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Preservation Status

Annual Report on Preservation Issues for European Audiovisual Collections

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1. Document Scope

The PrestoSpace Project started on February 1st 2004. It is intended to push the limits of the current technology beyond the State of the Art, bringing together industry, research institutes and stakeholders at European level to provide products and services for bringing effective automated preservation and access solutions to Europe's diverse audiovisual collections.

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

2. Executive Summary

This report summarises the preservation status of European audiovisual material. The report is compiled from direct contact with 20 audiovisual collections of various sizes in 11 EC countries – and public data from a further 10 countries. The general picture is one of planning rather than implementation of preservation work, with funding and availability of technical services being the two main limitations on progress.

3. Overview

Detailed information on the *preservation status and needs of audiovisual material in Europe* comes from the PrestoSpace User Requirements Survey. Full details of the methodology and conclusions are given in Section 4, and the complete survey results are available on the PrestoSpace website¹. As it takes time to develop contacts in every European country; the PrestoSpace survey had responses from 11 countries, mainly in Western Europe.

In order to have more comprehensive results, we went outside the PrestoSpace user group to make direct contact with organisation that we discovered by trawling various lists of audiovisual archives (Appendix 10.3). The additional information obtained from these contacts is given in Section 0, covering a further nine countries (seven in Eastern Europe).

PrestoSpace now has a baseline of information and contacts, with results covering 20 countries and with contact information on all 25 EC member states. We have also developed a "short form" questionnaire (in conjunction with the TAPE² project). We will use this shortened questionnaire to produce an annual update of information covering the *preservation status and needs of audiovisual material in Europe*, reaching more archives and other audiovisual collections each time.

The survey – and the PrestoSpace project itself – is focussed on audiovisual material in some sort of institutional collections; we are not dealing with the perhaps even larger (or much larger) amount of 'domestic' audiovisual material which has not been professionally produced and never been formally collected.

The basic questions are:

- How much material is in audiovisual collections?
- What condition is it in?
- What is being done about its preservation?
- What are the major problems?

¹ http://www.prestospace.org/project/deliverables/D2-1_User_Requirements_Final_Report.pdf

² <http://www.knaw.nl/ecpa/tape/>

An initial – and admittedly partial – answer is in the following pages. In summary:

How much? In 31 institutions (out of many hundreds, but including many of the biggest) across 20 EC countries, we found 20 million individual items of film, video and audio.

What condition is it in? They do not know. Lack of condition assessment procedures is a main finding of the PrestoSpace User Requirements Survey. We know from prior studies that 70% of this material will be decaying, fragile or on obsolete formats (or all three!), but the archives have identified that they have a problem knowing which material is decaying and which is holding up.

What is being done? 70% of the material in the PrestoSpace survey (where we also were able to get detailed information on preservation programmes) amounts to 17 million items: 6 million films, 6 million videotape and 5 million audio recordings. Preservation projects are planned or underway to transfer about 250 000 items per year: about 1.5% of total holdings. So in 60 years the problem will be solved, except for three problems:

- Much of the material will not last for 60 years; average usable life of videotape is 20 years. After 20 years, equipment and operators become very scarce – even if the material itself does not suffer chemical deterioration. Tape-based media (video and audio) stored at room temperature and not kept low humidity will have probable start to decay within 20 years (Image Permanence Institute data³)
- New material comes in; project Presto found that acquisition were exceeding preservation work by a four to one ratio⁴.
- There is already insufficient budget and insufficient resourced to cope with a transfer rate of 1.5% per year. The PrestoSpace survey found that archives had half the budget they needed, and the facilities providers also had half the needed capacity (see Section 0).

As expected, a large increase in preservation projects, funding and capacity is needed, or the statistics are inexorable. **At current rates of preservation work, and with audio and video material beginning to degrade after 20 years at 5% per year, 40 % of existing material will simply disappear by 2045⁵.** This is a best case figure, which assumes that transfers always concentrate on the material most at risk, and which takes NO account of new material coming into these collections⁶.

At worst, after 20 years all preservation resources will be dedicated to trying to keep up with decay of new material (which will then be 20 years old), and so **70% of existing material will simply disappear (by 2025)⁷.**

Future Annual Reports will track the impact of PrestoSpace on this situation. Please see Section 8 for a summary of the conclusions of this Report.

³ http://www.rit.edu/~661www1/sub_pages/8contents.htm

⁴ <http://presto.joanneum.ac.at/projects.asp#d2>

⁵ This calculation is for audio and video tape, not for film. Some film can last for 400 years, but total resources for that form of preservation/conservation are also expensive, and only a few archives have adequate storage for a true 400-year conservation plan.

⁶ Calculation: nothing left of current material in 40 years, because of the 5% per year decay after another 20 years. Forty years of transfers at 1.5% per year = 60% transferred, 40% lost.

⁷ Calculation: 20 years at 1.5% = 30% saved, so 70% lost. After 20 years, all resources dedicated to rescuing what is now new material, but will then be 20 years old and needing urgent attention.

4. PrestoSpace Survey

4.1. Method

PrestoSpace started in February 2004, and its first task was to form a wide-ranging user group, to gather information about the preservation need of actual managers of audiovisual collections.

The PrestoSpace user group consists of various kinds of audiovisual archives and their service providers, and will give input on PrestoSpace tools and services throughout the project.

The user group was established by contacting FIAT and FIAF members by e-mail. In addition, existing individual project partners' mailing lists were used. In cooperation with the Minerva project, smaller heritage institutions were reached. A user group meeting was organised in March 2004 and was attended by seventy delegates.

In the spring of 2004, the first questionnaire was disseminated, by e-mail, among members of the user group. The recipients were broadcast and other audiovisual archives: curators, technical experts and managers, who are familiar with digitisation projects and are able to provide information about their own experiences, whatever the size of their collections and the media involved. They were asked to assess and amend the PrestoSpace proposals according to their experiences and needs.

A survey was distributed beginning in February. The survey form was comprehensive (meaning: long, detailed, and difficult to answer) so a lot of work (meaning: arm-twisting and cajoling) had to be done to actually get completed responses. However the result was a great deal of information from over 20 archives, ranging from several of the biggest to some small, specialist collections. These results included respondents in 11 EC-member countries.

Appendix 10.1 gives the list of responding institutions.

4.2. Findings

4.2.1. Holdings

Archives were asked to tell us the actual number of items on their shelves – or number of files in their mass storage systems (for those who had mass storage).

There are many ways in which archives collect statistics. Film collections often have figures for how many meters (or even feet) of film they hold. Audio and video collections often report holdings in hours rather than items. We asked archives to report items, and some of them had to estimate items from hours (using the figure 20 minutes per item). The combined results are shown in the following table.

Carrier	No. of cans/tapes
Film in Broadcast Archives (14 responses)	4.238.857
Film in Film Archives (5 responses)	1.665.708
Video tapes (16 responses)	6.232.352
Audio recordings (12 responses)	5.321.301
Total audiovisual items	17.458.218

Using the same 20-minute rule of thumb, this 17.5 million items represent about 6 million hours.

4.2.2. Preservation Status

Film: These are the major problems identified by users:

1. sepmag vinegar syndrome
2. colour reversal film

And here is the explanation of these problems:

Film has three major risks:

- nitrate is explosive and burns uncontrollably;
- acetate turns into acetic acid and eats itself and everything around it (vinegar syndrome);
- finally, films are fragile and susceptible to mechanical damage every time they are handled.

For chemical reasons, the combination of iron particles (used to make magnetic sound recordings) and acetate is the type of film most prone to vinegar syndrome. Accordingly, archives holding such material (acetate sepmags: separate magnetic sound track) identified that as their major film-related preservation need.

Archives have known for over 40 years about the explosive and combusive problems of nitrate film, and have developed effective procedures for coping with nitrate film. Nitrate is actually more stable than acetate – *except when it bursts into uncontrollable combustion!* This statement may sound silly, but it means that nitrate decays more slowly than ‘safety film’ (acetate), and when it decays it doesn’t make acid that eats itself and everything around it. Archives that have adequate storage and handling procedures for nitrate are now more concerned about the slow chemical decay affecting acetate. The PrestoSpace survey found 890 000 items of sepmag in 14 broadcast archives. We also found over 400 000 reels of 35mm nitrate in film archives, about 1/3 of total 35mm holdings.

The next item of concern to film collections was colour fade, which can affect all colour film but appears to be a problem in broadcast archives for 'colour reversal' (also called 'direct positive') film. This is the same film process used in domestic colour slides: there is no negative; the exposed film is itself, directly, the 'positive' for projection. This format was typically used in broadcasting for news, because the 'direct positive' eliminated a stage (the printing stage) in the film processing, and hence saved time which was particularly desirable in a broadcast news environment.

Whether for reasons of colour fade or simply because of the high re-use value, colour reversal film was the second most urgent area for preservation work. There were 1 250 000 items of 16mm reversal film in the PrestoSpace survey (in broadcast archives).

The total sepomag and reversal holdings are 2.15 million items out of a total of 4.2 million, meaning that HALF of film holdings in broadcast archives are in the top priority category.

Video: These are the major problems identified by users:

- 1. Transfer of U-Matic material to a modern carrier**
- 2. Transfer of 1" material to a modern carrier**

It may appear that film has major problems, but videotape was invented for 'time shifting' programmes by a few hours, and then was used to store pre-recorded programmes for a few days or at most weeks. It was specifically NOT invented to hold content for decades. The study by the US Library of Congress called videotape the single most unsuitable audiovisual format ever used for archive purposes, NOT excepting nitrate film⁸.

The problem is that videotape technology progresses by always squeezing the signal onto smaller and smaller amounts of tape, so that although there have been tremendous advances in technology over 50 years, the resultant formats have always had very little margin for error in the recording process – a situation which is as true today for the miniature DV formats as it was for the original 2" tape.

The effort to move to smaller and smaller tape has meant a long chain of format changes in video technology. With each change, the playback equipment becomes obsolete, spare parts disappear, and all-too-quickly the basic human knowledge required to calibrate, operate and repair the equipment also disappears (or, at least, gets pensioned off).

Videotape is also susceptible to chemical decay. So for two reasons, format obsolescence and chemical decay, older videotape needs to be transferred to remain viable. This is a very different situation than for film, where cold storage can hold off the chemical change (for centuries), and there is no significant format obsolescence (at least for the main 16 and 35mm formats).

The respondents in the PrestoSpace survey had U-Matic (used widely in the 1980's and 1990's) as top of their list for transfer work. U-Matic was widely used in news in broadcasting, but it was also very widely used in every other context where people wanted something better than the consumer formats VHS and BetaMax. It is probably because of the near-ubiquitous use of U-Matic in the 1980s, and hence the large amount of U-Matic material in so many video collections, that it has highest preservation priority for video materials.

The 1" format dates from the 1970's and was in use for roughly 20 years. It was not much used outside of broadcasting (except in high-level medical imaging applications), but the bulk of broadcast archive material from the 1970's and 1980's are on 1".

⁸ <http://www.loc.gov/film/tvstudy.html>

The PrestoSpace survey found about 700 000 items of U-Matic videotape, and just over 600 000 items of 1" (out of 6 million total video items). From these numbers, we conclude that **20% of video holdings are in the top priority area, requiring immediate attention.**

Neither U-Matic nor 1" equipment has been in production for a decade. The manufacturers no longer supply spares nor provide service. Large archives may have stockpiled some old machines and spare parts, but all other archives will have to rely on specialist service providers who still have working machines, have their own servicing skills, and find some way to locate spare parts.

Audio: Audio has one major problem: ¼" (6mm) tape. This was the workhorse of the audio industry for nearly half a century, and has disappeared as a useful format with alarming rapidity since 2000. Tape decks stopped being made just a few years ago, and in the last few months the remaining supplier of blank tape went into receivership. Because ¼" tape was so successful for so long, audio archives across the world are filled mainly with this format.

Roughly 90% of the 'one-of-a-kind' material in audio collections is on ¼" tape. The PrestoSpace figures also surveyed holdings of commercial recordings, which were primarily on shellac, vinyl, and then CD. So our overall figures show 50% of overall holdings were on ¼" tape (out of 5.3 million items).

Some of this ¼" tape is on acetate and is at immediate risk. However material from the last 40 years should be on more stable media – but 40 years is a long time even for 'relatively stable' media. Therefore most audio collections (with the exception of the University of Columbia, which copied from old ¼" tape ONTO new ¼" tape as recently as 2003⁹) are migrating off audio tape as their top priority – **meaning 3 million items from 12 archives requiring priority transfers.**

4.2.3. Preservation Projects

To meet the urgent needs just listed, archives have sought funding and are running preservation projects.

There are several types of project:

- **Conservation:** improving storage conditions to make existing material last longer. This is the preferred approach for film collections for their master material, and a leading example is the Danish Film Archive. They have produced a detailed explanation of every aspect of their conservation strategy – which has an overall timescale of 400 years into the future¹⁰.
- **Migration:** this is the main immediate work for audio and video materials, and for decaying film. Preservation via migration consists of transferring master material from old formats to new ones. This can be done with varying degrees of production efficiency – and a major focus of PrestoSpace is to develop high efficiency 'preservation factories' across Europe. The same technical process, namely transfer from one format to another, is also used to make viewing copies, usually in lower quality. All formats, including film, benefit from cost-effective methods for production of viewing copies.
- **Restoration:** Archive media can be of varying quality, and modern technology (and some not-so-modern, like re-doing the splices, and wet-gate film printing) can significantly improve the result of a migration (transfer) process. Restoration has tended to be seen a too

⁹ <http://www.columbia.edu/cu/lweb/services/preservation/audio.html>

¹⁰ Preserve the Show; D Nissen, L R Larsen, T C Christensen, J S Johnsen Eds; Danish Film Institute; 2002

expensive to incorporate in cost-effective transfers, but some of the data necessary for restoration is calculated as a matter of course in the digitisation stage. It is a goal of PrestoSpace to integrate the workflow so that restoration becomes more cost effective, so that more archive material can benefit from the power of digital restoration.

The respondents to the PrestoSpace survey were planning migration projects as shown in the table below.

Migration 2004-2006	Items to Migrate	Transfer Service Capacity
Film	29.168	17.500
Video	340.540	213.000
Audio	113.600	41.000

This represents nearly 500 000 items in two years, which is a lot – until we realise that 250 000 items in one year is 1.5% of the total holdings (from the survey) of 17.5 million items!

Funding and Service Provision

Preservation of audiovisual material costs money. The archives have forecast a spend of nearly 60 million Euros in 2004-2006. Assuming they're talking about the 500 000 items they plan to migrate, this comes out as 120 euros per item. Again using an estimate of 20 minutes per item, the cost is 360 euros per hour.

This cost is rather higher than the Presto average of roughly €200 per hour, from a study in 2002. It may be that the 20 minutes per item figure is wrong, and it may also be the case that the estimates include items beyond the basic migration costs, like the costs of an entire new archive digital infrastructure (mass storage, network, workstations).

However it may also be that archives are not getting the best price possible for transfer work. As the PrestoSpace project continues, it will be very interesting to see the extent to which we can reduce 'the going rate' for archive transfers across Europe.

Shortage of funding and shortage of capacity!

The survey also revealed two major difficulties with the archive plans. As shown in the previous table, although archives plan to transfer 500 000 items, the service providers so far identified have only half that capacity. This situation may reflect incomplete statistics on our part, but a factor of two is clearly a large gap to fill.

A priority of PrestoSpace is developing relations with companies who can provide transfer services, as follows:

- Finding the companies who can do "archive transfers"
- Encouraging companies in related areas to equip themselves for archive transfers
- Encouraging all these companies to adopt a PrestoSpace 'preservation factory' approach, to achieve higher quality at lower cost

We now (January 2005) have much more contact with such companies than we did six months ago. Accordingly, next years survey should give a much more comprehensive picture of the true gap between service demand (from the archives) and service provision (by the facilities industry).

There is an even larger shortage – about 60% – of funding for archive migration plans, as shown in the following table (again from the User Survey):

Broadcast and Film Archives

Film Video Audio Migration	Costs, Euros	Available Budget
2004-2006	57.841.500	24.805.000

This gap is harder to bridge. PrestoSpace can develop the service provision industrial sector – the facilities houses which can do archive-quality work, but we cannot come up with the 25 million Euros to fill the gap in **identified** projects over the next two years.

4.3. Conclusions

The Funding Gap

Assuming there are projects we have NOT identified, which must be the case as we obtained detailed information from only 20 archives in this first survey, the overall funding gap in planned projects is correspondingly larger than our figure shows.

We will have much more information by January 2006, which we will use to correct the following estimates:

Archives	Planned annual budgets	Available annual funding
In 1st PrestoSpace Survey	€30 million	€12.5 million
At least as many projects that we don't know about	Another €30 million	At most another €12.5 million
PLUS – what archives should be doing is transferring at about 5% per year, not 1.5 % ¹¹	Another €140 million ¹²	The best estimate is that NO funding is available, as there's already a shortfall in funding annual transfer of 1.5% of holdings
Total	€200 million	€25 million
	Shortfall	€175 million

The shortfall is €175 million per year! This figure highlights the significance of two related issues:

1. **The importance of a European preservation strategy:** there is duplication of holdings, and there are also tough decision to be made about selection. It is possible that as much as half the shortfall could be eliminated by proper planning and selection, reducing the total European audiovisual preservation budget requirement to €100 million per year, and reducing the shortfall to €75 million.
2. **The importance of reducing transfer costs:** if project budgets can be reduced by 40%, the shortfall then drops from €75 million to **€35 million**. This is still a big number, but far closer to available funding than the €175 million figure shown in the above table.

Priority Preservation Problems

The PrestoSpace questionnaire asked institutions to identify their:

- most common problems;
- most unexpected problems
- future digitisation objectives

¹¹ Assuming media has a 20-year life span on average; hence the need to transfer 5% per year

¹² Another 3.5% needed, so this figure = (3.5 / 1.5) (60 million)

In the answers, they highlighted three areas:

- 1) the **lack of condition assessment** information as well as the rather poor condition of materials;
- 2) the **lack of infrastructure**: physical, organisational (workflow) and financial (required budget and expense control);
- 3) **rights negotiation** hampered further by missing and or incorrect original documentation.

A basic issue for any collection is: what's in the collection? The answers to the survey showed that audiovisual collections **do** know what they have, technically (format) and in terms of content. But they do not know the condition of this material.

They went on to say that they don't have what they need in order to undertake significant preservation work: they don't have the staff and equipment, they don't have the training and methodology – and they don't have the funding.

Finally, rights continues to be seen as a problem. A positive approach to dealing with rights issues is presented in Section 6, below.

5. Further European Information

5.1. Method

PrestoSpace is developing a very brief questionnaire for archives, working in cooperation with EC project TAPE. However the answers for this questionnaire were not ready in time for this first report.

In the 2006 report we expect to have direct responses, based on the 'short form questionnaire', covering at least five times as many archives as the 20 respondents included directly in this report. Certainly we now have lists (see Appendix 10.3) of several hundred collections in Europe, and they will all be contacted.

In order to have some information for the 14 EC-member countries not included in our 20 respondents (listed in Appendix 10.1), we collected information from public websites, and from presentations given by archives at international conferences (FIAT has several such summaries on their website).

Information from those archives reporting numerical information on their holdings are collected in the table in the next section.

5.2. Findings

Country	Name	Holdings, items		
		Film	video	audio
Belgium	Cinémathèque Royale	100000		
	RTBF			
	VRT	66000		25000
Germany	Berlin Film = Bundesarchiv Filmarchiv	1000000		
	SWR		1250000	
Latvia	Latvian State Archive of Film, Photo and Audio Documents	60000	2000	
Luxembourg	Centre National de l'Audiovisuel	30000	15000	
Estonia	Eesti Filmiarhiiv	8000	1000	7000
Lithuania	Lithuanian Theatre, Music & Cinema Museum	7500		
Poland	ARCHIWUM POLSKIEGO RADIA			10000
Slovenia	SLOVENE FILM ARCHIVE	22000		
Croatia	HRVATSKA KINOTEKA	60000		
	Totals	1353500	1268000	42000

As can be seen, the new EC member states have well-developed film archives covering a long history. They also have broadcast archives, which we know about in general through the European Broadcasting Union, but the broadcast archives are far less outward facing than is the case for film archives, and tend not to publish their figures. Interestingly, the broadcasters themselves often have very extensive public websites, which is more a problem than a solution as it is very difficult to find where, if anywhere, the broadcast archive appears on their public websites.

5.3. Conclusions

As a reminder, we found the following film in film archives in the full PrestoSpace survey:
Film in Film Archives (5 responses) **1.665.708**

This is an average of 330 000 items per film archive, and these five included three national film collections (British Film Institute, Imperial War Museum and the Netherlands Filmmuseum).

Latvia and Croatia both had 60 000 items each, and the Polish radio archive had 10000 items. **These numbers show that quite large film, video and audio collections exist all across Europe.** It will be the task of the next survey to contact ALL these institutions, and several hundred others now on our various lists, to develop a comprehensive picture for the next annual survey.

6. Actions

As discussed in Section 4.3 (Conclusions from the PrestoSpace survey), there is a huge shortfall between what archives need to do to preserve their contents, and current funding. PrestoSpace is dedicated to a 40% reduction in preservation transfer costs, by our work developing the preservation factory concept, and enlisting the facilities industry to adopt this approach.

PrestoSpace is also taking specific action relevant to two of the three areas identified as particular problems in the PrestoSpace survey.

6.1. Condition assessment

The need for better methods to determine media condition has been made a priority in the Preservation (migration) part of the PrestoSpace project, in response to the User Requirements Survey. First results of work in this area are scheduled for later in 2005, and will be available through the PrestoSpace website (prestospace.org).

6.2. Infrastructure

Archives said they lacked the “physical, organisational (workflow) and financial” infrastructure for preservation work. PrestoSpace is developing the preservation factory concept to make the physical infrastructure available on a pay-per-use commercial basis. Regarding “organisation”, we are also providing online information to assist archives in constructing a preservation finance case, and in the logistics (planning and tracking) for actually running a preservation project. Our main contribution to the third point, finance, is our commitment to a large (40%) reduction in the cost of such a project.

6.3. Rights

With regard to **rights** (the third main area of archive concern, as reflected in the survey), there needs to be a fundamental shift in thinking so that rights owners and the beneficiaries of copyright law can become part of the solution instead of being viewed (by both holders and users of collections) as one of the problems.

The basic shift is for rights owners to see the advantages – to them – of wider access to audiovisual collections. The basic choice is for material to languish unknown and untouched, which benefits no-one – or for material to be exposed to wide access which in turn also throws up opportunities for rights holders to make money. **The problem is: rights owners aren't given this choice.** Instead, it is all too easy for managers of collections to see rights as “a problem”, and therefore avoid activities that raise the issue of rights clearance. Because of this avoidance, rights holders themselves aren't given any choice at all, and everyone suffers from the resultant restricted access.

The solution is not within the scope of PrestoSpace, but the direction is clear:

- Archives should lay plans for wider access (because ‘access funds preservation’, if anything does)
- These plans should be discussed with rights owners and the rights protections agencies
- The methods for protecting the legitimate, legal rights of rights holders should be clearly defined

- The prospects or methods for generating extra rights income should be clearly examined or defined
- The proposal should be explained in terms of lose-lose (if rights issues prevent progress) versus win-win (if there is both more general access, and an increase in rights income)
- Rights owners should be invited to “invest in the project and in the proceeds”.

While it may be unrealistic to expect an actual cash investment, it is quite possible that rights owners and their agencies would become supporters in principle, and would actively work with collection managers to cope with rights issues.

This approach is not just speculative. The (private) Prelinger Archive followed exactly this route with the not-for-profit Internet Archive. Prelinger owned the rights, and gave Internet Archive permission to digitise their entire collection, and put internet-quality material on a public website: [Internet Archive Movies](#). The result has been a major increase in business for the Prelinger Archive: he gave his content away (in web quality, under a Creative Commons licence), and increased his sales (of full quality clips).

In a 2002 interview with Lisa Rein¹³, Mr Prelinger said:

“You know, these images don't get used up. They don't get yellow around the edges. They don't become less valuable from being shown and repeated. Ubiquity equals value. That's how I think you can make money by giving things away.”

¹³ <http://creativecommons.org/getcontent/features/rick>

7. Audiovisual Preservation Activity in Europe

This section is a brief summary of relevant European activity outside the PrestoSpace project. There is of course activity outside Europe, and the PrestoSpace project is aware of major initiative worldwide through our contact with international organisation, principally FIAT, FIAF, AMIA, IASA, SEAPAAVA and the CCAA¹⁴, and through direct contact with the US Library of Congress which is planning the world's largest audiovisual preservation project¹⁵. However the information given below focuses specifically on Europe.

7.1. Policy

Audiovisual Preservation

Preservation of the audiovisual heritage has had some recognition at official levels. UNESCO called attention to the problem 25 years ago, in their "Recommendation for the Safeguarding and Preservation of Moving Images"¹⁶ (27 October 1980).

This document supports establishing national collections, which would be able to "permit the viewing on their premises of a projection copy on a non-profit-making basis". With the internet, and the tremendous shift in public expectations, "viewing on their premises" is now seen as a restriction rather than a privilege. As increase in access remains the most likely way to obtain preservation funding, **the enshrined (literally!) policies of "viewing on their premises" access must be revisited** in order to find creative ways to both obey the law and develop access. PrestoSpace is collecting information in this area, and will present details and updates in the subsequent Annual Reports.

There is also a European Convention for the Protection of the Audiovisual Heritage, signed in Strasbourg in November 2001 (European Treaty Series No 183)¹⁷, in which the member States of the Council of Europe are "Resolved to co-operate and undertake joint action in order to safeguard and ensure the continuation of audiovisual cultural heritage".

Article 5 of this convention says each member shall introduce 'legal deposit' procedures. If this article is followed, it will indeed assist the difficulty national archives have in establishing truly comprehensive collections – but it will make the preservation issues significantly worse! As an example, the national audiovisual archive of Sweden (where they have legal deposit legislation covering national and local radio and television) now has 6 million hours of audiovisual material. FIAT is actively monitoring the legal deposit issue, with updates and guidance at its annual meetings. The Convention itself says nothing about the funding of preservation.

Digital Preservation

There are many national policies on preservation, though recently 'digital preservation' has captured the bulk of the attention. Many countries are developing a national digital preservation policy, and a European-level organisation (see next section). These policies tend to focus on documents and electronic text, not audiovisual media.

However there will be future benefit to audiovisual archive from the digital preservation work, because we are moving from analogue into digital as a solution to our analogue preservation

¹⁴ FIAT: fiatifta.org FIAF: fiagnet.org AMIA: amianet.org IASA: iasa-web.org

SEAPAAVA: geocities.com/seapavaa/ CCAA: cctaa.org

¹⁵ Culpeper Project: http://mic.imtc.gatech.edu/preservationists_portal/presv_navcc.htm

¹⁶ portal.unesco.org/en/ev.php-URL_ID=13139&URL_DO=DO_TOPIC&URL_SECTION=201.html

¹⁷ conventions.coe.int/Treaty/en/Treaties/Word/183.doc

problems. Digital media do provide a solution, but they also present their own problems of longevity of carriers and formats. Digital Preservation research and policy will be of value to audiovisual archives as we move, with book and records collections, into digital media, digital mass storage and electronic (especially Internet) access.

Digitisation

There is also much local and national activity on digitisation, but increasingly the term 'digitisation' is being taken to mean conversion mass storage and Internet access. An example is the UK National Archives project to make available the 1901 Census records, which has the following question and answer¹⁸:

What does digitising/digitisation mean?

There are 3 elements: **Scanning the microfilms** of the original census returns and creating an electronic image of each page of the returns. Transcribing the information from the returns and **creating a database** with an index which can be searched by name, place, address, institution or vessel. The index will link directly to the images of the returns. **Making the images and database available over the Internet**

These 'digitisation' projects are interesting and valuable, but they tend not to offer any direct support or technology for conversion of audiovisual archives into digital form. In particular, projects and policies under the label 'digitisation' tend to be all about access, and not at all about preservation.

What 'digitisation' projects **do** provide is a range of innovative and interesting example of **new forms of access**. The 1901 Census project was so popular that the website crashed when the project was first launched, and it has gone on to be one of the most popular services of the UK National Archive, and hence the general public finds out about this institution, and supports its budget and activities.

At the European level, the Cultural Heritage Applications Unit of the Information Society Directorate organised a meeting in Lund in April 2001, about "eEurope digitisation". The outcome of this meeting was the Lund Principles¹⁹ document, which gives "an agenda for actions to be carried out by Member States, by the Commission, and by Member States and Commission jointly". We will return to the Lund principles when discussing the NRG in the next section.

7.2. Organisations

There is an official body set up to coordinate, at the European level, the various national digitisation and digital preservation activities. As discussed above, the "digitisation of audiovisual materials" is not central to their concerns, but they are the nearest relevant organisation. This body is the National Representatives Group²⁰, which has (closed) meetings to coordinate activity and policy at a European level. In particular, its stated mission is to "monitor progress regarding the objectives encapsulated in the Lund Principles".

The NRG was set up by Minerva²¹, which is a "network of Member States' Ministries to discuss, correlate and harmonise activities carried out in digitisation of cultural and scientific content."

Minerva and NRG are mainly concerned with traditional libraries, although it is very rare to find a 'traditional' library that does not have responsibility for audiovisual material. So Minerva and the NRG are interested in audiovisual preservation, but our concerns are peripheral rather than central to their overall programme.

¹⁸ http://www.1901census.nationalarchives.gov.uk/help/Frequently_Asked_Questions.html

¹⁹ http://www.cordis.lu/ist/directorate_e/digicult/lund_principles.htm

²⁰ <http://www.minervaeurope.org/structure/nrg.htm>

²¹ <http://www.minervaeurope.org/whatis.htm>

Minerva has a helpful website in the general area of digitisation and digital preservation²², and publishes an annual report Coordinating digitisation in Europe, which is the “Progress report of the National Representatives Group: coordination mechanisms for digitisation policies and programmes”²³.

PrestoSpace works with Minerva (and hence the NRG), and will try to use this connection to advance the cause of audiovisual preservation. As PrestoSpace is a project, not an official body, the main contribution we can make is to supply information and analysis of that information. This document, this Annual Report, will go to Minerva and the NRG. With future Annual Reports, as PrestoSpace becomes more comprehensive, we hope our information can directly affect audiovisual preservation policy.

The other organisations relevant to audiovisual preservation are the various media-related professional bodies, specifically (see footnote 14 for web addresses):

FIAT/IFTA: International Federation of Television Archives
 FIAF: International Federation of Film Archives
 AMIA: Association of Moving Image Archives
 IASA: International Association of Sound and Audiovisual Archives
 CCAAA: Co-ordinating Council of Audiovisual Archives Associations

The European Broadcasting Union²⁴ is also interested in preservation (and in Prestospace), and in (broadcast) audiovisual archives.

In addition to permanent organisations, there are European projects which have relevance to audiovisual preservation. PrestoSpace is already working with those sponsored by the IST programme, and we are working with TAPE (see footnote 2).

The most relevant IST projects (in the Cultural Heritage Sector) are:

- **BRICKS** : which aims at establishing the organisation and technology foundations of a Digital Library at the level of European Digital Memory brickscmmunity.org
- **DELOS**: Building the next generation Digital **Libraries** delos.info
- **CALIMERA**: promoting best practice among local [cultural heritage] institutions throughout Europe calimera.org
- **DIGICULT**: “existing and emerging technologies that provide opportunities to optimise the development, access to, and preservation of Europe's rich cultural and scientific heritage“ digicult.info/pages/index.php
- **ERPANET**: Electronic Resource Preservation and Access Network erpanet.org

7.3. Events

The major activities concerning audiovisual preservation are organised by the professional bodies just mentioned. These bodies run annual conferences, but also run a range of training and specialist events, and supply advisory material on their websites.

PrestoSpace had two User-focus events in 2004, as well as a workshop at the FIAT/IFTA annual conference. PrestoSpace events are announced on our website, and future events beginning in 2005 will include specific technology training, as well as industrial-academic -archive events to foster the relationship between archives and service providers, and between research and industry.

²² <http://www.minervaeurope.org/home.htm>

²³ <http://www.minervaeurope.org/publications.htm>

²⁴ http://www.ebu.ch/en/television/new_media/archives.php

Minerva has six-monthly meetings in conjunction with the NRG, as well as other events (listed on their website).

At the policy level, significant EC events tend to follow the European presidency. The Netherlands held the presidency in July-December 2004, and an important meeting was held on the general issue of large repositories and their public support (with Minerva sponsorship). The meeting was held in The Hague, The Netherlands, and was called "Towards a Continuum of Digital Heritage. Strategies for a European Area of Digital Cultural Resources". The idea was the "**development of a public, sustainable and trusted European digital space where cultural resources and cultural knowledge can be shared and accessed**"²⁵. Such thinking is directly relevant to archive preservation, because cooperative storage and access projects may attract the interest (and funding) needed for archive preservation. The SAM (Storage and Archive Management) area of PrestoSpace is developing information in this area.

As mentioned, UNESCO has a 1980 recommendation on audiovisual preservation. Recent relevant activity is focussed on the UNESCO WSIS: The World Summit On The Information Society²⁶, which met in Geneva in December 2003, and meets again in Tunis in November 2005. This activity is relevant because UNESCO is looking at the global 'information society' – and Europe will be in direct competition with the USA and Japan as providers of technology and content to 'the citizens of the world'. European audiovisual archives are rich in material of world significance – certainly more significant than re-runs of American soap operas – but without development activity this 'global market' will be dominated by what is available, rather than what is useful and valuable.

7.4. Prospects

The most encouraging prospect from the PrestoSpace survey was the fact that all archives that we contacted were well aware of preservation issues, and understood both that time was limited and that preservation would take large amounts of extra funding.

Future Annual Reports will cover a much wider group of audiovisual collections, and will track progress and related activities year by year.

²⁵ <http://eu2004.digitaliseringerfgoed.nl/cultuurtechnologie/cultuurtechnologie/i000264.html>

²⁶ <http://www.itu.int/wsis/>

8. Conclusions

Scope: This is a first survey, and has had limited coverage. However we did get very detailed information from 20 significant archives, and general information from another 10, covering 20 of the EC member countries.

Amount and condition of material: details were presented in Section 4. We found 20 million items, roughly equally split amongst film, video and audio.

Major problems with specific media were (details in section 4.2):

Film: These are the major problems identified by users:

- sepomag vinegar syndrome
- colour reversal film

Video: These are the major problems identified by users:

- Transfer of U-Matic material to a modern carrier
- Transfer of 1" material to a modern carrier

Audio: Audio has one major problem: (transfer off) ¼" (6mm) tape

Major overall problems were (see Section 4.3):

- the **lack of condition assessment** information;
- the **lack of infrastructure:** physical, organisational (workflow) and financial
- **rights negotiation** problems

The PrestoSpace project has specific actions to address condition assessment and infrastructure, and will be providing information on innovative methods of dealing with access and rights, in addition to the comments in this report (Section 6.3).

The shortfall: The audiovisual collections responding to the questionnaire were well aware of the need for preservation work, and were planning large projects, involving around 250 000 items per year at an estimated cost of nearly €30 million per year. BUT – they only had half this money in their budgets, and the service providers only reported half the needed capacity 4.3).

The situation is worse than this, because 250 000 items per year is only 1.5% of holdings. It would take transfers of 5% per year to migrate holdings on a 20 year cycle. The additional **annual** funding needed for 5% yearly transfers is roughly €175 million.

Meeting the deficit: By a considered policy of selection (to save 50% on the required transfers), and with the PrestoSpace preservation factory approach for the actual work (saving an additional 40%), we estimate the actual shortfall can be reduced from €175 million to €35 million. Still a large number, but it does represent an 80% overall reduction in the estimated funding deficit.

Future Annual Reports will provide updates on planned and actual preservation work and its cost, with wider coverage and greater accuracy.

9. Glossary

Term	Description
Carrier	The physical object that holds a audiovisual image or signal, such as film, videotape, audiotape, CD etc
Format	A specific type of carrier; film can be 16 or 35mm (and many more!). There are dozens of videotape formats.
sepmag	Separate magnetic sound track
vinegar syndrome	When acetate-based film stock turns into acetic acid and eats itself and everything around it
reversal (direct positive)	The exposed film is itself, directly, the 'positive' for projection
facilities industry; facilities house	The industry sector that has the skills and equipment for professional-quality transfer (and other processing) of audiovisual materials

10. Appendices

10.1. PrestoSpace Questionnaire Contacts

Short Name	Archive Name	Country	Internet Address
A.Kahn	Musée départemental Albert-Kahn	France	
AM	Technisches Museum Wien mit Österreichischer Mediathek	Austria	www.mediathek.ac.at
B&G	Nederlands Instituut voor Beeld en Geluid	Netherlands	www.beeldengeluid.nl
BBC	British Broadcasting Corporation	UK	www.bbc.co.uk
BFI	British Film Institute – National Film and Television Archive	UK	www.bfi.org.uk
CNC	Centre national de la Cinématographie – Direction du Patrimoine Cinématographique	France	www.aff.cnc.fr
DR ARC	DR Archive and Research Center (Danish Broadcasting Corp.)	Denmark	www.dr.dk
ETB	EUSKAL TELEBISTA-TELEVISION VASCA	Spain	www.eitb.com
ILS	Istituto Luigi Sturzo	Italy	www.sturzo.it
INA	Institut National de l'Audiovisuel	France	www.ina.fr
IWM	Imperial War Museum	UK	www.iwm.org.uk
MNFA	Magyar Nemzeti Filmarchivum; Hungarian National Film Archive	Hungary	www.filmintezet.hu/
NFM	Nederlands Filmmuseum	Netherlands	www.filmmuseum.nl
ORF	Österreichischer Rundfunk (Dept. Dokumentation & Archive)	Austria	www.orf.at
RAI	RAI RADIOTELEVISIONE ITALIANA	Italy	www.rai.it
SLBA	The National Archive of Recorded Sound and Moving Images	Sweden	www.ljudochbildarkivet.se
SVT	Sveriges Television	Sweden	www.svt.se
Telemadrid	Televisión Autonomía Madrid	Spain	www.telemadrid.es
TVR	Societatea Romana de Televiziune (Arhiva Multimedia)	Romania	www.tvr.ro/SRTV/arhiva/index.htm
YLE-R/TV	Finnish Broadcasting Co. (Television)	Finland	www.yle.fi

10.2. European Collection Internet Contacts

Country	Archive	Source
Belgium	Cinémathèque Royale RTBF VRT	http://www.ledoux.be/fr/collection.htm http://www.fiatiftaweb.rai.it/index.htm
Germany	Berlin Film = Bundesarchiv Filmarchiv ZDF SWR BR	http://www.bundesarchiv.de/aufgaben_organisation/abt_eilungen/fa/00983/index.html www.panasonic-pbe.co.uk http://www.fiatiftaweb.rai.it/index.htm PrestoSpace presentation - Gabriele Wenger
Latvia	Latvian State Archive of Film, Photo and Audio Documents	http://www.fiatifta.org/aboutfiat/news/old/2002/2002-04/latvia.html
Luxembourg	Centre National de l'Audiovisuel RTL	http://www.cna.public.lu www.rtl.lu
Estonia	Eesti Filmiarhiiv	www.filmi.arhiiv.ee
Lithuania	Lithuanian Theatre, Music & Cinema Museum	http://teatras.mch.mii.lt/Kinas/Kino_skyrius_rinkiniai.en.htm
Poland	ARCHIWUM POLSKIEGO RADIA	http://www.radio.com.pl/archiwum/
Slovenia	SLOVENE FILM ARCHIVE	http://www.gov.si/ars/233a.htm
Croatia	HRVATSKA KINOTEKA	http://zagreb.arhiv.hr/hr/hda/fs-ovi/kinoteka.htm (Branko Bubenik)

10.3. Audiovisual Archive Contact Lists

INA, BBC, RAI, B&G :

<http://www.ina.fr/>

<http://www.bbc.co.uk/>

<http://www.rai.it/>

<http://www.beeldengeluid.nl/>

FIAT:

Member presentations online: <http://www.fiatifta.org/aboutfiat/members/> (detailed information on 30 archives, from Albania to Zambia)

Digital archives survey (questionnaire answers regarding digitisation projects; 33 responses):

http://www.fiatifta.org/projects/information/fiat/digital_survey/index.html

2002 list of 150 members worldwide:

http://www.fiatifta.org/aboutfiat/members/list/continent_country.html

FIAF: Affiliates list (more than 120 archives in over 65 countries)

http://www.fiafnet.org/uk/members/Directory_.cfm?Lg=UK

IASA: List of over 40 member organisations: <http://www.iasa-web.org/iasa0023.htm>

Library of Congress (USA) National Film Preservation Board : list of over 500 'moving image collections'; about 120 in Europe: <http://www.loc.gov/film/arch.html>

UNESCO: 164 European Audiovisual Archives; total UNESCO list is 358 worldwide.

http://www.unesco.org/webworld/portal_archives/pages/Archives/Audiovisual_Archives/Europe/index.shtml