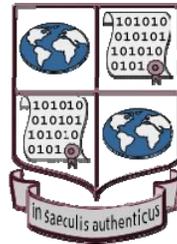


Prepared for -----



The School of Information
Resources Management at the
Ren Min University, Beijing,
China

2007-06-29



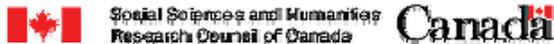
The InterPARES Project & Its Findings

Sherry L. Xie

UBC (University of British Columbia)

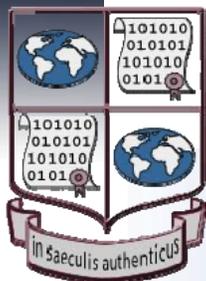
Vancouver, Canada

Contact: sherryx@interchange.ubc.ca/604.224.0070



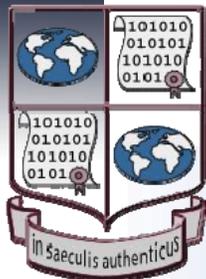
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 - One Application Example
- **Introduction to IP3**



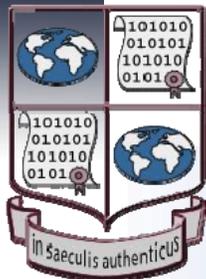
BI - *General*

- Continuation & further research of the UBC project and IP1
 - Reflected in/incorporated with IP2 findings
- Major funding from SSHRC, NHPRC, NSF, UBC, and UNESCO
- 21 countries in 5 continents, 100 researchers from both academics and professionals
- 22 case studies, 9 general studies in both public and private sectors
 - CS: www.interpares.org/ip2/ip2_case_studies.cfm
 - GS: www.interpares.org/ip2/ip2_general_studies.cfm



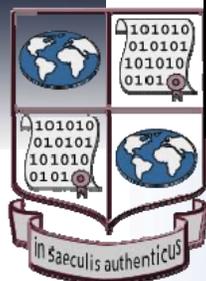
BI - *Study Subjects*

- **Interactive entities:** objects to which each user intervention or input from another system causes a change of content and/or form.
 - e.g., CS20 Revenue Online System (ROS)
- **Dynamic entities:** objects that depend for their content upon data extracted from a variety of systems that may have variable instantiations.
 - e.g., CS24 VanMap
- **Experiential entities:** objects whose essence goes beyond the bits constituting them to incorporate the behavior of the rendering system and the effects of subjective user's interactions.
 - e.g., CS06 CyberCartographic Atlas of Antarctica



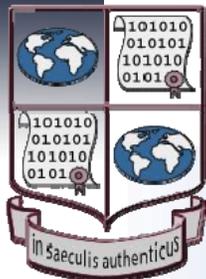
BI - *Intellectual Organization*

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			



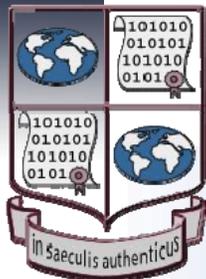
BI - *Intellectual Organization*

- Domain 1
 - The Nature of the Records and of the Processes that Create and Maintain Them
 - Research questions
http://www.interpares.org/ip2/ip2_domain1.cfm
- Domain 2
 - The Concepts of Reliability, Accuracy, and Authenticity
 - Research questions
http://www.interpares.org/ip2/ip2_domain2.cfm
- Domain 3
 - The Methods of Appraisal and Preservation
 - Research questions
http://www.interpares.org/ip2/ip2_domain3.cfm



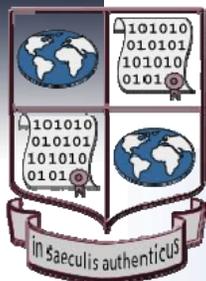
BI - *Intellectual Organization*

- **Terminology Cross-Domain**
 - Research questions
www.interpares.org/ip2/ip2_terminology.cfm
- **Policy Cross-Domain**
 - www.interpares.org/ip2/ip2_policy.cfm
- **Description Cross-Domain**
 - www.interpares.org/ip2/ip2_domain3.cfm
- **Modeling Cross-Domain**
 - www.interpares.org/ip2/ip2_modeling.cfm



Presentation Outline

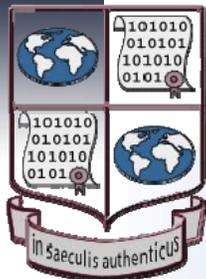
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RD - *Theoretical Framework*

- Archival Science
 - manage records as aggregations: classification; archival description
 - trusted custodian/neutral third party: independent archival institutions or programs
 - record lifecycle
- Diplomatics
 - individual records
 - study of documentary form
 - For authenticity purpose
 - Components of records

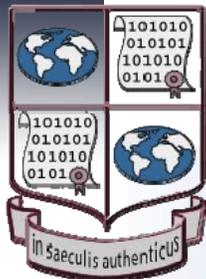
Archival Diplomatics



Research Design -

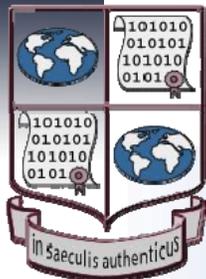
Relationship b/w theory and research:

Deductive research with an inductive
component



RD - *Methodologies*

- **Overarching Principle**
 - multidisciplinary + open inquiry
 - 23 research questions
http://www.interpares.org/ip2/ip2_23_questions.cfm
- **Humanity and Social Science**
 - Archival diplomatic analysis
 - Qualitative research methods
 - Case study
 - Document/text analysis
 - Grounded theory
 - Quantitative research method
 - Survey
 - Alternative research method
 - IDEF(0) modeling
 - Action research



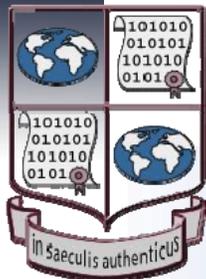
RD - *Methodologies - Examples*

Archival Diplomatic Analysis on the **concept of record**:

- Five components/requirements

- • Juridical-Administrative Context
- • Provenancial Context
- • Procedural Context
- • Documentary Context
- • Technological Context

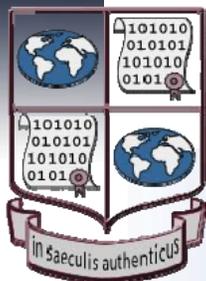
- Identifiable contexts



RD - *Methodologies - Examples*

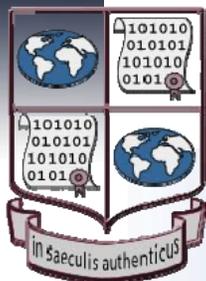
Grounded theory:

- Stable content: unchanged/unchangeable
- Fixed documentary form, permits
 - Different application rendering
 - Different presentations limited by application functionality
- Bounded variability
 - Same returning results
 - Technological variations



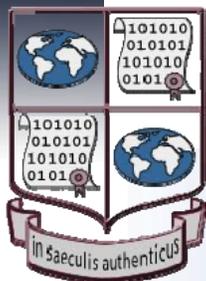
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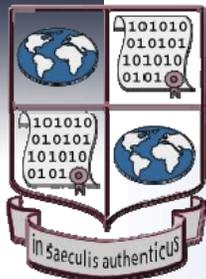
CF - *Body of Concepts*

- IP terminology cross domain product at http://www.interpares.org/ip2/ip2_terminology_db.cfm
- UBC project & IP1: data; information; document; record; authenticity; reliability; ...
- IP2 Further developments
 - Record
 - Accuracy ...



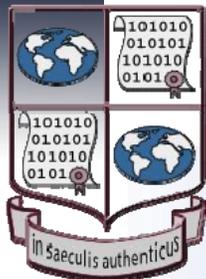
CF - *BOC* - Examples

- Data are the smallest meaningful and indivisible pieces of information.
- Information is an assemblage of data intended for communication over time or space.
- A document is information affixed to a medium in a fixed form.
- A record is a document made or received in the course of a practical activity as an instrument or a by-product of such activity, and set aside for action or reference.



CF - *BOC* - Examples

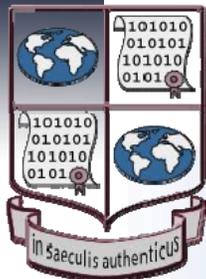
- **Creator:** The physical or juridical person who makes, receives, or accumulates records by reason of its mandate/mission, functions or activities.
- **Preserver:** The designated records preserver is the entity responsible for taking physical and legal custody of, and preserving (i.e., protecting and ensuring continuous access to) a creators' records.



CF - *BOC* - Examples

Reliability: the authority and trustworthiness of a record as a representation of the fact(s) it is about.

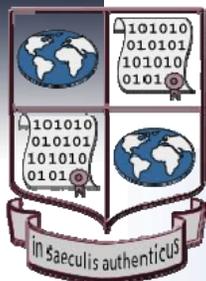
- a record's authorship
- a record's content
- sole responsibility of the creator
- degree of completeness of a record's documentary form
- the degree of control exercised over the making-procedure



CF - *BOC* - Examples

Accuracy: An accurate record is one that contains correct, precise and exact information.

- a record's content
- absolutely accurate vs. relatively accurate
- responsibility of both creators & preservers

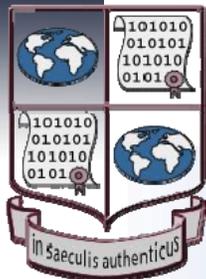


CF - *BOC* - Examples

Authenticity: the fact that a record is what it purports to be or it has not been tampered with or otherwise corrupted.

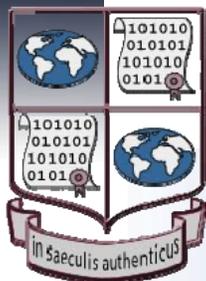
- not about a record's content
- intrinsic & extrinsic elements
- maintenance & protection
- responsibility of both creators & preservers

**Reliability and accuracy is the foundation
for meaningful authenticity**



CF - *BOC* - Examples

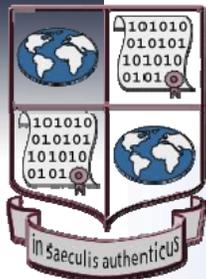
- **Digital Component:** is a digital object that is part of one or more digital records, including any metadata necessary to order, structure, or manifest content, and that requires a given preservation action.
- e.g., Email with attachment(s) and/or digital signature.



CF - *BOC* - Examples

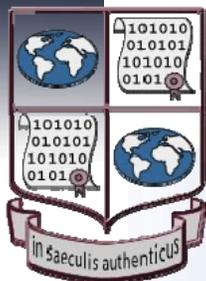
Digital record: A record whose content and form are encoded using discrete numeric values.

Preservation: The whole of the principles, policies, and strategies that controls the activities designed to ensure materials' (data, documents, publications, or records) physical and technological stabilization and protection of intellectual content.



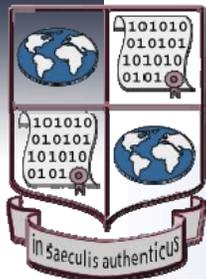
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CF - PF - *General*

- Product of Policy Cross-domain Team
- Confirmation and expansion of IP1 findings
- Specifies the relationship b/w creators and preservers
 - 2 complementary sets of principles
 - in order of relative importance
- Flexible and consistent
- In conjunction with COP

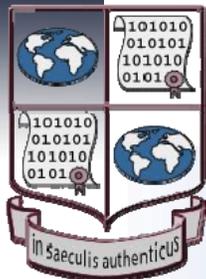


CF - PF - *Audiences*

- 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

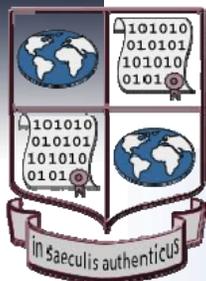
Lifecycle management -

Movable responsibilities and close
cooperation



CF - PF - *Principles*

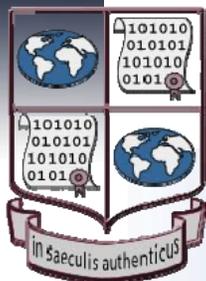
- [C1] Digital entities must have a fixed documentary form and a stable content to be considered records and to be capable of being preserved over time.
- [P5] Authentic copies should be made for preservation purposes only from the creator's records, that is, from digital entities that have a fixed documentary form and a stable content.



CF - PF - *Requirements*

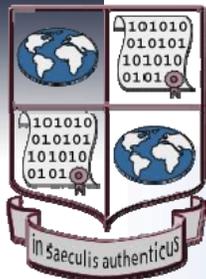
[C1] The creator should

- establish criteria for determining which digital entities need to be maintained as records
 - business needs
 - legal requirements
- identify methods for stabilizing content and form
- [P5] The preserver should
- know (or help establish) the creator's criteria and the methods
- gain information needed to understand the business activities and processes that caused the records to come into being.



CF - PF - *Principles*

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



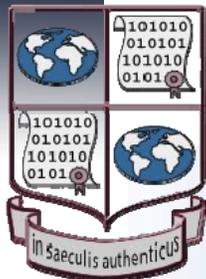
CF - PF - *Requirements*

[C2] The creator should

- establish p&p to
 - identify digital components at creation stage
 - ensure they can be maintained, transmitted, reproduced, upgraded, and reassembled over time.

[P4] The preserver must

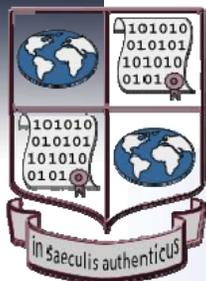
- advise the creator, directly or through development of recommended standards, on the types of digital components that the preserver's system is able to sustain.



CF - PF - *Principles*

[C3] Record creation and maintenance requirements should be formulated in terms of the purposes the records are to fulfill, rather than in terms of the available or chosen record-making and recordkeeping technologies available.

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



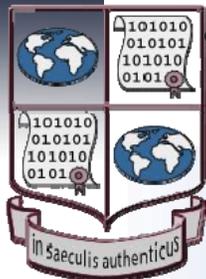
CF - PF - *Requirements*

[C3]

- specific technologies should not be included in records policies, strategies and standards governing records creation and maintenance.
- only the business requirements and obligations at this high level.
- an action plan at level of implementation
- monitoring & updating

[P6]

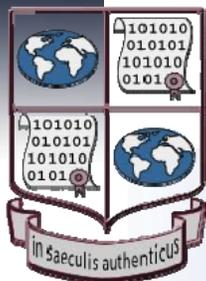
- specific technologies should not be included in preservation policies and standards.
- only preservation requirements and obligations
- specific technological solutions in action plan
- monitoring & updating



CF - PF - *Principles*

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

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



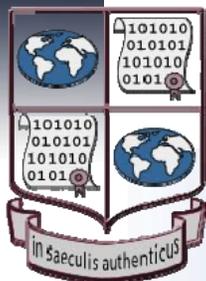
CF - PF - *Requirements*

[C4] the creator should

- promulgate these concepts
- design templates for records creation
- verify contents
- apply authenticity requirements (content or metadata)
- address security issues

[P2] the preserver should

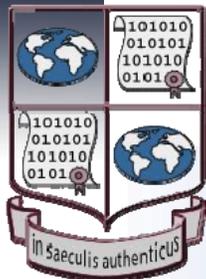
- assess authenticity
- maintain authenticity
- verify accuracy



CF - PF - *Principles*

[C5] A trusted record making system should be used to generate records that can be presumed reliable and accurate.

[n/a] No corresponding requirement for the Preserver.

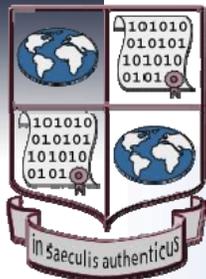


CF - PF - *Requirements*

[C5] the creator should

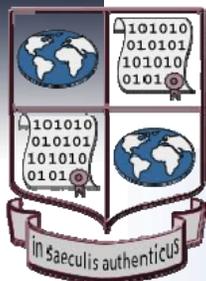
design a trusted record-making system including:

- integrated business and documentary procedures
- Record-making metadata
- records forms
- record-making access privileges
- record-making technological requirements.



CF - PF - *Principles*

- [C6] A trusted recordkeeping system should be used to maintain records that can be presumed accurate and authentic.
- [P11] Archival appraisal should assess the authenticity of the records.
- [P12] Archival description should be used as a collective authentication of the records in a fonds.

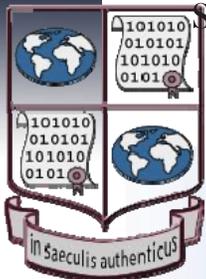


CF - PF - *Requirements*

[C6] the creator should

Design a trusted recordkeeping system including

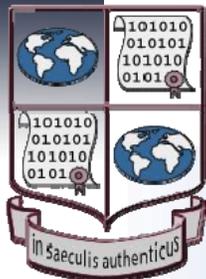
- recordkeeping metadata
 - a classification scheme
 - a retention schedule
 - a registration system
 - a recordkeeping retrieval system
 - recordkeeping technological requirements
 - recordkeeping access privileges, and
 - procedures for maintaining authentic records.
- Records management policy: record keeper (or records manager)'s responsibility to manage the recordkeeping system.
 - Record keeper is a trusted custodian (C8).



CF - PF - *Requirements*

[P11]

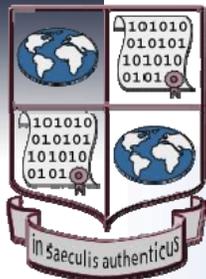
- Archival appraisal decisions should be made by
 - compiling information about records and their context(s),
 - assessing their value, and
 - determining the feasibility of their preservation.
- Preservers must establish the grounds for presuming that the records being appraised are authentic.
 - benchmark requirements established by the InterPARES 1 Authenticity Task Force.



CF - PF - *Requirements*

[P12]

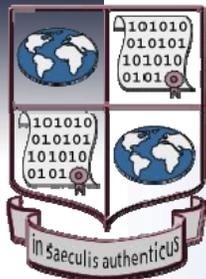
- Archival description of a fonds
 - comprehensive analysis of the various relationships interwoven in the course of records' formation and accumulation;
 - the most reliable means of establishing the continued authenticity of a body of interrelated records.
- RAD (*Rules for Archival Description*) at <http://www.cdncouncilarchives.ca/archdesrules.html>



CF - PF - *Principles*

[C7] Preservation considerations should be embedded in all activities involved in record creation and maintenance if a creator wishes to maintain and preserve authentic records beyond its operational business need.

[P7] Preservation considerations should be embedded in all activities involved in each phase of the records lifecycle if their continuing authentic existence over the long term is to be ensured.

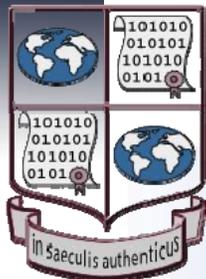


CF - PF - *Requirements*

[C7] Preservation is a continuous process that begins with the creation of the records.

The creator's system should include

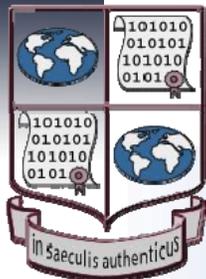
- Linking appraisal decisions to classification and retention schedule
- Monitoring the decisions and preservation considerations until the moment of transfer
- Assigning the preserver access right to its recordkeeping system
- P&P to ensure constant interaction b/w creator and preserver



CF - PF - *Requirements*

[P7] The preserver should

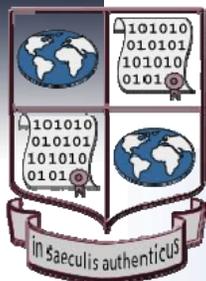
- Educate and advise creators about this notion
- Carry out appraisal at the system design stage or right after records creation
- Monitor appraisal decisions and preservation considerations and conduct updating
- Require access right for the purpose of preservation
- Establish P&P for constant interaction.



CF - PF - *Principles*

[C8] A trusted custodian should be designated as the preserver of the creator's records.

[P1] A designated record preserver fulfills the role of trusted custodian.



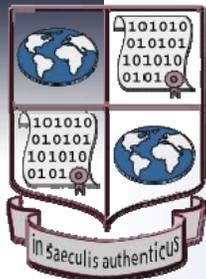
CF - PF - *Requirements*

[C8] the creator should designate a preserver, acting as a trusted custodian who satisfy the following conditions to

- be a neutral third party,
- be equipped with required knowledge and skills,
- have a trusted preservation system.

[P1] the designated preserver should

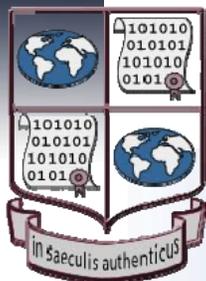
- acquire records into its custody through making authentic copies,
- carry out archival functions in its preservation system.



CF - PF - *Principles*

[C9] All business processes that contribute to the creation and/or use of the same records should be explicitly documented.

[P10] Archival appraisal should identify and analyze all business processes that contribute to the creation and/or use of the same records.



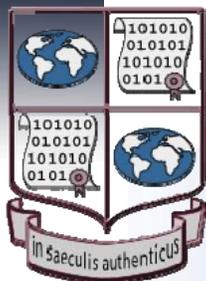
CF - PF - *Requirements*

[C9] the creator should identify and document in records metadata the cases where same records are used by different activities

- Accountability purpose
- Appraisal and preservation purposes

[P10] the preserver should

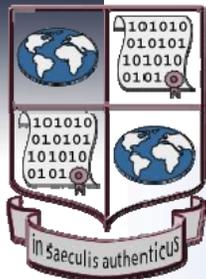
- advise the creator to do so;
- appraisal through collecting all needed information.



CF - PF - *Principles*

[C10] 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] Third-party intellectual property rights attached to the creator's records should be explicitly identified and managed in the preservation system.



CF - PF - *Requirements*

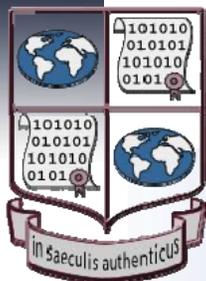
[C10] the creator should document in the record's metadata all intellectual property rights attached to it.

- significant influence on the reproduction of records when
 - refreshing
 - converting
 - migratingcontinuous use or preservation purposes

- Identify and address them at the system design stage

[P8] the preserver should

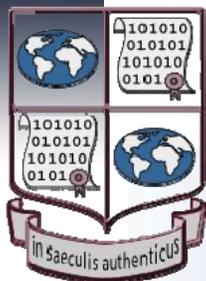
- advise the creator on how to address intellectual property and copyright issues;
- pursue long-term clearance of such rights before transfer.



CF - PF - *Principles*

[C11] Privacy rights and obligations attached to the creator's records should be explicitly identified and protected in the record-making and recordkeeping systems.

[P9] Privacy rights and obligations attached to the creator's records should be explicitly identified and protected in the preservation system.



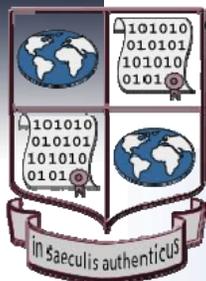
CF - PF - *Requirements*

[C11] the creator should

- study relative legislation
- identify and document personal/private information in metadata
- establish system-wide access privileges at design stage
- assign access right to its preserver for preservation purpose

[P9] the preserver should

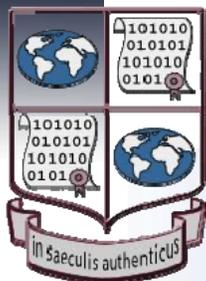
- insist that responsibility for processing records containing personal data for preservation purposes must reside with the records creator;
- aid creator to do the analysis
 - Outsourcing
- consider privacy issues for access when acquiring



CF - PF - *Principles*

[C12] Procedures for sharing records across different jurisdictions should be established on the basis of the legal requirements under which the records are created.

[P13] Procedures for providing access to records created in one jurisdiction to users in other jurisdictions should be established on the basis of the legal environment in which the records were created.



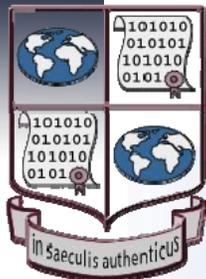
CF - PF - *Requirements*

[C12] The creator

- must be aware that different access, privacy, and intellectual property laws may have an impact on their records sharing activities.

[P13] Preservers who are a unit of a record creator (e.g., in-house archival programs or archives) that has geographically separated branches falling under different legislation

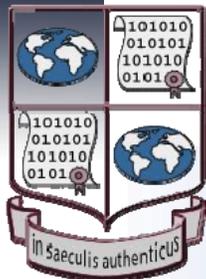
- must be aware of the impact of such diverse legal contexts on their access providing activities.



CF - PF - *Principles*

[C13] Reproductions of a record made by the creator in its usual and ordinary course of business and for its purposes and use, as part of its recordkeeping activities, have the same effects of its first created manifestation and each is to be considered at any given time the record of the creator.

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



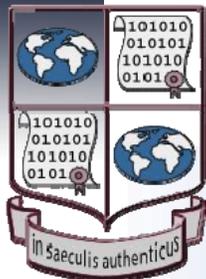
CF - PF - *Requirements*

[C13] the creator should

- realize that no physical originals in digital formats
- such reproductions are “originals”
- it is the relationship of a record to the business of the creating organization that gives it the authority and effects of an original
 - admitted into court
 - added weight
- Be able to demonstrate the integrity of r-keeping system

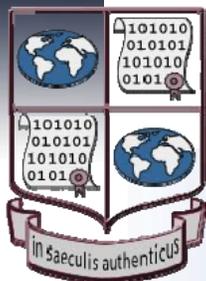
[P3] the preserver should understand

- reproductions – authentic copies: the same records but at different phases in their lifecycle,
- not all copies by the preserver are authentic copies
 - Access copies



Presentation Outline

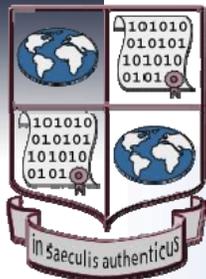
- **The Project**
 - Background Information
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 - One Application Example
- **Introduction to IP3**



CF - COP - *Purpose*

Create a Unified Model

- to picture all the activities during the life cycle that contribute to the chain of preservation of DR;
- is concerned with problems of both the creator and the preserver: what needs to be done at all stages;
- For developing procedures (sequential steps);
- focusing on actions that protect the reliability, authenticity, and accuracy.



CF - COP - *Context*

Constraints

- Archival science
- Juridical system
- National/international standards
- State of technology
- Preserver's mission

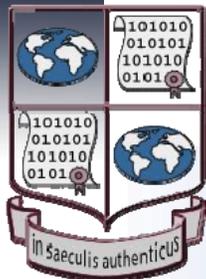
Mechanisms

- Facilities
- Tools
- Creator
- Preserver
- Records keeper (R-manager)

input



output



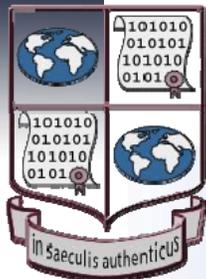
CF - COP - *Activities*

A1 Manage framework for chain of preservation

A2 Manage records creation

A3 Manage records in a r-keeping system

A4 Preserve selected records



CF - COP - *Activities*

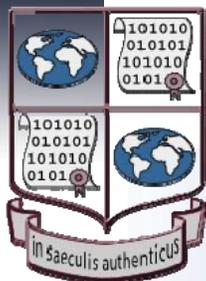
A1 Manage framework for chain of preservation

A 1.1 Develop framework

A 1.2 Design framework

A 1.3 Implement framework

A 1.4 Maintain framework



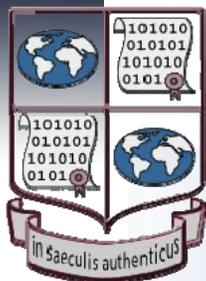
CF - COP - *Activities*

A 1.2 Design framework

A 1.2.1 Design r-making system

A 1.2.2 Design r-keeping system

A 1.2.3 Design preservation system



CF - COP - *Activities*

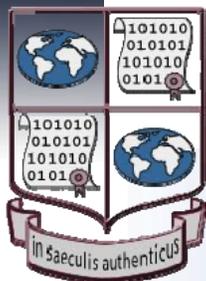
A 1.2.2 Design r-keeping system

A 1.2.1.1 Develop Records Forms and Record-making Metadata Schemes

A 1.2.1.2 Establish Access Privileges for Record-making

A 1.2.1.3 Design Integrated Business and Documentary Procedures

A 1.2.1.4 Determine Record-making Technological Requirements



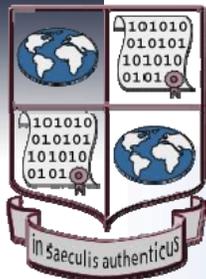
CF - COP - *Activities*

A2 Manage records creation

A 2.1 Manage the Making of Records

A. 2.2 Manage the Receipt of Records

A 2.3 Monitor Performance of R-making System



CF - COP - *Activities*

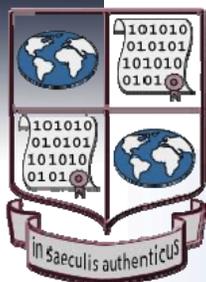
A3 Manage records in a R-keeping System

A 3.1 Maintain Records in the Recordkeeping System

A. 3.2 Facilitate Access

A 3.3 Carry-out Disposition

A 3.4 Monitor Performance of Recordkeeping System



CF - COP - *Activities*

A4 Preserve Selected Records

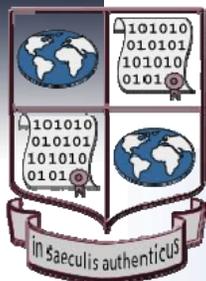
A 4.1 manage preservation system

A. 4.2 appraisal records for preservation

A 4.3 acquire selected records

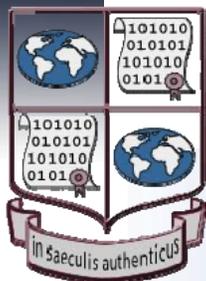
A 4.4 preserve accessioned records

A 4.5 output records



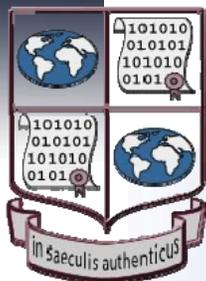
Presentation Outline

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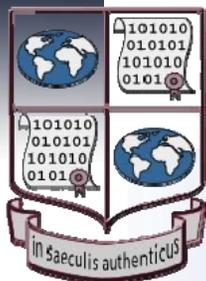
CF - GFP - *Purpose*

1. To provide concrete advice
2. To highlight the most important & often overlooked areas
3. Not mean to be comprehensive



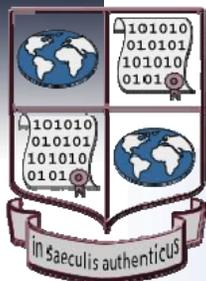
CF - GFP - *Audience*

1. Organizations, archival institutions or programs
2. Long-term preservation of records
3. Limited resources
4. In conjunction with policy framework and COP
5. Applicable to documents, publications, and data



CF - GFP - *Organization*

1. Manage Framework for Chain of Preservation
2. Appraise Records for Permanent Preservation
3. Acquire Selected Records
4. Preserve Accessioned Records
5. Output Records



CF - GFP - *Guidelines*

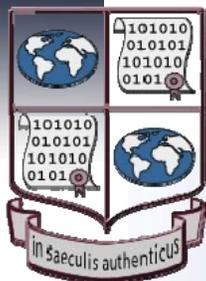
1. Manage Framework for Chain of Preservation (A1)

1.1 Scope & objectives

- Type of DR
- User communities

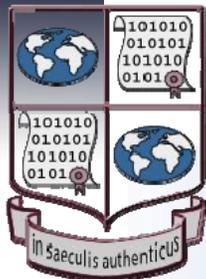
1.2 Resources

- Human and material resources
- Sustainable vs. one-time money
- Advice on acquiring, reallocating, and leveraging resources



CF - GFP - *Guidelines*

1. Manage Framework for Chain of Preservation (A1) (cont.)
 - 1.3 Digital vs. digitized
 - Focus on digital records
 - 1.4 offer advice
 - Reinforce the notion that digital preservation begins at creation
 - 1.5 Set a good example
 - To demonstrate what they advise through the good results of managing their own records
 - 1.6 Develop Procedures
 - For records transfer, maintenance, and reproduction

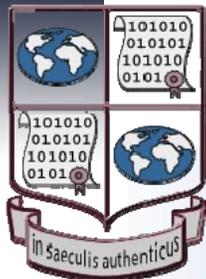


CF - GFP - *Guidelines*

1. Manage Framework for Chain of Preservation (A1)

1.7 Maintenance requirements

- clear allocation of responsibilities
- provision of appropriate technical infrastructure
- implementation of a plan for system maintenance, support and replacement
- implementation of a plan for the transfer of records to new storage media on a regular basis
- adherence to appropriate storage and handling conditions for storage media redundancy and regular backup of the digital entities
- establishment of system security
- disaster planning



CF - GFP - *Guidelines*

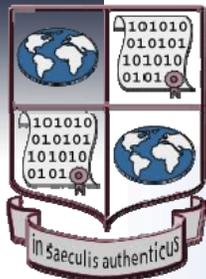
2. Appraise Records for Permanent Preservation (A 4.2)

2.1 Appraise early

- Technological change
- Opportunity to offer advice (1.4)
- Participation in system design

2.2 Locate multiple owners

- During appraisal process – preservation consideration – acquisition
- Websites with data input outside the organization
- Access agreement ≠ preservation agreement



CF - GFP - *Guidelines*

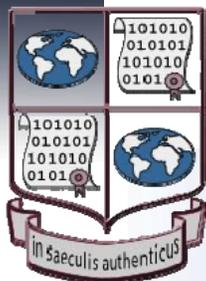
2. Appraise Records for Permanent Preservation (A 4.2)

2.3 Assess authenticity

- Unbroken chain of custody
- Knowledge of r-making & keeping system
- Verification
- IP1 benchmark requirements

2.4 Document 2.3

- in appraisal report, along with authenticity assumption



CF - GFP - *Guidelines*

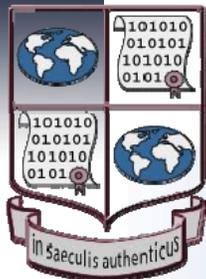
2. Appraise Records for Permanent Preservation (A 4.2)

2.5 Monitor records for transfer

- Administrative/functional changes
- Technological changes: upgrading or re-designing system

2.6 Update appraisal/Conduct re-appraisal

- Organizational changes
- Technological changes



CF - GFP - *Guidelines*

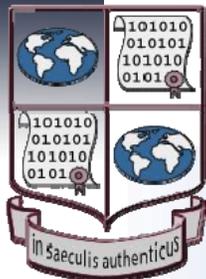
2. Appraise Records for Permanent Preservation (A 4.2)

2.7 Identify all digital components

- Document them and their relationship with each other
- e.g., text and font in word-processing documents

2.8 Determine feasibility of preservation

- Technical requirements: only content or form as well
- cost



CF - GFP - *Guidelines*

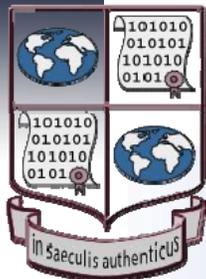
3. Acquire Selected Records (A 4.3)

3.1 Develop shared transfer plan

- Specifying responsibilities for two parties

3.2 Enforce procedures

- Registering transfer
- Verifying the authority for transfer
- Confirming records for transfer
- Accessioning transferred records



CF - GFP - *Guidelines*

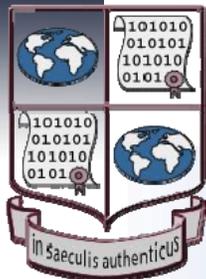
3. Acquire Selected Records (A 4.3)

3.3 Keep the earliest logical format

- Whenever feasible
- Re-start preservation
- New preservation strategies

3.4 Avoid duplicates

- Transfer only once
- Adequate identity information
- Mark as reference copy when providing back to the creator

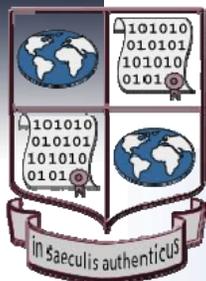


CF - GFP - *Guidelines*

3. Acquire Selected Records (A 4.3)

3.5 Document processing (File conversion, renaming digital entities, and encapsulating files)

- why the records are being processed
- what records are processed
- the date when the process was performed
- the names of persons performing and documenting the various steps of the process(es)
- the impact of the process performed on the records' form, content, accessibility and use
- the description of any damage, loss or other problems encountered as a result of the processing, including any effect on the elements expressing the records' identity and integrity.



CF - GFP - *Guidelines*

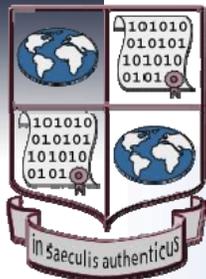
4. Preserve Accessioned Records (A4.4)

4.1 Describe the records

- Conduct archival description based all collected info

4.2 Identify legal issues

- Preservation strategies – legal implications
- Format conversion (US Digital Millennium Copyright Act)



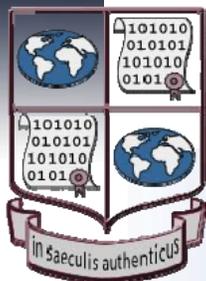
CF - GFP - *Guidelines*

4. Preserve Accessioned Records (A4.4)

4.3 Confirm the effectiveness of the selected preservation strategies

- Software flaws
- Version variations
- Test: track the performance of all digital components

4.4 Maintain proper storage



CF - GFP - *Guidelines*

5. Output Records (A4.5)

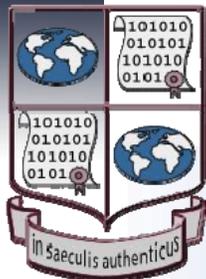
5.1 Inform users

- Document reproduction process and its effects
- Transparency and accountability of trusted custodian

5.2 Explain the making of reference copies

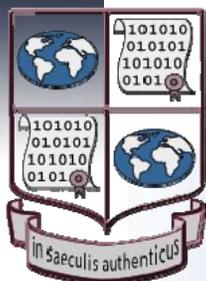
- How reproduced
- Demonstrating continued authenticity, and
- Complete history of the copy

5.3 Make available technical access requirements



Presentation Outline

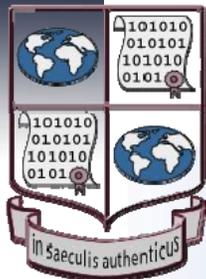
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CF - *One Example*

VanMap: The cross-department GIS created by the City of Vancouver and used by staff in

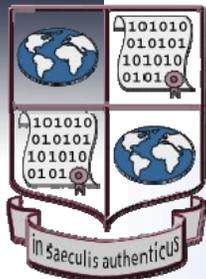
- Engineering
- Planning
- Permits and Licenses By law
- Social Planning
- Police
- Fire and Rescue Parks and
- Bylaw-Enforcement
- Recreation



CF - *One Example*

Geographic Information System

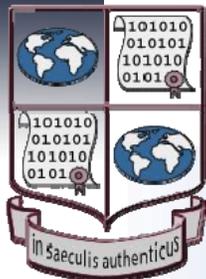
- Database system containing data linked to geospatial coordinates
- Typically presented to the viewer in the form of interactive maps
- May incorporate files such as CAD drawings, satellite imagery and photographs that are not geospatially referenced



CF - *One Example*

A dynamic & interactive system

- Some data are overwritten without being saved
- The data are viewed as maps but these views are not saved
- New layers are being added all the time
- An illustrative example of e-government challenge: it is easier to create than to preserve

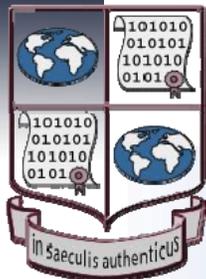


CF - *One Example*

- Participant in activities
- Possess all persons
- Lack of stable content and fixed documentary form
- Lack of archival bonds
- 4 contexts can be identified - not the documentary context

VanMap only partially satisfy

the requirements of being a record



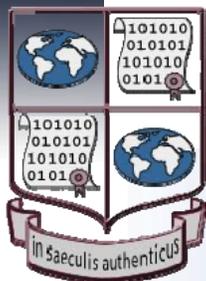
CF - *One Example*

In other words

- VanMap is made and received in the course of a practical activity
- It is an instrument and a by-product of that activity

However,

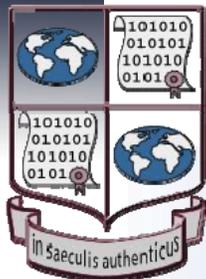
- It is not a document
- It is not set aside



CF - *One Example*

It must become a record for
accountability purpose

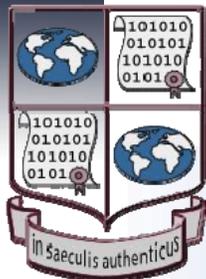
- to fix form and stabilize content
- to configure the system to save rather than overwrite each added layer
- to develop a means of reproducing VanMap as it was on any given date



CF - *One Example*

To archive that objective

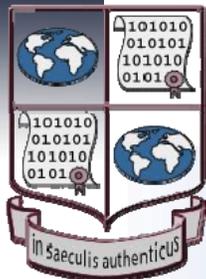
- data themselves must be preserved
- The ability to render the data as interactive maps must be preserved
- Presentation elements such as colours and fonts do not necessarily have to be preserved



CF - *One Example*

The technological solution:

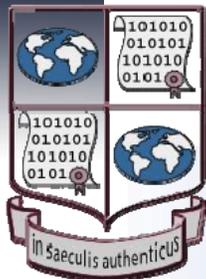
- Software developed by (SDSC) San Diego Supercomputer Center to manage large volumes of data
- Implemented as the Storage Resource Broker (SRB) which manages several large data repositories.



CF - *One Example*

Data grid technology

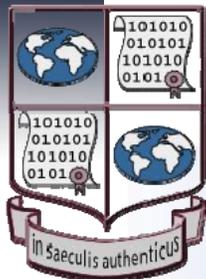
- Manages data and their associated metadata
- Separates the data from dependence on original creating infrastructure
- Maintains audit trails of all operations performed on the data
- Manages access and retrieval
- Supports migration of data to new platforms



CF - *One Example*

Applying to VanMap

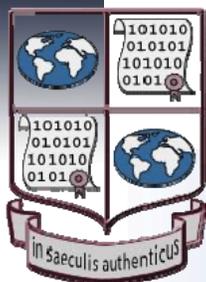
- Data grid is inserted between the data storage systems and the access applications
- Each saved layer within the GIS is independently registered in the data grid
- Date-based queries are used to reproduce VanMap layers



CF - *One Example*

Testing the solution

1. Selected data transferred from Vancouver to San Diego Supercomputer Center
2. Data stored in technological environment similar to original environment
3. Data registered in an SRB data grid
4. Data queried for specific dates.



VanMap Demo - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Recycle Bin Mail Print Word Pad Notepad Close Links

Address <http://cuahsi001.sdsc.edu:8080/axis/vanmapdemo.html> Go

Google Search 13 blocked Check Autolink AutoFill

VanMap Demo

Query Date

Month: May Day: 5 Year: 2005

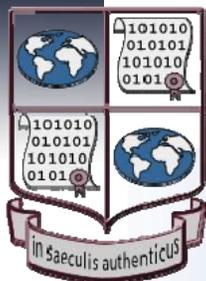
Submit

- 1995
- 1996
- 1997
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006

Opening page <http://cuahsi001.sdsc.edu:8080/axis/vanmap.js> Internet

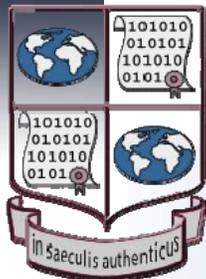
Presentation Outline

- **The Project**
 - Background Information
 - Research Design
- **Core Findings**
 - Body of Concepts
 - Policy Framework
 - COP Model
 - Guidelines for Preservers
 - One Application Example
- **Introduction to IP3**



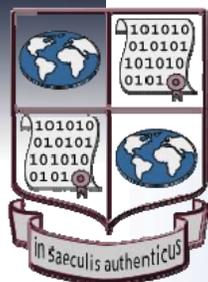
IP3 - *Goal*

To enable Canada's many small and medium sized public and private archival organizations and programs, which are responsible for the digital records resulting from government, business, research, art and entertainment, social and/or community activities, to preserve over the long term authentic records that satisfy the requirements of their stakeholders and society's needs for an adequate record of its past.



IP3 - *Purpose*

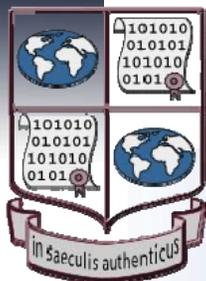
To translate the theory and method of digital preservation drawn from research to date into concrete action plans for existing bodies of records that are to be kept over the long term by archives.



IP3 - *Rational*

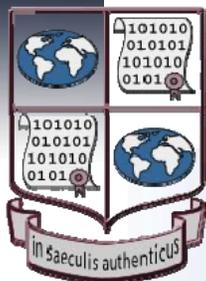
Solution to digital preservation problems is situation specific:

- cultural, administrative, legal, and functional context
- the nature and characteristics of the organizations
- the typology of the material produced and its documentary and technological features
- the limitations imposed by the available financial and human resources
- the organizational culture of both the producer of the material and the preserver
- access to educated professionals or educational programs and resources.



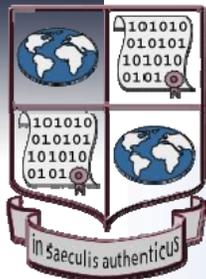
IP3 - *Objectives*

- To demonstrate to regulatory and auditing bodies and to policy makers that it is essential to integrate digital records preservation requirements in any activity that they regulate, audit or control;
- to collaborate with small- and medium-sized archival institutions in developing scalable policies, strategies, procedures, and/or action plans that they can implement;
- to assess the applicability of the recommendations of InterPARES and other projects about trusted record-making and recordkeeping to the selected test-beds, and in particular the validity of statements about the relationship between preservers and the records creators;



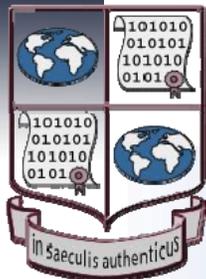
IP3 - *Objectives*

- to assess the applicability of these projects' preservation solutions to the concrete cases identified by the test-bed partners
- to refine and further elaborate the theory and methods and identify “why” if not applicable
- to create evaluation models
- to develop models of preservation costs
- to develop awareness and educational materials



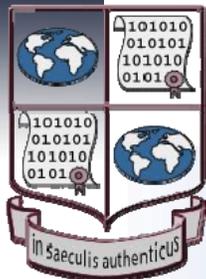
IP3 - *Governance*

- Project Director
- Steering Committee
 - Consists of project director; one academic applicant; one representative from each type of archives; & project coordinator
 - Meet 4 times annually
- Dissemination committee
 - The same constituents; & project technical coordinator



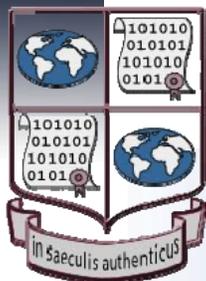
IP3 - *Structure*

- TEAM Canada
 - 3 types of partners
 - Test-bed; Resource; International
- Test-Bed partner: Canadian archival organizations or programs, each having a team that include
 - (at least) one academic researcher
 - One community member
 - One test-bed representative
 - one graduate student



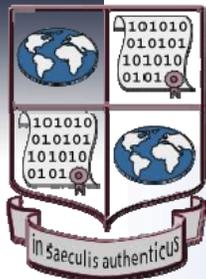
IP3 - *Structure*

- TEAM Canada
 - 3 types of partners
 - Test-bed; Resource; International
- **Resource partner:** organizations that have an expertise in all or part of the research objectives
 - Provide input & feedback
 - Test preliminary findings & products
- **International partner:** national and multinational research teams
 - constituted on the model of TEAM Canada
 - sharing the same goal, objectives
 - reporting to a common research headquarters



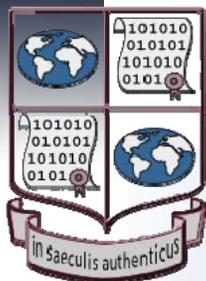
IP3 - *Structure*

- **Plenary Workshop**
 - All co-applicants; test-beds' representatives; collaborators
 - Representatives of TEAM Canada's resource partners
 - Twice a year
 - A week-long meeting
- **International Summit**
 - P-director with directors of international teams
 - Once a year
 - A week-long meeting



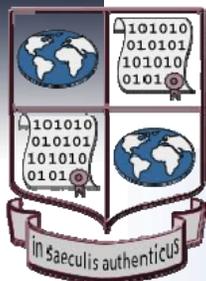
IP3 - *Structure*

- **International Symposium**
 - present preliminary findings to local audiences
 - each year by a different international partner in a different country
- **International Alliance**
 - 9 national teams before Feb.
 - 4 joined after



IP3 - *Research Methodology*

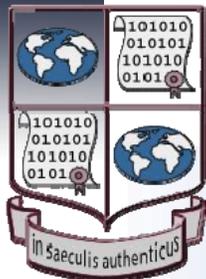
- Action research: a collection of participative and iterative methods, which pursue action and research at the same time.
- Action research forges collaborations between community members and researchers in a program of action and reflection toward positive change.



International Research on Permanent Authentic Records in Electronic Systems

InterPARES 2 Project

Questions?



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