

# PRESTOSPACE: AN INTEGRATED SOLUTION FOR AUDIO-VISUAL PRESERVATION AND ACCESS

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## ABSTRACT

PrestoSpace FP6-IST project was conceived to build an efficient preservation and access solution for decaying audiovisual contents. The objective is to develop integrated systems that will permit a quick, efficient and economically accessible preservation of analog media (film, video and audio). The project brings together the chain of actions permitting a complete exploitation of contents: preservation, restoration, storage and description so to open the access, for large communities of users, to the audiovisual heritage of the past.

## 1. INTRODUCTION

Audiovisual media represent one of the major cultural heritages of our time. What was once the dream of pioneer researchers and inventors became, with time and constant improvements, the main cultural trend of our society. Television, Radio, Cinema and Multimedia are the great motors of culture, communication and commerce; they are the central networks of human activity, accessible to all and open to technology innovation. These new forms of communication developed during the twenty-century; the results of their evolution began accumulating within archives of a new type that were created to store these media. Storing meant keeping the media on which the contents were inscribed and keeping the machines that permitted to recover them, because these media were not accessible directly to human perception without the mediation of playback systems.

With time, archives became huge collections of different media, with different formats needing constant care and description. A menace then appeared: it was the menace of deterioration and loss of media and contents due to chemical processes and disappearance of playback systems. Archives were not eternal and specific actions needed to be undertaken in order to guarantee the survival of this heritage for future generations. Large broadcast archives initiated, since the nineties, ambitious and expensive plans to preserve the material on digital basis; but it was soon clear that unless some major program would be developed most of the audiovisual archives would not be saved on time, due to the cost of preservation and digitisation and the time needed to realise this work.

Specific technology had to be developed in order to deal with the fragile nature of audiovisual media. The precision of modern equipment is often not adapted to old media and particular care has to be taken so that preservation will not deteriorate them. However, the major problem is the huge amount of time and financing that any preservation plan implies for archive holders. Research actions have been undertaken in the past to analyse and propose specific solutions (i.e.FP5 Presto project) that permitted to evaluate the size of the task and its urgency, and to develop technical solutions for some tasks. The amount of audiovisual archives to preserve was estimated by Presto in 100 million hours, only in Europe!

The major interest of PrestoSpace is that archives will become accessible; digitisation opens the way to the progressive opening of contents to large communities of users and to the public. Research on audiovisual contents will be a reality for the specialists, and the audiovisual memory will be open to any individual. Collections will need indexation in order to be accessed; content retrieval and description will bring solutions through research and experimentation to the knowledge and navigation through collections.

PrestoSpace was brought-up with the intention to bring solutions to this huge cultural heritage situation. The main objective is to develop systems that will permit a quick, efficient and economically accessible preservation of analog media. This preservation brings together all the components that permit a complete content exploitation: *restoration, storage, archive management and description* (metadata). These actions will permit to open an access, for large communities of users, to the heritage of the past; and to understand through the study, use and comprehension of contents, the evolution and richness of our world.

## 2. OBJECTIVES

The project's objective is to provide technical solutions and integrated systems for digital preservation of all types of audio-visual collections. Institutions traditionally responsible for preserving audio-visual collections (broadcasters, research institutions, libraries, museums,

etc.) now face major technical, organisational, resource, and legal challenges in taking on the migration to digital formats and the preservation of already digitised holdings. Technical obsolescence and physical deterioration of their assets imply widely concerted policies and efficient technical services to achieve long-term digital preservation.

Audiovisual contents are disseminated and archive owners are heterogeneous in nature and size: institutions, enterprises, libraries, regional and local communities... Up to now, the economical cost and the technological complexity have prevented these stakeholders from elaborating and managing their own patrimonial policy, and they have to wait for public rules and subventions in a centralised way.

The principal aim of the project is to build-up *preservation factories* providing affordable services to all kinds of collection's custodians in order to manage and distribute their assets.

### 3. WORKPLAN

The developments will be carried-on in the following four distinctive Work Areas (groups of Workpackages):

- **Preservation Work Area:** providing and integrating tools for an optimisation and acceleration of the Preservation process
- **Restoration Work Area:** providing and integrating tools for efficient and fast Restoration
- **Storage and Archive Management Work Area:** addressing planning, financial and management tasks for process and storage technology aspects
- **Metadata, Access, and Delivery Work Area:** ensuring proper delivery to the archives, with access tools and rich content descriptions.

The Work Breakdown structure has one common integrated view, which is assumed by several transversal Workpackages at the Project level, concerning: User Requirements, System Architecture & Specifications, Integration, Services, Exploitation & Tests. These transversal Workpackages operate at the project level, keeping a view on all the developments of the project. They have the major task of verifying that the results are interoperable and easily interconnected. Training and Dissemination will contribute to know-how transfer.

### 4. RESULTS

The project intends to provide deliverables (devices, software, reports, and recommendations) for preservation process and management.

**Preservation:** A fast, affordable datacine, A Contact-less Playback Tool for audio disks, An Automated Audio Preservation tool, An Automated Video Preservation tool, A Manual tape condition assessment tool and An Information System for Preservation Management.

**Restoration:** a restoration management tool, a defect analysis and description infrastructure, a set of high-level restoration algorithms, a disk-to-disk real-time restoration tool, a film restoration software tool.

**Storage and Archive Management:** A Web-Guide and Software tool for storage planning for audiovisual preservation, A Guide and Software tool for business-case planning for audiovisual preservation and organisation. A Logistics and Quality Insurance System for Audiovisual Preservation.

**Metadata, Delivery and Access:** A Semi-automatic description tool, An Export system for delivering preservation results to medium and large archives. A Turnkey system for delivering preservation results to small archives.

### 5. PARTNERSHIP

Archives, Service providers, Industrials, Universities and applied research Institutes from 8 European countries and the US, participate to the project.

A strong group of *Users*, *Service providers* and *Industry representatives* will provide the requirements, functional feedback and knowledge on current practices, and will test the developed solutions. The partners contribute to address directly the archiving problems, to implement the results of research and to build the tools and components the preservation chain, for restoration innovations and for access solutions.

- 8 archive institutions and their R&D departments: INA, BBC, B&G, ORF, RAI, Netherlands Film Museum, Österreichischer Mediatek and NOB.
- 3 applied R&D institutions: Joanneum Research, CRCDG-CNRS, IT Innovation.
- 6 universities: University of Sheffield, Gdansk University, Surrey University, Trinity College Dublin, Université de La Rochelle, University Roma Tor Vergata.
- 15 industrial partners, all of them are SMEs: ACS, CTM Debie, Eurix, CubeTec, Hi-Stor, HS-Art digital, Centrimage, Sirma AI Ltd, Media-Matters, Snell&Wilcox, SSL, StreamUK, TI Partners, Studio Hamburg, Vectracom.

PrestoSpace is starting on February 1, 2004 for a 40-month duration.

### 6. INTEGRATED APPROACH

The way to achieve the goal of "preservation for all collections" is with an integrated approach, to produce sustainable assets with easy access for larger exploitation and distribution to specialists and public. The essential idea is: an accessible item is more valuable than an item stuck on a shelf. An integrated process provides this

access, generating revenues that will fund the activity and developing resources to finance collection maintenance. Previous European Projects like PRESTO (FP5-IST) developed efficient preservation technology for broadcasters, and demonstrated that saving 50% of preservation work can be achieved through semi-automated assembly-lines, where each operator runs multiple “preservation chains”.

A huge work needs to be done concerning access requirements, which involve: addressing to whole documents or excerpts with the adequate metadata and rights clearance and rights management, quality restoration where needed and effective delivery systems for commercial and public access. Unsolved problems of digitisation have to be addressed; metadata extraction, restoration, storage, network bandwidth, secure interaction, and end-user delivery. Partial solutions exist, but in general they are not robust, scaleable or affordable

and definitely not integrated end-to-end within a sustainable commercial and legal model. Today many initiatives are funded on a project-by-project basis that provides a poor foundation for long-term strategic pan-European collaborative efforts in the field.

In order to enable any European archive owner, from small collections to the largest, to manage an autonomous and realistic patrimonial policy, including preservation and exploitation of digital assets, PrestoSpace will 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 towards automated preservation and access to Europe’s diverse and rich audiovisual collections.

For more information: <http://www.prestospace.org>  
Presto project: <http://presto.joanneum.at/index.asp>

## 7. PROJECT BREAKDOWN

