Long-Term Preservation of Authentic Digital Scientific Data:

The InterPARES Approach

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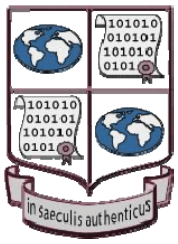

Presentation Outline

- **InterPARES project**
  - covering scientific activities
  - Managing scientific data as records
- **InterPARES products**
  - Theoretical knowledge
  - Methodological knowledge
- **Policy Frameworks**
  - Consistent with theoretical/methodological developments
  - Flexible for application: scientific data records

InterPARES 2 Project
International Research on Permanent Authentic Records in Electronic Systems

InterPARES Project

International Research on Permanent Authentic Records in Electronic Systems

www.interPARES.org

Records

- Recorded information
- Practical activities
- Instruments
- Byproducts

InterPARES Project

- Phase 1 (1999-2001): IP1
  - UBC Project
    - Current records
- Phase 2 (2002-2006): IP2

} Long-term preservation

- Long-term preservation entails
  - Identification of digital records
  - Lifecycle management
- Theoretical and methodological knowledge

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InterPARES Project 2

- Same theoretical framework
  - Diplomatics & Archival Science
- Interdisciplinary and open inquiry
- Extension of IP 2 scope
  - from document management system to dynamic, experiential, interactive systems
  - government records to artistic and scientific records

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IP2 Intellectual Organization

IP Organization	Focus 1 Artistic activities	Focus 2 Scientific activities	Focus 3 Government activities
Domain 1 Records Creation & Maintenance	Working Group 1.1	Working Group 1.2	Working Group 1.3
Domain 2 Reliability, Accuracy & Authenticity	Working Group 2.1	Working Group 2.2	Working Group 2.3
Domain 3 Selection & Preservation	Working Group 3.1	Working Group 3.2	Working Group 3.3
Terminology			
Policy			
Description			
Modeling			

Scientific Data Records

- Scientific data records
  - Generated in the course of conducting scientific activities: instruments or byproducts
  - Raw data & processed data
    - SDP: level 0-4
    - Special data products
- Digital scientific data records
    - Stable content and fixed documentary forms
    - Fixed Forms medium
    - Activity
    - Persons
    - Contexts

IP2 SF Case Studies

- CS 06: Cybercartographic Atlas of Antarctica
- CS 08: Mars Global Surveyor Mission
- CS 14: Center for Desert Architecture
- CS 26: MOST Satellite Mission

------ Generation of SD and the activities of keeping, using and preserving SD as records

IP2 SF Case Studies

- CS 01: Persistent Archives
  - SDSC data grid technology
- CS 12: Antarctic Treaty Searchable Database
  - EvREsearch Ltd. Automated granularity
- CS 10: Science Data Archives/Repositories

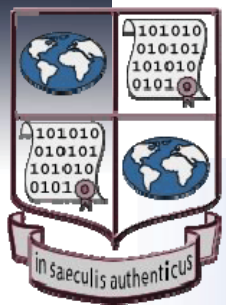
------ Technological and procedural practices of managing SDR

IP2 Products - TK

Theoretical Knowledge:

- Concepts relating to digital preservation
  - Record
  - Reliability
  - Accuracy
  - Authenticity
  - Trusted custodian
  - Trusted recordkeeping system
  - Chain of preservation

Authenticity: the record is what it purports to be; it's unchanged and unchangeable after creation; it's not corrupted or tempered



IP2 Products - MK - I

Methodological Knowledge:

- Authenticity requirements (IP1)
  - Benchmark requirements: creators
  - Baseline requirements: preservers
- Chain of preservation
  - Reliable and accurate record making
  - Authentic record keeping,
  - Selection for preservation
  - Authentic preservation

IP2 Products - MK - II

Methodological Knowledge:

- MADRAS: Metadata and Archival Description Registry and Analysis System
- 2 models of preservation
  - MCP: record lifecycle
  - MBP: record continuum

IP2 Products - MK - III

Methodological Knowledge:

- 2 sets of guidelines covering production, maintenance, preservation
    - individuals creators, including scientists
    - records preservers
- 2 frameworks basing the development of preservation policies, strategies and standards
    - Organizations creating digital records
    - Digital records preservers

IP Preservation Frameworks
General

- Products of IP Policy Cross-domain Team
- Across 3 types of activities
- Addressing 3 domains
- 2 complementary sets of principles
  - Records Creators: C1 – C13
  - Records Preservers: P1 – P13
- Flexible and consistent

IP Preservation Frameworks
Audiences

- Records creators
  - Policies and strategies makers
  - National and international standards bodies
- Records preservers
  - Archival institutions or programs
  - Any other organizations/persons designated by the organization as preservers of their records

--- Movable responsibilities and close cooperation

IP Preservation Frameworks

Example Principles - PC

C1. Digital entities must have a fixed documentary form and a stable content to be considered as records and to be capable of being preserved over time. [P5]

C2. Records creation procedures should ensure that digital components of records can be separately maintained and reassembled over time [P4]

C4. Records creation and maintenance policies, strategies and standards should address the issues of record reliability, accuracy, and authenticity expressly and separately. [P2]

IP Preservation Frameworks

Example Principles - PP

P1. A designated records preserver fulfils the role of trusted custodian. [C8]

P3. Reproductions of a creator's records made for purposes of preservation by their trusted custodian are to be considered authentic copies of the creator's records. [C13]

P6. Preservation requirements should be articulated in terms of the purpose or desired outcome of preservation, rather than in terms of the specific technologies available. [C3]

IP Findings

Will be published in 2008 as two books

- Reports by individual IP research teams
- Articles addressing specific thoughts, issues, and challenges as they emerged in the research processes

InterPARES 2 Project
International Research on Permanent Authentic Records in Electronic Systems

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IP Preservation Frameworks
Example Principles - PC

7. Preservation considerations should be embedded in all activities involved in records creation and maintenance if a creator wishes to maintain and preserve authentic records beyond its operational business needs [P7]

10. Third-party intellectual property rights attached to the creator's records should be explicitly identified and managed in the record-making and recordkeeping systems. [P8]

12. Procedures for sharing records across different jurisdictions should be established on the basis of the legal requirements under which the records are created. [P13]