Reliable, Robust and Resilient Digital Infrastructure for Nuclear Decommissioning

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DigitalPreservationCoalition

What is digital preservation?

"Digital Preservation refers to the **series of managed activities** necessary to ensure **continued access** to digital materials for **as long as appropriate**. Digital preservation refers to all of the actions required to maintain access to digital materials beyond the limits of media failure or technological and organisational change."

Based on definition within the Digital Preservation Handbook, 2nd Edition, http://handbook.dpconline.org/, Digital Preservation Coalition © 2015.

Digital preservation is about putting common sense strategies in place to save a lot of effort and pain further down the line.

What is digital preservation not?

- It is not just about backing things up

- It is not the same as digitization

- It is not a one off activity

- There is no clear finish line

  Nothing has 'been preserved' there are only things that are 'being preserved'

Digitalbevaring.dk

- It is not a solved problem

The Digital Preservation Coalition

... a global community, working together to bring about a sustainable future for our digital assets...

About the DPC

- We support our members to 'do' Digital Preservation
- Not for profit, charity
- Member funded, member led
- c. 130 members
- Founded in 2002, initially UK focused, but now international

About our Members

A collaborative project

"Reliable, Robust and Resilient Digital Infrastructure for Nuclear Decommissioning"

In November 2018 the DPC and the UK Nuclear Decommissioning Authority began a 4 year collaborative digital preservation project.

Project aims

To advise, guide and develop policy that will enable the NDA to:

- Access and secure critical **legacy** data and systems

- Adapt **current** data and systems to ensure long term viability

- Commission **future** data and systems with long term resilience from the outset

Working within the DPC Membership to share challenges and outputs and validate approaches.
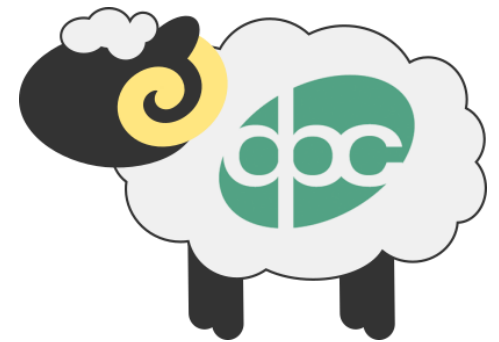
Digital preservation challenges

- Significant legacy data (including waste records)
- Data often dependent on legacy hardware and software
- Knowledge of many systems is dependent on an aging staff contingent
- Complex data objects – eg: 3D digital engineering
- Semi-active records
- Large quantity of analogue audio-visual content
- High value records and long retention periods
- Communication required across multiple sites

What have we been working on?

- Digital preservation policy and procedure

- Case studies…including:
  - Preservation of records from EDRMS
  - Preservation of legacy databases
  - Preservation of 3D engineering models
  - Preservation of geospatial data
  - Digital preservation system requirements
  - Digital preservation competencies/skills
  - Digitisation standards

- Assessment and benchmarking

Benchmarking with DPC RAM

- Our Rapid Assessment Model (RAM) is a maturity model for digital preservation

- It allows you to understand where you are and where you would like to be
  - …and track your progress over time

- Within the DPC it also allows for benchmarking against others.

- It is relatively quick and easy to carry out a self-assessment

DPC RAM sections

Organizational capabilities

A	Organizational viability	Governance, organizational structure, staffing and resourcing of digital preservation activities.
B	Policy and strategy	Policies, strategies, and procedures which govern the operation and management of the digital archive.
C	Legal basis	Management of contractual, licensing, and other legal rights and responsibilities relating to acquiring, preserving and providing access to digital content (e.g. licencing, copyright, terms and conditions of use, data protection regulation).
D	IT capability	Information Technology capabilities for supporting digital preservation activities.
E	Continuous improvement	Processes for the assessment of current capabilities, the definition of goals and...
F	Community	Engagement with and contribution to... community.

0 - Minimal awareness
1 – Awareness
2 – Basic
3 – Managed
4 – Optimized

Service capabilities

|		
G	Acquisition, transfer and ingest	Processes to acquire or transfer content and ingest it into a digital archive.
H	Bitstream preservation	Processes to ensure the storage and integrity of digital content to be preserved.
I	Content preservation	Processes to preserve the meaning or functionality of the digital content and ensure its continued accessibility and usability over time.
J	Metadata management	Processes to create and maintain sufficient metadata to support preservation, management and use of preserved digital content.
K	Discovery and access	Processes to enable discovery of digital content and provide access for users.

DPC RAM results

Digital Preservation Coalition Rapid Assessment Model (DPC RAM):
Anonymous Archive

- - ◆ - - Target Level —◆— Current Level
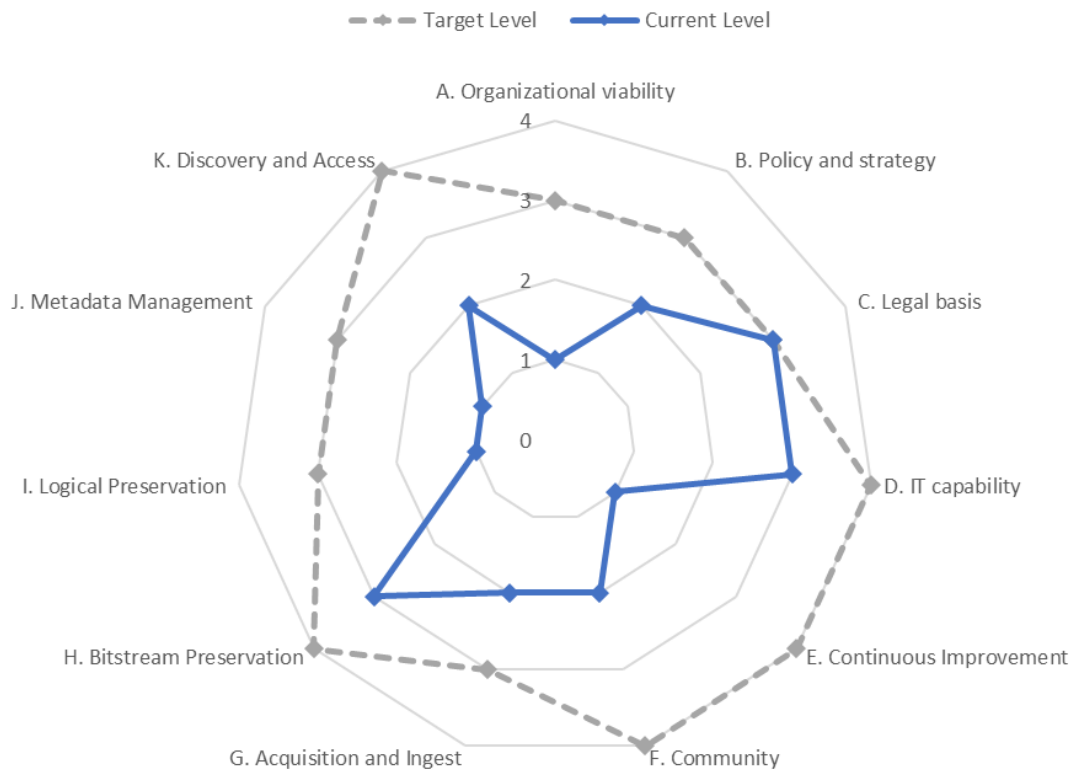
EDRMS Preservation Toolkit

Offers advice on the preservation of records within an EDRMS:

- Flags up some of the key challenges that you may face

- Provides you with the questions that you need to ask within your own organisation

- Maps-out a process for moving forward

- Provides examples of how others have tackled the challenge

https://www.dpconline.org/digipres/implement-digipres/edrms-preservation-toolkit
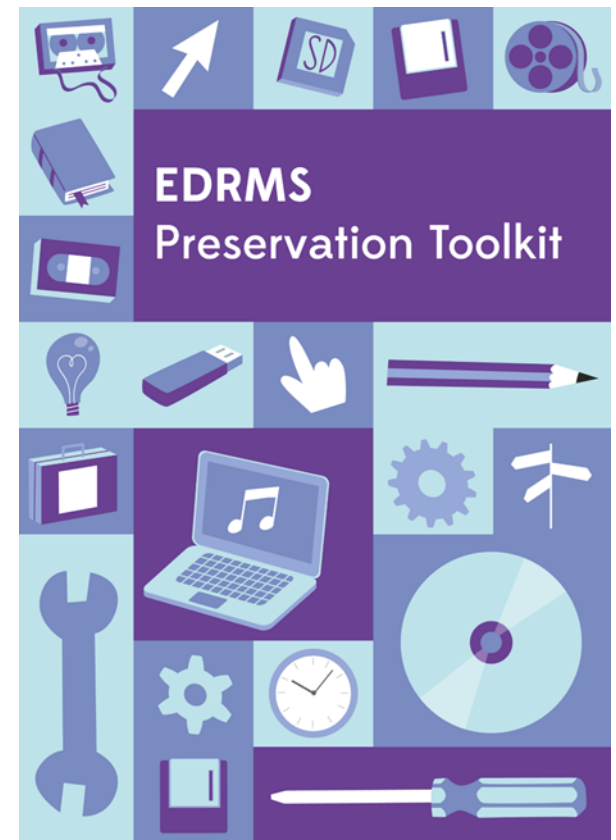
Core Requirements for a DP System

- 10 high-level functional requirements

- **_Designed_** to be modified
  - Add/remove requirements
    "must" ↔ "should" ↔ "could"

https://www.dpconline.org/digipres/implement-digipres/procurement-toolkit

E.g. Core Requirement #6

6. The system must support replication and storage management. The system must have the ability to store multiple copies of ingested digital content on different storage systems in different geographical locations.

Rationale: Keeping multiple, managed copies of digital content helps identify and fix errors.

Core Requirement #6 in detail...

6.1 The system must automatically manage the replication of digital content to multiple storage locations (potentially in different geographical locations).

6.2 The system should perform regular system backups.

6.3 The system should be able to regularly test and report on its backup and restore capabilities.

6.4 The system should create and retain management reports on replication, storage management, backup and restore activities.

Preserving 3D design records

http://doi.org/10.7207/twr21-01

Preserving Born-Digital Design and Construction Records

Aliza Leventhal and Jody Thompson

DPC Technology Watch Report

December 2021

DigitalPreservationCoalition

Technology Watch Report on Preserving Born-Digital Design and Construction Records

- Now on general release

http://doi.org/10.7207/twr21-01

New Technology Watch Guidance Notes

- Preserving 3D
- Preserving CAD
- Preserving GIS
- Preserving Audio
- Preserving Moving Images

- Preserving Raster Images
- Preserving Databases
- Preserving Documents
- Preserving Email
- Preserving Spreadsheets
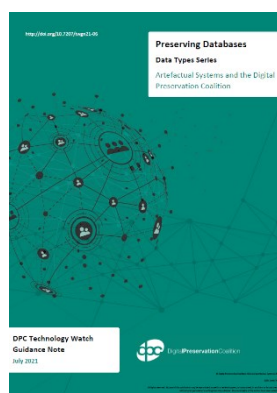
Still to come…

- Competency Assessment Framework and Audit Toolkit

- Updated Technology Watch Report on preservation of geospatial data

- Checklist for procuring IT systems

Thanks for listening

Further details of our project with the NDA here:
https://www.dpconline.org/digipres/collaborative-projects/nda-project

...or email us with any questions:
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