

# Integrity and Authenticity: Is Digital more Challenging than Paper?

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# Outline

- Digital is different?
- Key Questions
- Integrity and Authenticity
- LAC Strategy
- Whole-of-Society Model
- Conclusion

# Digital is different



- LAC has three core business lines
  - Acquisition
  - Preservation
  - Access
- Across three primary sources:
  - **Government records** via Records Disposition Authorities (RDAs)
  - **Published material** via legal deposit/purchases
  - **Private records** via donations/purchases
- **IN ALL BUSINESS LINES AND ACROSS ALL SOURCES, DIGITAL IS DIFFERENT**

# A Word from the Deputy Head and Librarian and Archivist of Canada

“ . . . the face of information has changed substantially in the last decade: superabundance; rapid creation, sharing and remixing by individuals; multiple formats; unprecedented access; ever-present and expanding user influence, points of view, skills and engagement. This picture is in direct contrast to that of the past, which was characterised by limited creation and quantity; mediated access and decisions; authoritative sources; specialist interventions; limited number of fixed formats; limited sharing; and fewer players.”

- Daniel J. Caron, *Shaping our Continuing Memory Collectively: A Representative Documentary Heritage*

# A “Wicked Problem”: Attributes of the challenge

- **Profound**
  - Digital objects are now the dominant way of creating, managing, exchanging and accessing information
  - Changing architecture of social and business processes
  - Shifting institutional structures, boundaries and relational configurations
- **Complex**
  - Content: distributed network-based digital objects, the emergence of shared digital stewardship
  - Technical: a shape-shifting, ever-changing landscape dominated by persistent uncertainty
  - Social: emergence of new actors, new and more complex social and economic dynamics

# A “Wicked Problem”: Attributes of the challenge . . . Cont’d

- Distributed
  - Increasingly distributed, network-based organization of digital information and its lifecycle management
  - Shared among a broad range of societal actors in all sectors of society; global, trans-national in scope
  - Requires national and trans-national frameworks and governance
- “Wicked”
  - Continuous uncertainty and shifting solution domains
  - Traditional assumptions and approaches to problem resolution do not work
  - Requires new thinking, innovation, continuous experimentation; new skills and governance

# Digital Preservation: 4 Key Questions



1. In what ways is digital preservation NOT the same as analogue preservation?
  - Digital objects are less fixed (photograph vs. website; book vs. blog)
  - Digital objects will be acquired based on analysis of value not evidence of value: more chaff with the wheat: continual re-appraisal?
  - Total cost of ownership shifts: digital costs more to preserve than to get – more interventions required
  - All of the above are true in both migration and emulation scenarios

IF THE PROBLEMS ARE NOT THE SAME, WHY WOULD WE EXPECT THE SOLUTIONS TO BE?

# Digital Preservation: 4 Key Questions

2. Should we take a “generational” approach to digital preservation?
  - Continual refresh of tools and practices: a long-term solution = short-term solution + next short-term solution + next short-term solution . . . . 10 years at a time?
  - Requires new approach to services (not systems) development

# Digital Preservation: 4 Key Questions



3. Should we develop and use TDR models that support “levels” of preservation, accountability, and metadata requirements?
  - Specialized preservation; common access
  - Shift metadata focus to information “about-what-the-item-is-about” not “about-the-item”
  - Store and access metadata in structures that support digital discovery

# Digital Preservation: 4 Key Questions

4. How could we implement and manage a networked operationalization of the first three concepts?
  - Appraisal decisions before or at the point of creation
  - Sharing information on what is being collected and why
  - Transfer ownership and control over bits and bytes rather than transfer the digital objects themselves

# Integrity and Authenticity



## Analogue meanings:

- Tied to concept of “original”: unique version of an item
- Risk of alteration or alternate versions
- Demonstrated via provenance and “chain of control”

## Digital meanings:

- Original no longer exists – email/tweet
- Reduced risk to alteration of “initial” version; access is to copies
- Multiple copies allows validation
- Demonstrated via provenance and chain of control

# Integrity and Authenticity



- Thoughts, insights, issues, actions
  - Chain of control requires documenting changes . . . Same as analogue
  - Demonstrate this chain of control for digital items at three levels: “physical object, logical object, and conceptual object” (Frey) (translation)
  - Reformatting/migrating the object versus emulating the device

# Digital Preservation Tenets: A Re-cap



1. Digital archives are significantly different from physical archives with respect to acquisition, preservation and discovery
2. Digital archives are assets held in trust for use by our citizens: they have measurable values and costs that change with time. The efforts associated to preserving digital assets should be proportional to their value
3. Digital archives need to be preserved for an extended period but the preservation technology and strategy will be achieved one generation at a time
4. Because of their unstable nature, digital assets must be captured close to creation and should be disposed of later if their value is not sustained during reviews
5. Digital archives need to be federated using a shared data model

# LAC Strategy

- One solution does not fit . . . (. . . Any/All)
- The only durable solutions are those that can be changed/replaced easily, quickly, cheaply.
  - Build small. Build fast. Build often.
- Change is the only constant so adapt well
- Reality Check: This is not our current state

# LAC Strategy . . . More details



- Use different repositories for different kinds of digital objects
  - Have built a repository to meet our most stringent requirements.
  - Examining commercial products to hold specialized records with different requirements
- With a common integration layer to support control, discovery and access

# LAC Strategy . . . More details



- **Government records:** only digital ingest by 2017
  - Key challenge: considerable variability in current recordkeeping tools, formats and processes across government organizations
  - Government has identified a standard recordkeeping tool – LAC focusing on ingest from that tool; requires departments to migrate to it
  - Develop an effective, progressive approach then address the legacy e-records using risk-based approach

# LAC Strategy . . . More details



- **Published material:** Canadian legal deposit regulations already cover electronic publications
- Consideration of a more comprehensive “virtualization” of legal deposit would require extensive consultations with publishers (covering books, music, maps, etc.)
- **Private records:** Ingest of digital records occurring on an ad hoc basis at present. Needs to be systematized

# LAC Strategy . . . More details



- All objects, including access versions, held in the TDRs
- Moving to digital service delivery model where access to LAC holdings is via digital version regardless of original format
- Digital objects served from TDRs to the user via common search layer and according to the applicable rights management regime (access is legislation/policy driven not technology driven)

# LAC Strategy . . . More details



- Digital preservation requires collaborative approaches and solutions *at the level of:*
  - Content
  - Policy
  - Tool creation
  - Interoperability of tools
- Collaborative forum created and defining areas of common work

# The same yet still different . . .

- Digital and analogue are different, but in one area they share a common requirement:
- For all archives, both analogue and digital, we need new metadata models, structures, and tools to enable discovery
- Digital technology (not digital items) creates an opportunity to radically improve discovery and access to archives that we must not fail to exploit

# Whole-of-Society Model: “About-ness”



- LAC is using a whole-of-society approach for the selection of items to be acquired
- This approach uses a domains social model to focus our attention on areas of importance within Canadian society, using the concept of fundamental discourses.
- The whole-of-society data model is a semantic representation the domains social model and is used for the management of the metadata. This data model can also be shared with other documentary heritage organizations (DHOs), thereby significantly enhancing the “findability” experience across DHOs

# Whole-of-Society Model: Facets



The model uses several dimensions of facets:

- People: Relevant people and their attributes including biographies
  - Artists, Authors, Politicians, Celebrities
- Positions: Roles that link people to organizations
  - Prime Minister, President, CEO, Owner, Member
- Organizations
  - Political, Economic, Government, Social entities
- Events
  - Wars, celebrations, natural disasters, political

# Whole-of-Society Model: Facets (cont'd)

The model uses several dimensions of facets:

- Locations
  - Standards and non-standards
- Eras
  - Formal: centuries, decades, years
  - Informal: related to events (Depression, Victorian, Edwardian)
- Social domains
  - Health, Military, Science, Environment

# Whole-of-Society Model



- The whole-of-society model metadata is used to describe the assets and is used to compliment and extend provenance and preservation metadata
- The whole-of-society model metadata is used to provide the multifaceted discovery function that is difficult to achieve with traditional metadata structures. The relationship between assets and the model provides the new “finding aids”
- These relationships need to be captured in new data structures and tools

# Conclusion

- Assurance of long-term digital preservation derives from LAC's change capacity; meaning, its ability to successfully and consistently implement change on a frequent, rapid and effective basis
- This means digital is different from analogue
- The way forward will be highlighted by ongoing learning; in order to learn from others, your comments are welcome

*The preceding pages describe Library and Archives Canada's current understanding of, and strategies and plans for, digital preservation, a rapidly changing field. LAC expects its way forward to continually evolve and welcomes perspectives, challenges, and comments that will help it identify and implement necessary revisions to its approach.*

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