



**CULTURAL HERITAGE on line**  
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Some of the problems of the past:




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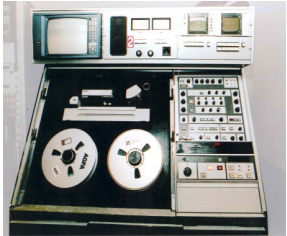
More examples:





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Many invisible problems:




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Two essential previous projects

**Presto (2000 - 2002)**  
**PrestoSpace (2004 - 2008)**

- 35 Partners collaborating in the project
- 180 Archives User Group in 52 countries
- 144 Service Providers Group in 26 countries

From new machines for audio, video, and film digitisation, to a Turnkey System for hosting Digital Audiovisual Archives

**Main objectives: making preservation faster, better, and cheaper! A main concept: the *Preservation Factory***



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New problems of the Digital age





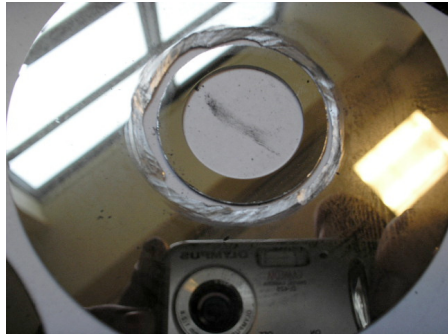

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**Presto PRIME** Inside the hard disks:



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**Presto PRIME** Inside the hard disks:



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**Presto PRIME** A maze of formats:

- Digital television**
  - ATSC - USA, Canada
  - DVB - Europe
  - ISDB - Japan, Brazil
  - DMB - Korea
- Analog television**
  - FCS - USA, Russia; obsolete
  - MAC - Europe; obsolete
  - MUSE - Japan
  - NTSC - USA, Canada, Japan
  - PAL - Europe, Asia, Oceania
    - o PAL-M - PAL variation, Brazil
    - o PALplus - PAL extension, Europe
  - RS-343 (military)
  - SECAM - France, Former Soviet Union, Central Africa
- Recording Formats before Video Tape**
  - Kinescope
- Analog tape formats**
  - 1" Type B videotape (Boch)
  - 1" Type C videotape (Ampex and Sony)
  - 2" Quadruplex videotape (Ampex)
  - Ampex
- Digital tape formats**
  - Betacam
  - Betacam SP
  - Betamax (Sony)
  - Philips videotape recorder EL3400 1" helical scan ca. 1953
  - S-VHS (JVC)
  - U-matic (Sony)
  - VCR, VCR-LP, SVR
  - VERA (BBC experimental format ca. 1958)
  - VHS (JVC)
  - VHS-C (JVC)
  - Video 2000 (Philips)
  - Video8
  - Video Hi8
- Digital tape formats**
  - Betacam IMX (Sony)
  - D-VHS (JVC)
  - D-Theater
  - D1 (Sony)
  - D2 (Sony)
  - D3
  - DS HD
  - Digital Betacam (Sony)
  - Digital8 (Sony)
  - DV
  - HDV
  - ProHD (JVC)
  - MiniDV
  - MicroMV

**Presto PRIME** A maze of formats:

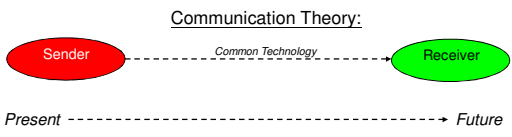
- Optical disc storage formats**
  - Blu-Ray Disc (Sony)
  - DVD (less Super Density Disc, DVD Forum)
  - Enhanced Versatile Disc \* HD DVD (NEC and Toshiba)
  - HD-VMD
  - Laserdisc (old, MCA and Philips)
  - UMD (Sony)
  - CBHD (Chinese government-sponsored)
- Digital encoding formats**
  - AVS-P2 (Audio Video Coding Standard)
  - CCIR 601 (ITU-T)
  - H.261 (ITU-T)
  - H.263 (ITU-T)
  - H.264-MPEG-4 AVC (ITU-T + ISO)
  - M-JPEG (ISO)
  - MPEG-1 (ISO)
  - MPEG-2 (ITU-T + ISO)
  - MPEG-4 (ISO)
  - Ogg-Theora
  - VC-1 (SMPTE)
- Video Codecs**
  - H.261
  - MPEG-1 Part 2
  - MPEG-2 Part 2
  - H.263
  - Sorenson Spark:
  - MPEG-4 Part 2
  - DvX, Xvid, FFmpeg MPEG-4 and Sixx
  - MPEG-4 Part 10
  - VP6, VP6-E, VP6-S, VP7
  - Sorenson 3
  - Theora
  - WMV (Windows Media Video)
  - VC-1
  - RealVideo
  - Cinepak
  - QuickTime
  - Huffyuv, HuffYuv (or HuffYUV)
  - Lagarith
  - SheerVideo
  - Mobiclip
  - MJPEG 2000

**Presto PRIME** Migration; Multiple Definitions for the Same Word

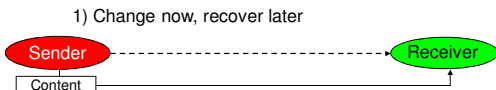
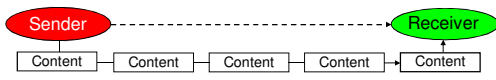
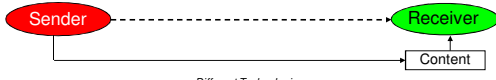
**Conservation:** Keeping objects (contents) from the past to make them available in the future

**Preservation:** Communication with the future

**Communication Theory:**



**Presto PRIME** Three ways of sending Digital contents to the Future:

- 1) Change now, recover later
 
- 2) Change continuously
 
- 3) Don't change, it will be solved later
 

Present ----- Different Technologies -----> Future

**Presto PRIME** **Three migration approaches to Digital Content**

**1) Migration on ingest:** change your contents to a chosen format

**Implication:**  
Postpones migration but does not solve the problem

**Some issues:**  
**UPF:** Universal Preservation Format  
**UVC:** Universal Virtual Computer

Present ----- Different Technologies -----> Future

**Presto PRIME** **Three migration approaches to Digital Content**

**2) Batch Migration :** change when necessary (media or format obsolescence)

**Associated concepts:**  
**Refreshing:** transfer same data to a new carrier  
**Integrity check:** is the data the same that it is supposed to be?  
**Transcoding or Conversion:** changing formats

**Efficient solution for continuously used contents!**

Present ----- Different Technologies -----> Future

**Presto PRIME** **Three migration approaches to Digital Content**

**3) Migration on access:** postpone migration until you need it

**Very useful if:**

- Correct representation of information and structure as well as semantic labels on the structures present within the record (OAIS)
- Representation description of the Preservation environment

**Also called:**  
**Emulation:** replicating the functionality of an obsolete system

**Implication:**

- Need to very precisely describe the original environment
- Need to archive format converters or develop access software

Present ----- Different Technologies -----> Future

**Presto PRIME**  
KEEPING AUDIOVISUAL CONTENTS ALIVE

**PrestoPRIME**  
FP7 3<sup>rd</sup> Call  
Integrated Project – 42 months  
Starting date : 1/1/2009

Partners : INA, BBC, RAI, JRS, B&G, ORF, ExLibris, Eurix, Doremi, Technicolor, IT Innov., Vrije Universiteit Amsterdam, Universität Innsbruck, European Digital Library Foundation

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**Presto PRIME** **PrestoPRIME Summary**

- R&D for the long-term preservation of digital audiovisual objects, programmes and collections. Increasing access by integrating the media archives with European on-line digital portals in a digital preservation framework.
  - **Objective 1** To research and develop means of ensuring the permanence of digital audiovisual content in archives, libraries, museums and other collections.
  - **Objective 2** To research and develop means of ensuring the long-term future access to audiovisual content in dynamically changing contexts.
  - **Objective 3** To integrate, evaluate and demonstrate tools and processes for audiovisual digital permanence and access.
  - **Objective 4** To establish a European networked Competence Centre to gather the knowledge created by PrestoPRIME and deliver advanced digital preservation advice and services in conjunction with the European Digital Library Foundation and other projects.

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**Presto PRIME** **Some PrestoPRIME actions**

- Models and Metadata for Audiovisual long-term preservation
- Storage strategies and rule sets for preservation
- Processing and workflows for Audiovisual migration
- Content quality appraisal and risk management
- Multivalent approaches to long-term AV media preservation
- **Infrastructures for AV content storage and processing**
- **Industrial system for content storage and processing**
- Metadata interoperability for access
- User-generated and contextualised metadata
- **Content provenance and tracking**
- **Audiovisual rights modelling at European level**
- Integration of Archives, Libraries and user generated content

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