LEIBNIZ INFORMATION CENTRE FOR SCIENCE AND TECHNOLOGY UNIVERSITY LIBRARY



# Three Rs for Re-Use in Digital Preservation

M. Lindlar KB - Den Haag, 5th February 2020 Hergebruik / Re-use Seminar for Barbara Sierman



## Re-Use

## LOADING



PLEASE WAIT.









#### R is for Reserach-based



Digital Preservation is cyclical by nature.

It is about looking at digital objects **today**, which were created in the **past**, in order to keep them available / understandable in the **future**.

It is also about preservation decisions which made in the **past** and are re-evaluating **today** to check if they need to be adapted as we move into the **future**.

These activities require a systematic approach. They require (applied) **research**.



## **Applied Research in Preservation Practice**



A main function in Digital Preservation is **Preservation Watch**, which includes:

- Monitoring Designated Community What file formats do my users expect? How do they access/use data?
- Monitoring Technology What are risks of the file formats we have? Are technologies/formats becoming obsolete?
- Developing Preservation Strategies & Standards

Do the standards and strategies we use, e.g., migration, emulation, certification, OAIS, work? How can we improve them?

Monitoring my own organization

Do I have the right (amount) of resources to fulfill my task?

Are my policies in place and up to date?



#### **Building Practice on Research (by others)**



As **Preservation Watch** shows, digital preservation practice is a large task.

Most large institutions preserve > 100 different formats in > 0.5 Petabyte of data.

Digital preservation teams range between 2 – 10 FTE.



**Community Resources** include research of others that we can build our work on and that we can contribute our own research / experience to !



Call to action – research-based:

Sharing is Caring and we can do more of that!



Format Problem!

The technical registry

**Digital Preservation Q&A** 

### **Digital Preservation Research Projects**



There have been a number of successful research projects.

But how successful have we been at **keeping the results alive** / the thought process ongoing?

Membership organizations like OPF help maintain open source tools / standards ... but we need to keep that knowledge alive & move it into practice in our instituions as well

Call to action – research-based:

Learn from research outputs & help keep the results alive!

















#### R is for Reproducible



Themes that often come up in digital preservation:

- Authenticity (of objects)
- **Transparency** (of processes)

Both share the underlying concept of **reproducibility**, which needs to applied on two levels:

- Micro level:

   i.e., reproducibility of changes conducted to single objects
- Macro level:
   i.e., reproducibility of overarching processes



#### Reproducibility on Micro Level



The digital preservation community is good at documenting **reproduciblity** on the level of digital objects / files, via, e.g.:

- Preservation plans
- PREMIS preservation metadata on Objects,
   Events, Rights, Agents and Environments

Reproducibility in the sense of **who** did **what**, **when**, based on **which agreement** and with **what outcome** is a unique selling point of digital preservation!

We should use this easy-to-understand concept of to promote our efforts better.

Call to action – reproducibility:

Drive our value more by making reproducibility transparent!



### Reproducibility on Macro Level



On a macro level of **reproducibilty**, we are not quite as successful (at least in my opinion).

- shared terminology exists, but is often understood differently:
  - Across domains: e.g., "preservation" between research data management and digital preservation
  - Across institutions: e.g., wide spread of "Preservation Planning" implementations
  - Across departments: e.g., "independent copy" between preservation team and IT



Call to action – reproducibility:

Continue efforts to speak the same language!

### R is for Responsible



National Libaries / Archives, large research libaries, museums and similar cultural heritage institutions are by definition or – even better – mandate **responsible** for the preservation of their holdings.

This responsibility can be broken down into two categories. We are responsible ...

- ...For **what** we do
- → To the objects we care for and the frameworks we base these actions on
- ...For **how** we do it
- → How do we fare in the age of globalized information infrastructure and climate change?



## Responsible for what we do



Digital preservation is mainly focused on technological long-term accessiblity of digital objects.
Until recently, **sociological considerations** of what we do have been largely neglected.

#### To illustrate:

- Do we respect the cultural framework in which digital artefacts are produced, stored and consumed?
- Do we exclude potential users via technological decisions / assumptions we make?
- Are we open enough to foster exchange? Why hasn't <u>Code of</u>
   <u>Ethics for Digital Preservation</u> (proposed by NLNZ / NaSLA) taken
   off? Why are we so hesitant to talk about failure?

Call to action – responsibility:

Include sociological considerations in our processes!

### Responsible for how we do it



Digital Preservation has a **significant carbon footprint**. Factors like electricty, cooling and hardware renewal pose an environmental risk.
How can we be more **environmentally responsible** in how we conduct digital preservation?

Tasks to consider include:

- Infrastructure: overall Storage size use
- Processes: do we really need to digitize? reappraisal?
- Collaboration: deduplication within national / international preservation networks

Call to action – responsibility:

Move towards environmentally responsible digital preservation!

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#### Toward Environmentally Sustainable Digital Preservation

Keith L. Pendergrass, Walker Sampson, Tim Walsh, and Laura Alagna

#### ABSTRACT

Digital preservation relies on technological infrastructure (information and comminication technology, ICI) that has considerable negative environmental impacts, which in turn threaten the very organizations tasked with preserving digital content. While altering technology use can reduce the impact of digital preservation practices, this alone is not a strategy for sustainable practice. Moving toward environmentally sustainable digital preservation requires critically examining the motivations and assumptions that shape-currient practice. Building on Goldman's challenge to current practices for digital authenticity and using librarifed's sustainability framework, we propose explicitly integrating environmental sustainability into digtital preservation practice by shifting cultural heritage professionals' paradigm of appealable, permanence, and availability of digital contents.

The article is organized in four parts. Hrst, we review the literature for differing uses of the term 'sustainability' in the cultural heritage flek' financial, staffing, and environmental. Second, we esamine the negative environmental effects of ICT throughout the full life oyle of its components to fill a gap in the cultural heritage literature, which primarily focuses on the electricity use of ICT. Next, we offer suggestions for reducing digital preservation's negative environmental impacts through altered technology use as a tropgen neutron. Finally, we call for a paradigm shift in digital preservation practice in the areas of appraisal, permanence, and availability. For each area, we propose a model for sustainable practice, providing a framework for sustainable choices moving forward.

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#### KEY WORDS

Digital preservation, Sustainability, Climate change, Appraisal, Permanence, Access

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#### **Conclusion – A ToDo List of Calls to Action:**



Sharing is Caring and we can do more of that!
Learn from research outputs & help keep the results alive!
Drive our value more by making reproducibility transparent!
Continue efforts to speak the same language!
Include sociological considerations in our processes!
Move towards environmentally responsible digital preservation!

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## Thank you! Questions? Comments!

#### Contact:

M. Lindlar - TIB Hannover



**5** 0511 762 19826

S Lindlarm



