&paper=44

- The National Media Museum, in partnership with the British Universities Film and Video Council (BUFVC) and Screen Archive South East is undertaking a **national survey of film, television and other screen-based media** to produce the first-ever online database of moving image and screen-related artefacts in UK collections.

- **Europe's Digital Library experts focus on copyright:**

http://ec.europa.eu/information_society/newsroom/cf/itemdetail.cfm?item_id=3366

4.2.EC support for audiovisual preservation

- European Commission: Digital Libraries Initiative: Summary Minutes of the High Level Group on Digital Libraries

  The group endorsed and presented to the European Commission an advisory report on copyright issues, prepared by its copyright subgroup. Furthermore, the group discussed how to ensure more open access to scientific research and how to improve public-private collaboration in the digital libraries' area.
  See Also: Released at April 18th Meeting, Copyright Related Documents
  + Digital Preservation, Orphan Works and Out-of-Print Works, Selected Implementation Issues
  + Model agreement for a licence on digitisation of out of print works .

- **Digital Preservation Europe** (DPE) announces Research Exchange Programme. It is hoped that the planned twenty-five DPE Exchanges will propagate knowledge, capacity and innovation as well as foster better cooperation among research institutions and industrial partners working on meeting pressing challenges in digital preservation.

  DPE is supported by the European Union (under the same strand of Cultural Heritage IST funding that supports PrestoSpace).

- The EU i2010 Digital Library Expert Group released an Advisory report on Copyright Issues in April 2007; see also the Model License.

4.3. European Responses to Google

Last year's Audiovisual Preservation Status report described Quaero, a European response to Google Search. Google has of course now become involved in a variety of projects. One that particularly affects archives and libraries is Google Books http://books.google.com/ and the Google Books Library Project http://books.google.com/googlebooks/library.html

Google is scanning millions of books from libraries across the world. There have been many responses to Google Books:

- **European-level digitisation:** The Lund Principles were about European-level coordination of national digitisation efforts. However there are the beginnings of actual European-level digitisation funding mechanisms – by looking at private and commercial partnerships.

  - **European libraries and film archives talk with Google**
    In the early stages of planning, the European Digital Library held the promise of a counterstrike to Google domination of digital archives through the search engine's vast book search project and powerful alliances with American universities.

    But as the European project prepares for its debut early next year, the 80 museums, film institutes and national libraries involved are facing the reality of limited government funding for the enormous task of digitizing material, and they are now developing a new realism about striking a variety of alliances with private companies, including national deals with Google.

    According to the International Herald Tribune: The European Commission has contributed about €60 million, or $85 million, to develop a digital library system that can be shared by a wide number of national libraries and cultural institutions. But it is not financing basic digitization, which the commission estimated would cost €250 million over four years. Some major libraries are still pressing for more public financing, but European officials are clearly encouraging private alliances.

  - **Microsoft: MSN Book Search; partnership with British Library**
    MSN Book Search started in 2005, and reader's can judge for themselves its relationship to Google Books. The significant development for European archives and libraries is that Microsoft is working with libraries, globally, on a model that, like Google Books, provides funding for digitisation projects. The major difference is outcome: MSN is part of the Open Content Alliance, so the concentration is on digitisation of public-domain (out of copyright) materials, to provide public access.

The project between MSN Book Search and the British Library was announced in November 2005, and began work in 2006. It is now fully operational. www.bl.uk/news/2005/pressrelease20051104.html

- o **Eurimages** Since 27 August 2007, producers of Eurimages-funded films can apply for Digitisation Support. The Digitisation Support Scheme is intended for the production of 2K digital masters for digital cinema projection, VOD, satellite distribution and high resolution internet distribution. Producers of Eurimages-funded films can apply for support once an answer print is available. The funding amounts to a maximum of € 10,000 or up to 80% of the total digitisation costs Support regulations

- **Efficient digitisation and FP7:** projects selected for funding in the initial round (first call) of Framework Seven make specific mention of using the funding to work on raising the efficiency of book scanning. From the PrestoSpace perspective, this is where we came in, with Presto seven years ago! We are of course very pleased to see traditional libraries discover the advantages of an efficient workflow, for reducing the cost-per-item, increasing the volume of material processed, and raising overall quality. This is the 'better, faster, cheaper' slogan of PrestoSpace. We are sure that traditional libraries, and Google themselves, have directly benefited from the pioneering work of Presto and PrestoSpace, and the broadcast partners in these projects. These are the institutions who have been doing massive digitisation using a factory approach for nearly a decade, showing the 'digital way forward' to all libraries and archives.

- o **PROTAGE: PReservation Organizations using Tools in AGent Environments**
    RIKSARKIVET SE and six partners

    Why PROTAGE? Because it is *"necessary to find new levels of automation and self-reliance in preservation solutions"*

- o **IMPACT: IMProving ACces to Text**
    KONINKLIJKE BIBLIOTHEEK NL and 14 partners

    "the EU has launched an ambitious plan for large scale digitisation projects transforming Europe's printed heritage into digitally available resources. However, lack of institutional knowledge and expertise slows down the pace with which this vision can be realised.

    IMPACT … brings together … centres of competence with unequalled experience of large-scale text digitisation processes and technologies. The project will let them share their know-how and best practices … and lay down the foundations for the mass-digitisation programmes that will take place over the next decade."

> This description is PrestoSpace for Text, in the author's view. It is clear that '**where PrestoSpace goes, so goes European national libraries** – whether they realise it or not. This fact makes the next step of PrestoSpace – life after PrestoSpace – all the more significant, not just for audiovisual material but for all digital library and archive material, as PrestoSpace is self-evidently setting the direction for progress.

4.4. EDL: the European Digital Library

European coordination of national digitisation is all very well, but it doesn't satisfy the need for European-level, multilingual access, from one portal, to the results of all those various and separate national activities.

A first step toward meeting that need was creation of The European Library (TEL), which brings together the catalogues of 47 European national libraries.

But the purpose of a digital library, as opposed to an online catalogue, is online content. So the big step taking in 2007 was to invite museums, archives, audio-visual archives and libraries to collaborate in the creation of the European Digital Library through EDLnet. EDLnet delivers cross-domain collaboration and prototypes for stakeholder and user comment. EDLnet is a Thematic Network under the eContentPlus Programme, run by The European Library together with the National Library of the Netherlands. The network will work on the human and political as well as the technical and semantic issues to create an interoperable system able to access fully digitized content from these cultural repositories. This work will be shown through a mock up and prototypes over the next year to give users their say in the process.

The European Commission endorsed the work of the European Digital Library Foundation when high level EC officials met members for the formal handover of their statutes. "Europe's citizens should all be able to enjoy our rich cultural heritage."

The project site www.EuropeanDigitalLibrary.eu/edlnet went live in September – giving access to digital items, testing access from new domains, providing news on progress in EDLnet, serving as a home of the prototypes and of user feedback and finally serving as the EDLnet Thematic Partner Network site.

The European digital library launched a prototype in November 2007. Its plan is to give direct access to at least 2 million digitised books, photos, maps, sounds, films and archival records from Europe's libraries, archives, museums and audio-visual collections. The home page overall lay-out and content have been brightened and direct access to The European Library first web-exhibition has been set up. The exhibition features 300 pictures of the National libraries of Europe, a unique and fascinating gallery that mirrors the broad architectural variety of The European Library partners across Europe. A new presentation of the libraries section has been introduced. Access is based on a more interactive approach via a clickable map of Europe. The editorial content of each National library has been set in a database and an exhibition space for each National library has been introduced.

Also: Search the European Library Directly from Facebook

4.5. The Global Dimension

FIAT/IFTA launches website for "archives@risk"-project

On October the 27th, the UNESCO World Day for Audiovisual Heritage, FIAT/IFTA launched a website presenting excerpts of the innumerous treasures and gems in endangered archives and collections worldwide. The site was presented on different occasions and events celebrating the UNESCO World Day for Audiovisual Heritage in New York, London and Paris.

The site, currently embedded within the official FIAT/IFTA-webpresence, shows not only some of the most valuable and also periled items out of audiovisual collections and archives from broadcasters, national archives and NGO's, but informs on the project itself and gives advice how to join the initiative and take part in the presentations. Soon the site will be extended with a collection of instructions and recommendations for both the archive-holder and the pressure-groups how to safeguard those values and memories.

The address of the site: http://archivesatrisk.org

Other UNESCO activity:

- **First World Day for Audiovisual Heritage on 27 October 2007**
  Last year UNESCO, at its General conference, declared 27 October the World Day for Audiovisual Heritage. On the occasion of the first celebration of the day the Director General of UNESCO presented a message in the 6 working languages of UNESCO (Arabic, Chinese, English, French, Russian, Spanish). Read more...

- UNESCO and Library of Congress sign agreement for **World Digital Library**. The World Digital Library initiative has been designed to promote international and inter-cultural understanding, increase the quality and diversity of cultural content on the internet, and contribute to education and scholarship. Individuals and institutions in more than 40 countries and the IFLA have participated in working groups and expert meetings to plan the World Digital Library.

- The UNESCO Charter on the Preservation of the Digital Heritage addresses audiovisual material – and internet – preservation. "The instability of the Internet is an additional risk for knowledge accumulated in html format. The

need to safeguard this relatively new form of documentary heritage calls for international consensus on its collection, preservation and dissemination which resulted in the adoption of "UNESCO Charter on the Preservation of the Digital Heritage" Guidelines accompanying the Charter adapt and extend present policies, legal frameworks and archival procedures so that this new form of heritage will not sink into silence."
See Also: Full Text of Conference Report

- **Preserving the digital heritage: principles and policies, Y. de Lusenet and V. Wintermans (eds.)**

  UNESCO, during the 32nd session of its General Conference in 2003, adopted the Charter on the Preservation of the Digital Heritage. The Charter outlines the special characteristics of digital objects that call for new policies to ensure long-term access to the digital heritage.

  Amongst the many issues that are mentioned in the Charter, two seem to be especially important: selection of material, and division of tasks and responsibilities between institutions. Principles and policies for preserving the digital heritage were discussed at the international conference of 4-5 November 2005 in The Hague, organized by the Netherlands National Commission for UNESCO and the Koninklijke Bibliotheek, the National Library of the Netherlands, as a follow-up activity to the Charter.

  This publication contains selected papers of the conference, which reflect the wide-ranging implications of the digital environment for our cultural heritage and offers challenging views of the requirements for its preservation.

  2007, 56 pp. ISBN 90-6984-508-3 Euros 40,00   To order a hard copy please fill out the order form.

  The report is also available in PDF.

- **UNESCO/Jikji Prize 2007 awarded to the Phonogrammarchiv**
  The 2007 prizewinner, the Phonogrammarchiv, an institute within the Austrian Academy of Sciences, is recognized for its substantial contribution to the advancement of audio and video preservation. The oldest sound archive of the world, founded in 1899, its collection now includes more than 50,000 recordings.   Read more...

- COMMUNITIES AND MEMORIES - a global perspective

  The third UNESCO International Memory of the World Conference
  19-22 February, 2008
  National Library of Australia, Canberra

There will be an impressive line-up of national and international speakers at UNESCO's Communities and Memories Conference in Canberra early next year (2008).

Ms Alissandra Cummins, Director of the Barbados Museum and Historical Society; Chair of the International Advisory Committee of the UNESCO Memory of the World Programme and President of the International Council of Museums (ICOM) will open the session on global and regional views on UNESCO's cultural frameworks. Professor William Logan, UNESCO Chair of Heritage and Urbanism and Alfred Deakin Professor, Deakin University, will explore the deep links between cultural diversity and human rights.

This globally significant policy analysis and strategic review meeting will set the agenda for everyone who is concerned with the future management of cultural heritage resources locally, nationally and internationally.

The Australian Conference Planning Committee is focused on creating an informative, engaging and interactive conference event. This conference will be critical to your future work if you are interested in policy development and heritage planning in the context of UNESCO frameworks.
It will be especially important for people with responsibilities for managing and promoting access to collections.

The conference will explore key issues such as:

 * How does the Memory of the World Program relate to traditional knowledge and oral rather than written cultural traditions and expressions? How do we address the rapidly emerging domains of the digital environment and how do we preserve and safeguard the world's memory?

 * Why do World Heritage places, sites and landscapes have a Convention but the documentary heritage of the peoples of the world none? What role should communities play in safeguarding cultural resources?

A conference highlight will be the 'Soap Box' session to be chaired by Margaret Birtley, CEO of the Collections Council of Australia Ltd, on the last day, which will give people the chance to have their say on any topic they believe is relevant to the development and sustainability of the Memory of the World programme. The final day's programme also offers a series of workshops examining issues such as setting up a website, determining significance, submitting nominations, establishing a national committee, preservation planning and sponsorship.

The conference (from 19-22 February 2008) will be seen as a watershed event for years to come. It will be held in association with colleagues from across the intangible cultural heritage sector ensuring that a broad range of key thinkers will participate in the conference.

For information about the Conference including registration forms please go to: http://www.amw.org.au/mow2008/mow2008.htm

4.6.Audiovisual Preservation Training

TAPE

A very important source of audiovisual preservation training, the TAPE project run by the ECPA www.tape-online.net/ is now ending, and completed its last one-week training course. The ending of TAPE leaves a large gap, as there was great interest in the courses and competition for places on the courses. TAPE couldn't meet the full need – and now there is no TAPE.

Lecturers on the TAPE courses and other interested parties are trying to resume this training, either maintaining the one-week format, or offering shorter courses.

Two efforts known to PrestoSpace are:

- KDCS – **King's Digital Consultancy Services** is very well known internationally for training and advice about digitisation projects. While their core expertise had been 'flat media' (involved in or advising on over 400 projects), they also worked with TAPE and with PrestoSpace on audiovisual preservation training. The contact person at KDCS is Jessica T Driscoll: jessica.driscoll AT kcl.ac.uk (substitute @ for AT and remove any spaces)

- HATII – the **Humanities Advanced Technology And Information Institute** group is very well known in European digital library and digital preservation work, and currently run DPE = Digital Preservation Europe. The have also worked with TAPE and PrestoSpace – and most everyone else involved in cultural heritage preservation (and the whole broad area of 'humanities technology'). The contact at HATII is Sarah Jones:
   S.Jones AT hatii.arts.gla.ac.uk (substitute @ for AT and remove any spaces)

FIAT-IFTA

This organisation has regularly run short-courses in TV archive preservation, at locations around the world. Consult their website for current plans.
http://www.fiatifta.org/cont/news.aspx

DEGREE COURSES, EUROPE:

- **Amsterdam:** Preservation and Presentation of the Moving Image (prof. MA) www.studeren.uva.nl/ma-**preservation**-presentation

- The Universities of **Saint Etienne** (France, coordinator), **Stuttgart** (Germany) and Federico II of **Naples** (Italy) are offering a two-year Master programme entitled Master of Cultural Landscapes (MaCLands). www.maclands.eu

- [University of East Anglia (UK)](#) Offers a Masters degree in Film Studies with Archiving Option.

- **Paris, INA:**   A new training unit has been launched this year by Ina with the agreement of the French Ministry of Education. The name is **INA Sup** and provides master degrees in digital knowledge after two years, one devoted to audiovisual production, and another to audiovisual archiving.
    - A short presentation is available on http://www.ina.fr/sites/ina/medias/upload/english-version/formation/2006-inasup-anglais_08.pdf
    - Detailed information in French is on http://www.ina.fr/formations/ina-sup/specialite-patrimoine.htm

Outside Europe:

- [University of California, Los Angeles (UCLA) Moving Image Archive Studies (USA)](#) Interdepartmental degree program leading to a Master of Arts. Jointly sponsored by UCLA's Film and Television Archive, Department of Information Studies, and Department of Film, Television, and Digital Media.

- [University of Texas at Austin School of Information, Preservation and Conservation Studies Program](#) The PCS program provides training for careers in the conservation and preservation of library and archives collections. Courses provide opportunities for students to focus on audio preservation, digital preservation, and archival enterprise, among other areas.

- Charles Sturt University in Australia offers a distance course in audiovisual archiving, the Graduate Certificate in Audiovisual Archiving www.csu.edu.au/courses/postgraduate/audiovisual_archiving_gc/

5.Preserving Files

Lucky you. Your precious sound and moving images have been rescued from their fragile, decaying and obsolete carriers – and are now **electronic files.** Sorted.

But – what is a file? The most worrying thing about a file is that the question "what is a file" does not have a simple answer.

Here are three simple definitions of a file:

- a sequence of data
- a single electronic 'thing'
- a sequence of numbers

5.1.Why a file isn't a simple thing

A file is not one continuous sequence. On all forms of storage, files are divided into units (blocks, sectors). On hard drives, the blocks can be scattered across the drive. 'Defragmentation' software exists to put the blocks back into sequence (to make access quicker).

Besides the division into blocks or other sub-units, files contain extra data, added to improve their chances of surviving and being readable. Files have various kinds of error-correction data added, from parity bits and checksums, to complex error detection and correction schemes such as Reed-Solomon coding.

Critical extra information is needed to locate and interpret a file on a storage medium. In fact 'a file' doesn't exist without such information. The storage medium contains 1's and 0's, arranged into bytes and blocks (or other units). The must be some kind of directory (or equivalent) to define certain blocks as constituting a file.

Further, for the data to be readable and interpretable, other information is needed that isn't really written anywhere – certainly not in something as identifiable as a file directory. That information is the agreement – between the computer and the storage device – about how 1's and 0's are organised into more complex forms of data.

At a higher level, there is a whole set of decisions about how blocks are organised to hold files, how error correction and other supporting and formatting data is added and interpreted. This information is built into how the computer operates.

There is also a need for higher level information about relationships between files, which in modern computers (since about 1980) have been organised in folder structures, typically allowing folder to contain folders, to support a hierarchical structure of arbitrary complexity. This is all the work of the *file management system*.

There are many such systems in current usage, many more have passed into obsolescence – and certainly there will be new ones in the future. An introduction is here: http://en.wikipedia.org/wiki/List_of_file_systems, which lists over 50 disc filing systems – and goes on to list dozens of other systems for solid state storage, shared storage and distributed storage and other purposes.

5.2. Why a file isn't a single thing

When a file is 'moved' from a hard drive to another storage device. the new file is not identical to the original. The content should be the same, but because storage devices have their own properties – such as extra bits for formatting and error correction – and their own file management systems, the new file is definitely not at all identical (if stored on a different type of storage).

Even if two copies of the same content are stored on the same storage device, they aren't identical. They must be in different parts of the storage hierarchy, meaning at the very least they have different 'path names' (a logical or formal difference). The difference may be physical, as well: not all data on a hard drive is equally robust. It is very common for hard drives to have 'bad sectors', which the disc management system identifies and avoids. But disc technology isn't just perfect vs bad; there are gradations. Hence it is perfectly feasible for one copy of a file to read back perfectly, and a second (on the same storage device, the same hard drive) to have errors.

5.3. Why a file isn't just a sequence of numbers

First of all, we've already discussed how a file (on disc or tape) has a sub-structure of blocks or sectors.

But within the substructure there is another whole world: the conventions of representing numbers by 1's and 0's.

Even for text there is the issue of whether characters are represented by 8-bit ASCII or 16-bit Unicode. At least we no longer have to worry about 5, 6 and 7-bit text coding schemes (5= teletype; 6= upper and lower case; 7= upper and lower plus parity as on '7 level' punched paper tape), and schemes that differed according to computer brands (eg DEC codes vs IBM's EBCDIC).

For numbers the situation is much more confused. There are radically different representations for integers and for 'real' numbers (those with, effectively, a decimal point). There still is no complete uniformity from computer to computer about how bytes are arranged to make numbers of more than 8 bits.

Computer systems and even individual file types differ as to:
- whether the least or most significant byte comes first in a sequence
- how extra, unused bits are packed into a byte, if a number's length isn't an integer multiple of 8 bits.

The above consideration have led to the 'Big Endian' vs 'Little Endian' complication which remains unresolved, with Microsoft and Unix united in permanent disagreement.

Number conventions aren't huge issues, and even if a file were to be found in 100 years (and be readable!), lack of information about number convention wouldn't prevent reading of the file, as there are only so many permutations and they could all be tried without much time or effort.

A far more significant problem with audiovisual files is that the data is not one logical sequence, but rather represents several simultaneous streams of information:
- three 'dimensions' to represent colour
- one, two, "5.1", and so on up to 8 (or more!) channels of audio

These are dimensions (signals) vs time, so an audiovisual file is something like a symphony of separate but time-linked streams of information.

As one final complication, video signals have substructure: division in frames, fields and lines – and various mappings of the bits representing colour information to the pixels making up a computer image.

5.4.Preserving Audiovisual Files

Although a file is more complex than it might first appear, that shouldn't mean we can't expect to preserve the information the file contains. The information can – and must! – be preserved. The key issue is to understand the complexity – and even, if possibly, use it to our advantage – rather than allow ignorance to add to our preservation problems.

We have seen that a file depends upon a range of technologies, from encoding standards to file management systems to storage 'stacks' with their hierarchy of technologies. There are two basic ways to cope with all this complexity:
- "continuous refreshment"
- digital preservation technology

Continuous refreshment is not a 24-hour beer bar. It is the process of reading files within a time period when they have a very high likelihood of being readable, and writing them again, possibly in a new form to a newer technology. As technology changes, and operating systems, file management systems and storage technologies change – the process of reading from "current but aging" technology and writing to newer technology is a main method for ensuring that files remain readable and usable.

The other approach, which should be used as well as (rather than instead of) refreshing files, is a whole range of information and technology specifically organised to fight obsolescence, and ensure that files move into the future without loss. This is the domain of *digital preservation*, which was a few scattered ideas about 15 years

ago, but which has become a growing arsenal of weapons for fighting against the lost of files and their content.

There is now a large and quite well established edifice of thinking, standards, software and systems dedicated to *digital preservation* – which will not be covered in this survey as comprehensive information is available:

- Digital Preservation Coalition www.dpconline.org
- Library of Congress www.digitalpreservation.gov/
- UK National Archive www.nationalarchives.gov.uk/preservation/digital.htm
- JISC www.jiscmail.ac.uk/lists/digital-preservation.html
- Wikipedia en.wikipedia.org/wiki/Digital_preservation
- Digital Library Federation www.diglib.org/preserve.htm
- Australia: PADI www.nla.gov.au/padi/
- … and many more

There is a technology for digital preservation, organised around:

- services that perform actions on files (such as identifying the file type, and verifying that the file is free from errors);
- standards for the information needed to accompany a file, such as a player or decoder;
- and systems (repositories) that ensure the implementation and enforcements of rigid and comprehensive processes designed to assure maintenance of files and their content, in perpetuity.

For audiovisual files, extra support is needed that has not been fully-developed by the digital library community. The major issue is compression.

COMPRESSION AND PRESERVATION

This problem has been largely solved for audio. Storage is now cheap enough that all archive preservation projects should ONLY store uncompressed audio. That way, the numbers representing an audio signal can truly 'live forever'. They will certainly never need to be changed to something else just to survive – though the actual file type or file wrapper may change. There may also be a succession of derived files – compressed proxies just used for access (particularly web access) – but all of these, with no foreseeable limit, can be generated from the uncompressed master file.

Video (and digitised film) is the problem. Many situations arise where the best quality available is already *lossy compressed*. For instance, much of 'tapeless broadcasting' is produced in MPEG-2 at 50 or 25 Mb/s (compression factor of 4:1 or 8:1).

There are two problems with preserving lossy compressed video

- the format itself (compression type; encoding) becomes obsolete. This has already happened in the BBC, where years' of encodings of MPEG-1 "browse copies" is now more or less useless, having been replaced by MPEG-4, Flash or other newer and superior browse formats

- generation loss: migrating from one compressed format to another produces another loss, and a 'cascade' of two encodings can be far worse, visually, than either or the individual encodings.

The solution is to store lossless video, meaning uncompressed or lossless compressed. This puts video into the same state as best practice for audio, and solves the major preservation issues – but at a cost of greater storage requirements. However storage costs have dropped so much in the last decade – and continue to drop – that no archive should be unwilling to consider lossless video storage.

For content that is only available in a form that already includes lossy compression, the best way forward is again clear: **when the stored format becomes obsolete, replace it by uncompressing, and store that** (uncompressed or lossless compressed).

The uncompressed file will be no better than the compressed one, but it will have a much better future. All further encodings can be generated from that new 'sub-master', and no further deterioration, generation loss, or cascade of encodings need ever occur.

STORING LOSSLESS VIDEO

Video files are complex, and are stored in complex file formats called wrappers. The principal wrapper types are:
- MXF, used in broadcasting
- AVI, used extensively by Microsoft, though becoming obsolescent
- MOV, the Apple Quicktime wrapper

A wrapper can also be called a *container format*: there are many multimedia wrappers.   Here's a list of 65:
http://wiki.multimedia.cx/index.php?title=Category:Container_Formats

MXF

MXF is a container used by the broadcasting industry:
http://wiki.multimedia.cx/index.php?title=MXF

MXF is also the official container for Digital Cinema Material.

http://www.dcimovies.com/DCI_Digital_Cinema_System_Spec_v1.pdf

Open source implementation can be found here: www.freemxf.org

The Library of Congress has very useful *sustainability information* on a whole range of file formats, including MXF:
http://www.digitalpreservation.gov/formats/fdd/fdd000013.shtml#specs

AVI

AVI, the Microsoft videl file format, can also hold lossless video:
http://www.digitalpreservation.gov/formats/fdd/fdd000059.shtml

Has subtype	AVI files containing streams produced by other video codecs, including uncompressed and lossless video, not documented at this time.

A huge amount of AVI information is here:
• John McGowan's AVI Overview (http://www.jmcgowan.com/avi.html)

Data on tape (Unix) – commonly files are put inside a TAR structure
http://en.wikipedia.org/wiki/Tar_%28file_format%29 to allow the data to be most
efficiently written to the tape – as one long sequence of a whole collection of files,
structured in 512-byte records which match (or used to match) the block structure of
the physical storage. Lossless compression can also be incorporated, making Unix
TAR files rather like the widely known ZIP files. http://www.gnu.org/software/tar/

The name TAR reflects the use of datatape for archiving, meaning for making copies
of data that no longer needed to reside on the computer system. This use of the
word archive, for data that is taken out of an active system and put somewhere
cheaper and less accessible, is an unfortunate use of the same word, archive, which
describes repositories of valuable material. On of the first issues that has to be
settled between archive staff and IT staff is that audiovisual archives, as run by the
readership of this report, are not places where data goes when it is no longer
wanted! See 'What Archives Want' www.**ebu**.ch/en/technical/trev/trev_308-
archives.pdf

5.5. The Future of Audiovisual Files: the Mitigation of Loss

Audiovisual files are complex, with a complex structure. The sequence of
information in a file is the analogue of the time dimension of a video signal, the
sequence of frames of a film or the individual time samples of an audio signal.

An interesting possibility, not just for audiovisual files but for all structured data, is to
use the complexity to advantage. If the file management systems 'knows' that a file
is video, and encounters and error, then knowledge of the structure of the file and
how it corresponds to the structure of the video signal could greatly improve the
ability of the system to recover from 'hard' read errors. Such errors are, today,
generally considered irrecoverable. The error correction has failed, and nothing
more can be done.

But if the file management system 'knows' that a certain block of data corresponds to
a certain, specific set of lines in one field or frame of a video signal, then the rest of
the signal can be recovered – and standard image restoration techniques can be
used to recover the missing signal as well.

The BBC and partners are working in this are (under UK DTI sponsorship), and hope to do more such research with the PrestoSpace partners.

5.6.Digital Preservation: current work

The following is some recent work in digital preservation, to augment the general references given in Section 5.4 **Preserving Audiovisual Files**

Most of the references have come from the very useful information service of the ECPA: http://www.knaw.nl/ecpa/news.html

July-2007
The National Archives and Microsoft join forces to preserve the UK´s digital heritage
Microsoft and The National Archives announced a Memorandum of Understanding ensuring preservation of the nation´s digital records from the past, present and into the future.   Read more...

September-2007
Dioscuri: the emulator for digital preservation
The Koninklijke Bibliotheek - national library of the Netherlands - and the Nationaal Archief of the Netherlands are proud to present the world's first emulator designed for digital preservation: Dioscuri. Dioscuri is capable of emulating an Intel 8086-based computer platform with support for VGA-graphics, screen, keyboard, and storage devices like a virtual floppy drive and hard drive. Read more...

September-2007
National Archives of Australia releases Xena 4.0, an open source tool for digital preservation
The Xena digital preservation software is a free and open source tool for digital preservation. Xena may be used as a desktop application or (more commonly) via its application programming interface to perform its two key tasks from within other digital preservation workflows. Read more...

September-2007
2007 Digital Preservation Award Winner announced
Accolade for new tool to save digital archives for future generations

An innovative tool to analyse and identify computer file formats has won the 2007 Digital Preservation Award. DROID, developed by The National Archives in London, can examine any mystery file and identify its format. The tool works by gathering clues from the internal 'signatures' hidden inside every computer file, as well as more familiar elements such as the filename extension (.jpg, for example), to generate a highly accurate 'guess' about the software that will be needed to read the file.

Read more...

March-2007
DCC and DPE announce the release of the Digital Repository Audit Toollit

(DRAMBORA)

6.Access

This section is a 'watch report', based largely on the internal BBC information compiled by Lindsey Sellors of BBC Information and Archives. It covers significant developments in four access areas:

- *public access*
- *commercial access (including rights management)*
- *access technology (search engines, tagging/annotation and content aggregators)*
- *basic research*

6.1.Public

Public access to audiovisual material has come of age, and there are now dozens – if not hundreds, depending upon what is considered a significant collection of audiovisual material.

EC project Video Active has used a del.icio.us account to create "a useful list of multimedia archives to help researchers." It covers Europe, the USA and other countries, concentrating on archives with public, online content. There are now (December 2007) nearly 100 archives listed, from 30 countries.

The BBC conducted a large trial of public access, making 1000 hours of material available to 20 000 users. There was huge demand to be included in the trial, with all 20 000 signed up within 24 hours, and more than 50 000 more turned away before the weekend ended and the offer was removed from the BBC website. According to the organisers of the trial, the user feedback was the most positive audience response that the BBC has ever achieved. There was also a small public offering, of 50 hours. More online information on the BBC archive is here: www.bbc.co.uk/archive/ . The trial has now closed, but after a 'public value test' the project should re-open, and then continue to grow.

Just when you thought you were on top of TV on the Internet along comes another new player, Democracy, is a "free and open source Internet TV platform." The Democracy platform comprises four components: Democracy Player, Video Bomb, Broadcast Machine and Channel guide. Read Video Podcast Shootout to see how Democracy Player compares to iTunes as a "video player and video podcast client." A detailed FAQ provides more information about the project as well as help with the software and other features.
Wired Magazine described Democracy Player as "the future of Net video," in a May 2006 article. "With Democracy, a well-stocked BitTorrent tracker, and a little RSS fu, who needs a TiVo?" And the application has been the recipient of ongoing positive buzz around the blogosphere. The source code, licensed under the GPL, can be downloaded from the development center.

Online Video: 57% of internet users have watched videos online and most of them share what they find with others
From the intro:
The growing adoption of broadband combined with a dramatic push by content providers to promote online video has helped to pave the way for mainstream audiences to embrace online video viewing. Fifty-seven percent of online adults have used the internet to watch or download video, and 19% do so on a typical day. Three-quarters of broadband users (74%) who enjoy high-speed connections at both home and work watch or download video online. Direct to Full Text of Report

The Canadian Broadcasting Corporation archives are online with thousands of historic TV and Radio clips.

The Tate Gallery has put a range of rare film and audio files from its archives online. The museum has teamed up with BT to digitise the original formats so people can watch or listen to a range of artists an cultural figures form the 1960's to the present day.

American Political Archive expands C-SPAN Radio's venture into historical audio. This program features interesting, notable, and often unique audio from the National Archives, presidential libraries, the Smithsonian, the Library of Congress and other sources.

Australian film archive is now available online. Australian Screen covers Australia's movie heritage. The site has over 1500 clips from other 500 films and television shows.

View complete episodes of CBS programs online for no charge. It will be interesting to watch and see if this list gets longer or shorter moving forward. You'll find links to all CBS video here (video clips and complete programs) here including the CBS Evening News and Face the Nation.

Also ABC and NBC to Distribute Complete Programs Online for Free.

NASA and Internet Archive of San Francisco are partnering to scan, archive and manage the agency's vast collection of photographs, historic film and video. Currently, NASA has more than 20 major imagery collections online. With this partnership, those collections will be made available through a single, searchable "one-stop-shop" archive of NASA imagery.

Viacom has put online the entire eight year archive of its top rating comedy series, Daily Show with Jon Stewart, in a move which will be closely watched by all the major networks, advertisers, telcos and the burgeoning new media video industry. The LA Times reports producers have being preparing since June 13,000 clips — together with ads — to be placed on the Daily Show's own site. The archive is searchable and free for all to use. See Also: News Release. Upcoming www.thedailyshow.com features will include detachable video playback, which will allow the user to both view a video clip and to continue browsing the site; a wiki that will empower fans to enhance the information on the site; user-generated playlists; and a public forum.

Rare BBC radio broadcasts and previously unheard interview extracts with celebrated novelist, Graham Greene, are published by the British Library on 2nd October 2007 - the author's birthday - as part of its highly acclaimed series devoted to historic literary recordings.

The Videos from the U.S. Government site has lots of little gems on this site including the first landing on the moon.

Archives New Zealand's new audio visual website showcasing the films and work of the National Film Unit is now online. Over 100 historic films are currently available and the site's wiki feature gives visitors the opportunity to add descriptive detail and record their comments about the films.

The **French web site of INA** devoted to the general public was launched in April 2006. The selection of archived programs is continuously growing and more than 15000 hours are already on line. About 600 000 single visitors each month search the site with free access for viewing excerpts. For viewing complete long documents or downloading the price is set between 1 and 5 euros, with special pricing through subscription. http://www.ina.fr/archivespourtous/index.php

6.2. Commercial

100 New TV and Radio Sites Join Associated Press's Online Video Network. From the press release "85 more radio and 15 new television stations have added AP's Online Video Network and MSN player technology to their Web sites…Powered by MSN technology and featuring exclusive AP content produced specifically for the Web, the Online Video Network provides high-quality, in-depth reports from the world's largest news gathering agency." The AP Online Video Network began in March 2007. Direct to AP Online Video Network

The National Archives of America has selected the CustomFlix DVD on Demand service to initially make its collection of Universal Newsreels, dating from 1929 to 1967, available on DVD to the general public for purchase on Amazon.com. Newsreels cover worldwide events in politics, entertainment, fashion, sports and technology. Historic moments in world history, such as the death of FDR, the end of WWII, the famous 1960 Nixon-Kennedy debate and the royal wedding of Princess Margaret, are all chronicled. Thousands of public domain films and other U.S. Defense Department and U.S. Information Agency titles from the National Archives motion picture holdings will also become available in the near future.

Copyright protection for Online Video. Autonomy's Virage automates copyright infringement detection for online video.

Since 2004 INA has offered a special service on line for its clients, providing more than 400 000 hours of programs (end of 2007) and their textual description. The service is available in French and English and 4200 clients are registered including 35% from outside France. More information can be found at http://www.ina.fr/to-know-ina/selling-images.html

6.3.Search Engines

Exalead announces the launch of its Video Search Beta. It searches material from YouTube, Dailymotion, Metacafe, Kewego, and IFILM web sites. You can limit by: Relevance, Most recent, Most rated, Most viewed, or Length. Each result includes a static image from the video. Here's an example of a search results page. Also look for "related" keywords at the bottom of the right side of the page. To search using Exalead click here.

Podzinger has been around for a while allowing users to keyword search every word spoken in a podcast. Searchengineland reports that Podzinger has changed its name is EveryZing. The service now allows users to search various types of multimedia including video from sources like YouTube (including transcript search). Other video is searchable using meta tags (aka not transcript searchable.) However, Podcasts can still be searched word by word.

Podscope, part of TVEyes, continues to provide transcript search of podcasts. Its parent, TVEyes, offers both a fee-based service and a free service that allows users to keyword search (every word spoken) from web-based news video from MSNBC, Reuters, and other services.

Podanza.com is a podcast search engine and directory which aggregates free audio and video podcasts from over 5,000 international producers including top radio, television, print and independent publishers. Podnanza comes from the same people who provide the video metasearch tools, SearchForVideo.

Blinkx issues video search engine optimisation white paper. In introducing its Video Search Engine Optimisation (SE) wiki and guidelines, blinkx's goal is to provide a forum for discussions around best practices, as well as clear and thorough recommendations on how to maximize search results for video content.

The Quaero project - new European search technology. Pandia Search Engine News takes a look at the French search engine.

6.4.Tagging, Annotation and Aggregation

The W3C Multimedia Semantics Incubator Group, which includes thirty seven representatives from organizations in Europe and North America, published its final report "Multimedia Vocabularies on the Semantic Web." The document gives an overview on the state-of-the-art of multimedia metadata formats. Initially, practical relevant vocabularies for developers of Semantic Web applications are listed according to their modality scope. In the second part of this document, the focus is set on the integration of the multimedia vocabularies into the Semantic Web, that is to say, formal representations of the vocabularies are discussed.

UC Berkeley School of Information report on Web-Style Multimedia Annotations.

TIOTI is a social media aggregator for television - what does that mean? "We use the web to put together all sorts of information about TV shows, and let you the audience edit and add to that."

Where to find video online : Alluc.org

Looking for footage from overseas or even trying to find out who holds what worldwide try the UNESCO archive portal which covers both audio and visual archives.

The following work has been mentioned under the heading "public access", but it arises from tagging – so here is the information again: EC project Video Active has used a del.icio.us account to create "a useful list of multimedia archives to help researchers." It covers Europe, the USA and other countries.

The Beta tag has been removed from the TV Guide Video Guide which is a guide to content from more than 55 broadcast, cable network and other major entertainment-focused Web sites. The Online Video Guide's focus remains on professionally-produced content in two main categories: 1) full episodes, which mean the TV-obsessed and DVR-challenged can very quickly get caught up on missed shows, and 2) popular videos, whether they are clips of TV shows or celebrities, or music videos. The Online Video Guide also highlights the very best of viral and user-generated video. At 110,000 Web videos and counting, one-click search capabilities via topic, show, celebrity, genre and network, keep results relevant and help the user from feeling overwhelmed. Additionally, the Guide's functionality cuts through the video clutter, organizing and delivering video content based on buzz factor and popularity.

6.5.Research

There is a range of research on audiovisual access, but some key projects have started:

DPE- Digital Preservation Europe. This project started in April 2006. It follows from ERPANET, and says it "fosters collaboration and synergies between many existing national initiatives across the European Research Area. DPE addresses the need to improve coordination, cooperation and consistency in current activities to secure effective preservation of digital materials".

MEMORIES This three-year project started June 2006. It concerns using audio for semantic indexing of archive content. It has an impressive set of partners, including the technical specialists Memnon, a number of archives – and UNESCO.

Video Active The aim of Video Active (which started in September 2006) is to **create access** to television archives across Europe. The unlocking of these (largely) closed archives will make their content freely available for educational and academic purposes, on a large-scale international basis, enabling an interactive discovery of television's cultural heritage. Video Active is funded by the eContentPlus programme of the European Commission.

SEMEDIA This is a STREP, meaning a relatively short and small project, which started January 2007. From the website "The overall objective of SEMEDIA is to create new methods, environments and widely usable tools for media labeling, searching and retrieval from very large collections …"

CASPAR The large-scale project called CASPAR (Cultural, Artistic and Scientific knowledge for Preservation, Access and Retrieval) will build a pioneering framework to support the end-to-end preservation lifecycle for digital information based on existing and emerging standards.

PLANETS Planets, Preservation and Long-term Access through Networked Services, is a four-year project co-funded by the European Union under the Sixth Framework Programme to address core digital preservation challenges. The primary goal for Planets is to build practical services and tools to help ensure long-term access to our digital cultural and scientific assets. Planets started on 1st June 2006. This website makes available project documentations and deliverables as Planets progresses so that these can be shared with the libraries, archives and digital preservation community.

7.The PrestoSpace Year in Review

The following summarises the major activities of PrestoSpace in 2007.

7.1.Annual Conference and Review, March/April:

An "all partners meeting" was held in Paris in March, to maintain the overall cohesion of the project.

A vital milestone each year is the review of the project by independent experts. This took place over three days in London, and the work of the second year was accepted. This allowed us to then make several deliverables public on our website (see below) – and to continue our work into the final year. Originally PrestoSpace was scheduled to end by June 2007 – but we gained an eight-month extension to the end of January 2008. This extra time allowed the project to again have a major exhibition at IBC, plus one final general public meeting in Rome in January 2008 – plus time to complete the vital development work on new technology for digitisation, restoration, cataloguing, storage, management and delivery of audiovisual material.

With another year comes another set of deliverables. The following new reports and tools were made available following the April review:

- **Annual Report** on Preservation Issues for European Audiovisual Collections – the third annual report on the status of audiovisual media in Europe – this time looking at the cost of "digitisation for preservation", the "value of access" (including the all-important public value) and also looking at the long-term affordability of digital archives as compared to conventional 'cans on shelves' conservation costs.
- Updates on the Storage web pages:
  - including a new Preservation Project Planning and Tracking tool
- More content on the Preservation Guide wiki, including listings of service and storage providers, conference reports and presentations, and updates on PrestoSpace technology
- **Service Level Agreements** (SLAs) for data storage (D13.5). Data storage is a very particular area of IT services that has seen rapid growth over the last 5 years. The technology has grown mature enough to be able to provide a specialised service for small to large organisations that are willing to outsource such capacity to a third party. At the end of the report a number of recommendations for the process of formulation of SLA have been made.
- **Digital Repositories Explained** (D13.4). This document sets out the requirements for a secure, sustainable digital repository – with special reference to digital audiovisual materials – and examines the technology and standards being developed to fulfil those requirements. It recommends "OAIS for datatape" as the needed (and missing) approach.

- **Conceptual search survey** (D16.2). The current deliverable introduces the necessary background information for the domain, definition of the limitations of contemporary types of search, as well as an overview of advanced search techniques. In the end it presents the solution chosen as a basis for the conceptual search in the context of PrestoSpace: the KIM Platform for semantic annotation, indexing and retrieval, providing semantically-enabled kinds of search, formal knowledge navigation and the opportunity for even more sophisticated search paradigms to be layered on top.

All the deliverables can be downloaded here:
http://www.prestospace.org/project/public.en.html
(or right-click on the links to download)

7.2. Workshop "PrestoSpace to the Rescue" in Vienna [14 & 15 May]

PrestoSpace demonstrated LIVE the results achieved so far, demonstrating the PrestoSpace-chain of integrated preservation technology.

A full report is online : wiki.prestospace.org/pmwiki.php?n=Main.To_the_rescue

7.3. PrestoSpace at IBC in Amsterdam [7-11 September]

For the second year, PrestoSpace had a stand at Europe's major broadcast conference. This year it was about 75% larger than last year,

PrestoSpace staff were at the stand to discuss the technology in detail, and discuss what the technology means to service providers and to archives.

Several hundred IBC delegates visited the stand over five days. Highlights of the exhibition were:
- a much-improved audio disc (gramophone record) player, including a very elegant commercial prototype
- a much smaller and tidier (than last year) magneto-optical system for reading magnetic tape
- the first European viewing of SAMMA Solo, the preservation automation technology (less the robot) from Media Matters
- a complete chain of metadata software, for automatic segmentation and indexing, for computer-supported indexing and for search and retrieval
- an integrated system for audio and video restoration, with a range of new and improved algorithms

8. Life After PrestoSpace

The PrestoSpace core partners and other have been having discussions (for a year) with the EU sponsors of PrestoSpace, and with other organisations (FIAT, EBU, IASA, UNESCO), and with archives and service providers – about a permanent source of support for preservation of the audiovisual heritage.

A basic idea is the Competence Centre has been described in PrestoSpace presentations and briefly summarised below. A complementary issue is a European organisation representing interested parties. This is the idea behind E3A, the **European Association of Audiovisual Archives**, also outlined below. We invite feedback on both these concepts.

A funding proposal for a follow-on to PrestoSpace was submitted (to the EC IST programme) in early May, but it has not been funded. However there is recognition of the need for preservation support, so it is just a question of the right mechanism. One real question is how the EC could be ready to fund a competence centre for an initial period – until the partners may be able to generate sustainable income from their services. We have to fill the gap between launching the service and the self financing of a permanent Competence Centre.

8.1. The PrestoSpace vision for a Competence Centre:

The main function of the Competence Centre on Audiovisual Content is to establish a relationship of trust among the actors of the domain: Content holders, Service Providers, Industrials, Experts – and the content holders, digital libraries and portals.

The Competence Centre is structured around five main issues:

A) Promoting the use of tools, software and guidelines issued from the PrestoSpace project as well as other tools and software that follow the project's recommendations.

B) Creating a network of Service Providers who follow the recommendations and are capable of doing preservation work under professional conditions.

C) Creating a European Association of Audiovisual Archive and Content Holders (E3A). It is envisioned that either digital libraries will also affiliate with E3A, or their will be a direct link between E3A and CENL.

D) Establishing quality, negotiation and service guidelines, standards and recommendations; monitoring activity and centralising demands.

E) Proposing Services to Content holders and to digital libraries.

PrestoSpace will continue to work with 'actors of the domain' on the Competence Centre concept, to make it happen. One specific action will be formulation of a new EU IST project proposal, so be submitting in Spring, 2008.

8.2. The European Association of Audiovisual Archives (E3A)

The mission of E3A is to coordinate the distribution of knowledge and standards in the domain of audiovisual archive, to promote the digitisation of analogue collections and to support national audiovisual archives and related organisations. It will act as a liaison between archives and the European Commission and as a discussion partner for the industry.

E3A members and membership

E3A aims at institutional membership from all EU member states. It needs to be noted that the basis for membership is not the national representation per se. It is the know-how the organization has and the leading position the organization holds in the audiovisual domain.

The members are all outstanding actors in the development of their profession. They can be national archives, like INA, or broadcast archives, like BBC, RAI or ORF, or they can be both, like Sound and Vision. Membership is open to national organisations with professional audiovisual archive activities, and who work on a national and international (European) level that have been recognised as excellent representatives for their countries.

Non-member archives will also benefit from the actions of EA3 as the organisation will have sector-wide impact on the EC policy and the industry. Furthermore, specialised expertise is disseminated through the Competence Centre established by the PrestoSpace consortium.

E3A Objectives
Seven key objectives are identified. E3A aims:
1.   To provide the platform for the collective representation of member organizations to international, government, and relevant non-governmental bodies.
2.   To co-ordinate representational activity where this would be of general benefit to the audiovisual archive profession.
3.   To instantiate and/or endorse policy statements and position papers on key issues such as policy regulations, IPR and technical standards.
4.   To exchange information between the member organisations.
5.   To provide a supporting framework for projects of common interest to members
6.   To promote and endorse relevant project proposals seeking funding on both a national as well as European scale.
7.   To encourage and support the regular occurrence of conferences on a European or regional basis, addressing issues of common concern to all member associations, within or outside the framework of other (existing) meetings.

8.3.Next Steps

The next step for European audiovisual collections, including but not limited to broadcasters, could be very significant. As was mentioned **4.3 European Responses to Google**, audiovisual collections pioneered massive digitisations projects, and the resultant need for a high-efficiency 'preservation factory' approach. Now Europe's national libraries have discovered the need for 'digitisation factories'.

The consortium of partners behind PrestoSpace see the European Digital Library as the significant new entity in the European 'preservation and access landscape'. Audiovisual archives are, or should be, converging on access technology, and moving toward EDL as a 'common access solution' developed by the community of national libraries.

However audiovisual archives face many obstacles that have not been addressed by national libraries:

- **digital preservation** not just of files, but of the complex 'wrapper files' characteristic of audiovisual content. The content within these files has to remain usable within one of the most rapidly developing areas of modern technology. Technology for playing video over the Internet is particularly volatile, with encoding techniques and their associated players coming into vogue and then passing out of favour within as little as two years.

  On the very day this section is being written[3], notification has been received of a change in one of the most popular Internet audiovisual players (Quicktime v7.3.1), which is evidently now incompatible with Flash – which is now a strong candidate for the 'encoding method of choice' on the Internet (though it was hardly known only two years ago). This development could impede access to some of the major online audiovisual collections until the problem is rectified and new software issued (and located and installed by tens of millions of global users, which could certainly take months).

- **rights issues** for audiovisual content, especially from broadcasting and the cinema industry.

- bibliographical data and metadata in general that applies to **time-based media**. All media have structure, but a temporal structure has specific issues, like synchrony between multiple streams of information, that are unique problems of audiovisual media. In fact, the whole area of 'middleware' – the technology that sits between the archive and the internet – has specific complexities for audiovisual media.

- competence centres that provide **an effective and unbiased service** for audiovisual collections, their users, and the service industries supporting their preservation and access. National libraries have declared themselves

---

[3] early December 2007

‘centres of competence’ (as stated in the description of new EC project IMPACT), but Europe is watching audiovisual archives to see how a service can be established to provide for the needs of a vast range of collections, from tiny to huge, and simultaneously foster a thriving service industry, while still ensuring their services are ‘better, faster, cheaper’.

With the growing volumes of digital content available for access and reuse, for example on the Web, further research activities should be planned and funded in each of the areas just listed, particularly the unsolved technical issues within digital permanence, content quality management and content tracking.

The core partners of PrestoSpace are planning to continue joint efforts, in order to make real progress in all these areas.