



*Defining a preservation policy for a  
multimedia and software heritage  
collection, a pragmatic attempt from the  
Bibliothèque nationale de France*

## **Emulation Expert Meeting**

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# Multimedia and software as document and patrimony

- An introduction in two phases in the legal deposit legislation in 1975 and 1992
- Being exhaustive and neutral regarding content
- Forgotten link in the chronology of medias after printed book, sound and moving images materials and before on – line and internet resources
- A special application case: legal deposit of software
- Complementary approach with web archiving
- A total collection of 30 000 documents with an annual growth of 4000 items

# Management of publishing diversity

- Beyond the traditional distinction between documentary and fiction, multimedia and software documents are introducing new objects and new uses (training, game, tool, communication...) as well as fusion between mean and content (computing, cartography, music...)
- Various publishing types covered:
  - Multimedia with documentary content (from general public use to scientific or artistic documents)
  - Video game
  - Software
  - Children
  - Educational, professional and self-training
  - Databases
  - Electronic journals
  - Corporate, institutional and association publications
  - Digitized documents

# Management of technical diversity

- Almost all different platforms and carriers generations of computing and electronic history are represented
- Computer audio cassette (TO7, MO5, Amstrad CPC, etc.), floppy discs 5" 1/4 and 3" 1/2 , CD-I, CD-ROM et DVD-ROM, CD-R et DVD-R, cartridge (Mégadrive, Game Boy, Master System, etc.), CD-ROM et DVD-ROM proprietary format (Dreamcast, Playstation2, Xbox etc.)
- And now flash memory carrier (multimedia card, USB devices...)

# Three missions for legal deposit responsibility

- **Collecting** (publishing watch and exploration and acquisitions policy)
- **Describing**, cataloguing and indexing
- **Accessing** for research puposes including defining consulting methodology and services as well as preservation procedures for a long-term perspective

# Today access for how long ?

- Collection fully accessible to researchers in a specific area of the audiovisual reading room on the Tolbiac site of the BnF
- Each document installed by technical staff member on demand on its original platform and configuration or a compatible one
- PC and Mac hardware are pre installed in the reading room, other hardware are also installed on demand
- As time goes by, downward compatibility and expertise for old platforms is dramatically decreasing

# Pragmatic approach by experimentations

- Providing the multimedia and software collection of a preservation plan making up state of the art solutions
- Issued in 2005 *Electronic documents work plan for preservation* established emulation as one of the main solution
- As emulation is not a mainstream strategy
- Solving the problem in working closely with the most advance people in emulation development: the community of collectors of old computing and console platforms

# The seven guidelines excerpt from *Electronic documents work plan for preservation*

- Loss of access to data recorded on the carrier (frailty of the carrier, knowledge level of aging process consequences)
- Obsolescence of the hardware platform (production and maintenance stopped)
- Software elements required no more available (non collected by legal deposit and fast renewal of versions, updates and patches)
- Copy migration or copy running prevented by dedicated protection system (confidentiality of these procedures, non manifest presence on a document when receiving it)
- Loss of user competences (no more in use interfaces or procedures when using original or emulated platform)
- Differences between original restitution and emulated restitution (speed, access, sound or graphic performances as well as dedicated peripheral devices)
- Disappearance of on-line content linked to off-line documents (growth of technical as well as documentary complementarity between both media, volatility of such content)

# From trial and error...

- Based on an emulator test bed study and contacts with expert of each platform, we choose three collections types to explore new way of accessing these documents
- Thomson TO7 and MO5 children, educational and gaming collection from Centre d'études et des systèmes des technologies avancées (1982-1986)
- Amiga floppy disc proprietary format and the beginning of an acquisition policy for old software and multimedia documents

## ...to a first consulting process

- Legitimate our first realisations inside the institution as an advocacy
- Solving an old problematic of the dispersion of cartographic documents between two departments of the library: Maps and Charts on Richelieu site and Audiovisual on Tolbiac new building
- Soon available a new distant drive workstation for digitally born cartographic and geographic documents and applications

# Principle

- Giving access in the Maps and Charts reading room to more than one thousand cartographic documents of any type and platform generation from a digitized map to geographic information system
- Each document will be installed on a virtual machine (a specific emulated platform as Windows 95 by example)
- These virtual machine is defined by two files: one describing hardware and peripherals components and the second is the virtual hard disk
- The original document in this configuration could now be displayed on a distant workstation after testing network quality

# Advantages

- No more need to maintain old platforms and hardware in their original configuration besides in a multi boot situation
- Building of a library of past and existing operating systems and related software directly available for the creation of the right virtual machine
- No need to manipulate original documents in the reading room, gain for the security of collections
- Distant access available with the possibility of a multimedia approach of a discipline in several places in the library

# One limit

Loss of original context: differences between original access and emulated access

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Organizing contextualization unifying two vision the original document and the non published and self produced documentation linked to it

- Constituting a hardware collection
- Keeping traces of expert skills on old platforms by close links with associations: MO5, ACONIT and Silicium
- Focusing on resources linked to published document within web archiving project

# A user oriented reflection

- A study on the real practices of the research community in order to have a better quality service and a better understanding of new fields in information science, computing or 3D graphics research
- More leads to come like backup copy library or video recording of consultation both made by researchers and users

# Looking to the future

- A work in progress introducing a lot of innovations both in content and access but critical due to the frailty of this media and the complexity of relationships between data and application
- Need to establish this experimental process to a formal procedure since a document enters the library
- Beyond the use for published multimedia and software documents there's a conviction that emulation is a key technique for digitized documents, web archiving and digital library
- Time to join forces within the cultural heritage world



Thank you for your attention!  
Merci beaucoup de votre attention!

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