InterPARES 2 Project:
The Preservation of Digital Art

Luciana Duranti

University of British Columbia

InterPARES 2 Goal

To ensure that the portion of society's recorded memory digitally produced in dynamic, experiential and interactive systems in the course of artistic, scientific and e-government activities can be created in accurate and reliable form and maintained and preserved in authentic form, both in the long and the short term, for the use of those who created it and of society at large, regardless of digital technology obsolescence and media fragility.

The Arts and Digital Medium

- Visual arts (still and moving images):

  the work is entirely digital

- Performing Arts: Script/Score/Notations as instructions, Performance as the work, Recording of the performance as the evidence and memory of it

  the digital medium used as

  - a component of the work
  - a means to enact the work
  - a means for re-performing the same work

- A combination of the two

  e.g. through the use of web sites

Problems for Re-use in the Long-term

- The medium does not contain any given work or portion of it, but only bit-strings, whose existence depends on software and hardware
- It is not possible to preserve digital materials but only the ability to reproduce them over and over again
- There is no longer an original
- Authenticity is no longer verifiable on the work itself

…and more

- The easiness of reproduction makes it difficult to identify the final version
- The Internet and the mutability of digital form make intellectual rights and copyright increasingly difficult to protect
- Viruses and technology failures make it easy to lose everything
- Technological obsolescence makes digital materials inaccessible very fast
- Most times, art works are hybrid systems, comprising a variety of interconnected digital and analogue media

…and bad habits make it worse

- Authors create materials in different applications that are intended to interact, but without describing the interaction
- Authors do not do regular back-up and upgrading of files
- If authors do upgrade their files, they often indulge in changing their work, thereby producing a different work
- Authors do not keep media in the right climatic environments and do not refresh them

and worse…

- Authors tend to use proprietary or legacy systems
- Do not migrate their materials to new technology
- Hope that somehow those who will preserve their work will take care of long-term access
- Do not protect their digital material from malicious or accidental tampering—trusting personal or institutional custody
- If they protect it, they use protection systems—encryption or digital signatures—that do not allow for preservation

InterPARES 2: 2002-2006

- Major funding from SSHRC, NHPRC, NSF, UBC, ANAI, UNESCO (for last 14 months)
- 21 countries in 5 continents, 100 researchers from the public and private sectors
- Academics and professionals, creators and preservers
- Archival science, diplomatics and records management; music theory, composition, performance; film theory, production, description; dance and theatre theory; a variety of hard and social sciences; jurisprudence; computer science and engineering

Methodological Principles

- Interdisciplinarity and Transferability
- Open Inquiry
- Layered Knowledge Environment
- Multi-method design: surveys, case studies, modeling, prototyping, diplomatic and archival analysis, and text analysis, etc. to address domain and cross-domain research questions

Key Concepts

Authenticity: the genuineness of an entity which is what it purports to be. An authentic object is one that has not been tampered with or otherwise corrupted. Authenticity involves an intact identity, and integrity.

Identity is constituted of the attributes of an object/work that uniquely characterize it and distinguish it from others.

Integrity refers to the wholeness and soundness of an object . An object has integrity if it is uncorrupted

Authentication: a means of declaring authenticity at a point in time

Work Accomplished To Date

- 21 case studies, represented in activity and entity models, and analysed according to diplomatic and archival principles

- surveys of websites, of the practices of digital photographers, composers, and film makers, of the practice of preservation of interactive music, of file formats and encoding languages used for non-textual materials

- annotated bibliographies and literature reviews, conceptual analyses of the findings of the reviews, and bibliographic databases for the management of references

Work Accomplished To Date (cont.)

- **Terminology**: a terminology database including 4 lexicographic instruments, a Register, a Dictionary, a Glossary and a Thesaurus

- **Modeling**: Manage the Chain of Preservation model depicting all the activities involved in the management of electronic entities throughout their lifecycle, from creation to permanent preservation

Work Accomplished To Date (cont.)

- **Description**: Metadata Schema Registry, which is a centralized repository of schemas that will aid to identify metadata sets, or the combinations of elements from several sets which are appropriate to serve various recordkeeping needs

- **Policy**: the identification of barriers to preservation which currently exist in laws, regulations, policies and standards concerning copyright and intellectual rights, privacy and freedom of information, authenticity and authentication, open standards and open source, and records and archival management

Work in Course

Development of

- conceptual responses to the original research questions, primarily concerning the identification of the entities to be preserved, and

Production of:

- guidelines for creators and preservers; appraisal and preservation methodologies and procedures;
- frameworks for the development of policies, strategies and legislation; and
- descriptive schemas for digital entities

Example of Survey

The MUSTICA Initiative. The study team sought to develop a typology of interactive digital music compositions in order to support discussion and analysis of the preservation needs of interactive digital compositions by identifying the intellectual and physical components of a variety of digital, interactive musical works created by composers at the Institute de Recherche et Coordination Acoustique/Musique (IRCAM) and Groupe de Recherches Musicales (GRM) of Institut National de l'Audiovisuel (INA). This research is co-funded by France's Centre National de la Recherche Scientifique (CNRS).

Examples of Case Studies

Obsessed Again…, a work for bassoon and interactive electronics written in 1992 by Canadian composer Keith Hamel. The work was designed to use commercial hardware and software but the required equipment has become obsolete. The case study team identified both digital and non-digital entities associated with the work, articulated the requirements for musical authenticity based upon the entities and the various interactions, is building a performable, authentic realization of the work, and developing a method for its long-term preservation.

Examples of Case Studies (cont.)

The Electronic Cafe International (ECI) is a multimedia international network for showcasing creative, multi-cultural, multi-disciplinary, collaborative telecommunications. This case study deals with a wide variety of media types that now pose the problems of aging and obsolescent formats. ECI's activities took place from the mid-1970s to the present. The most known works are: 1980 "Hole in Space" and "Electronic Café' 1984"

Examples of Case Studies (cont.)

Waking Dream, a performance piece for two people using multiple theatrical elements. The case study team seeks to identify the digital and non-digital components, articulate the requirements for performance authenticity for the piece, build a performable, authentic realization of the piece, and develop a method for the future storage, retrieval, migration and access of the work.

Examples of Case Studies (cont.)

The work of Stelarc, a performance artist who frequently collaborates with computer programmers, technicians and scientists. His art is exhibited or performed in diverse environments including galleries, aerial suspensions and the Internet. The case study team is interested in learning where the creation of the performance begins and ends with Stelarc's art. In addition, the fragility of the environments in which the works are created, performed and documented raises questions relating to issues of authenticity.

Some Observations on the Cases Presented

- The work remains the performance and the score/script/notation is still a set of instructions

- But, computer codes, patches, synthesiser, video feeds, etc. and the interaction between the performer(s) and all of the above are both integral part of the performance and key instruments to its enactment and re-enactment

Preservation Strategies

- fixing the various components in a definitive form with one final act of interpretation and representation
- keeping the documentation of the work and of the interaction between it and the users that was produced at the time of the original performances
- generating a description of all components and their interaction that allows to re-create or enable non-identical performances in which the essence of the work is conveyed, but not necessarily its form and behaviour

Enabling Subsequent Performances

- Each subsequent performance would have to capture the essence of the original work
- The author/creator would have to be an active participant in preservation
- Authenticity would be ensured by the involvement of the author in the creation of a surrogate reflecting his intentions

Possible Procedure

1) Identify:

- the boundaries of the entity constituting the work
- the essence of such entity, i.e., its constituent parts and digital components to be kept stable as content, fixed as form, and linked among themselves
- its attributes to be manifested in metadata permanently attached to the score/script/notations
- the necessary accompanying documentation of what is not fully preservable, that is, interactivity, connectivity, and functionality

Possible Procedure (cont.)

2) Assemble the stabilized essence of the work, its metadata and system documentation and treat this entity as the work.

3) Attach author's certification

4) Give it to a trusted custodian for keeping and upgrading

General Findings

Any preserving institution should recognize that

- solutions to digital preservation are dynamic, by establishing that the institution be continuously involved in research as part of its institutional responsibilities rather than just rely on external research projects that may or may not happen, may or may not be applicable
- solutions to digital preservation are specific, by establishing that strategies and action plans be developed for the materials of each record creator, and in its context, for each type of digital entity

General Findings (cont.)

Any preserving institution should recognize that

- constant interaction with the creators of the materials for which the institution is responsible, and constant monitoring of these materials are essential to preservation, by establishing stable mechanisms and procedures for them
- the conceptual and methodological knowledge of a variety of disciplines is essential to the development of new knowledge about digital preservation, by establishing mechanisms for acquiring it

General Findings (cont.)

Any preservation institution should recognize that

- ultimately, every strategy, method, procedure, action must identify authenticity of the material to be preserved as the absolute priority, and description as the primary instrument for maintaining it and attesting to it
- It must take up the key role of trusted custodian if it wishes to ensure the continuing, long-term authenticity of digital materials

Reference

http://www.interpares.org