

# Improving Operations Using Standards and Metrics: Self-Assessment of Long-Term Preservation Practices at FSD

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YHTEISKUNTATIETEELLINEN TIETOARKISTO  
FINLANDS SAMHÄLLSVETENSKAPLIGA DATAARKIV  
FINNISH SOCIAL SCIENCE DATA ARCHIVE



” The Really Foolproof Solution for Digital Preservation [is]

**MONEY**

... enough of it, and for an indefinite period.  
”

David Giaretta (2011) ”Advanced Digital Preservation”



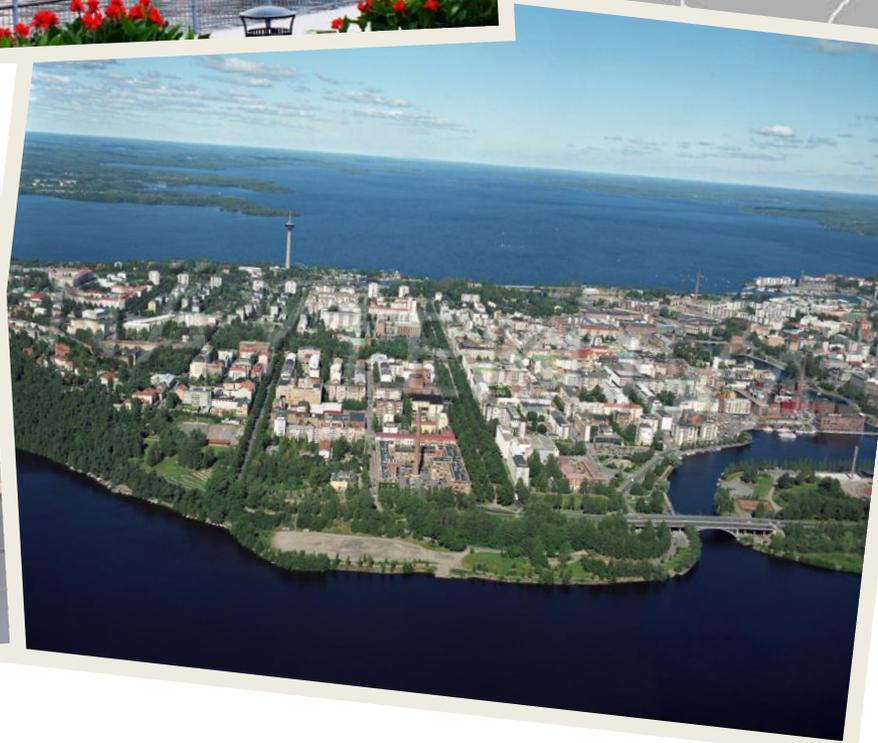
# In This Presentation

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- > Conclusions



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# Finnish Social Science Data Archive





# FSD Upgrade Project (TA15)

- > Funded by the Academy of Finland, 1.1 m€
- > Five-year project, started in 2011
- > The project enables us to:
  - meet the Cessda-ERIC membership criteria
  - build online registration and data download system
  - extend holdings to wider range of research fields
  - manage complex data better
  - study costs, metadata and preservation issues
  - provide training on data management

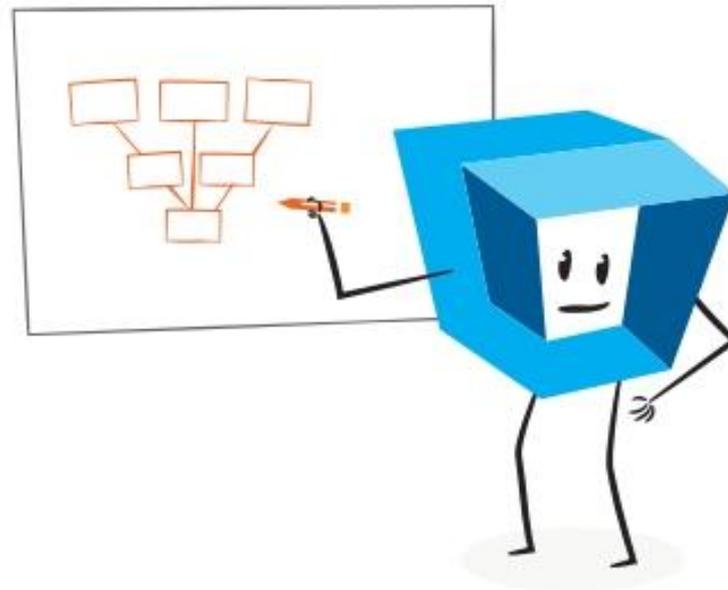


# The Questions

- > Are FSD's solutions, systems and practices adequate? Is FSD trustworthy?
- > Two steps to find the answer:
  - ⇒ **Is FSD compliant to OAIS?**
  - ⇒ **Self-audit using TDR**



# FSD and OAIS





# Open Archival Information System (OAIS)

- > is a **reference model** for archives engaged in long-term preservation of digital data
- > provides concepts to guide **digital preservation**
- > outlines the involved activities and parties as well as responsibilities **on a general level**
- > Was developed by NASA's Consultative Committee for Space Data Systems
- > is an ISO standard (ISO 14721:2003); available as CCSDS 650.0-B-1 (Blue Book, 2002)
- > Finnish version of the standard (SFS 5972) was published in March 2010

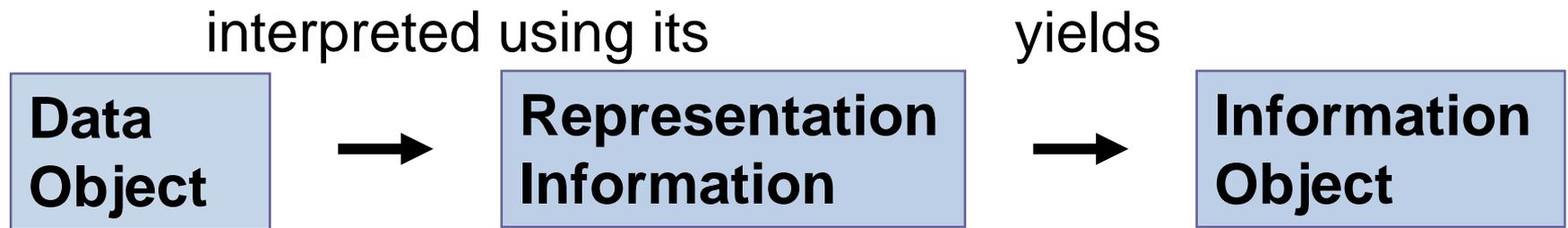


# Requirements for OAIS Conformance

- 1) The archive shall support the OAIS model of information, **and**
- 2) The archive shall fulfil the six OAIS mandatory responsibilities.

# OAIS model of information

- > Information is a combination of data and its *Representation Information*



- > Three types of *Information Packages*:
  - *Submission Information Package (SIP)*
  - *Archival Information Package (AIP)*
  - *Dissemination Information Package (DIP)*





# OAIS mandatory responsibilities

- ✓ **Negotiate for and accept appropriate information** from information producers.
- ✓ **Obtain sufficient control** of the information provided to the level needed to ensure long-term preservation.
- ✓ Determine which communities should become the **Designated Community**.
- ✓ Ensure that the information to be preserved is **independently understandable** to the Designated C.
- ✓ Follow **documented policies and procedures** which ensure that the information is preserved against all reasonable contingencies.
- ✓ **Make the preserved information available** to the Designated Community, with evidence supporting its Authenticity.



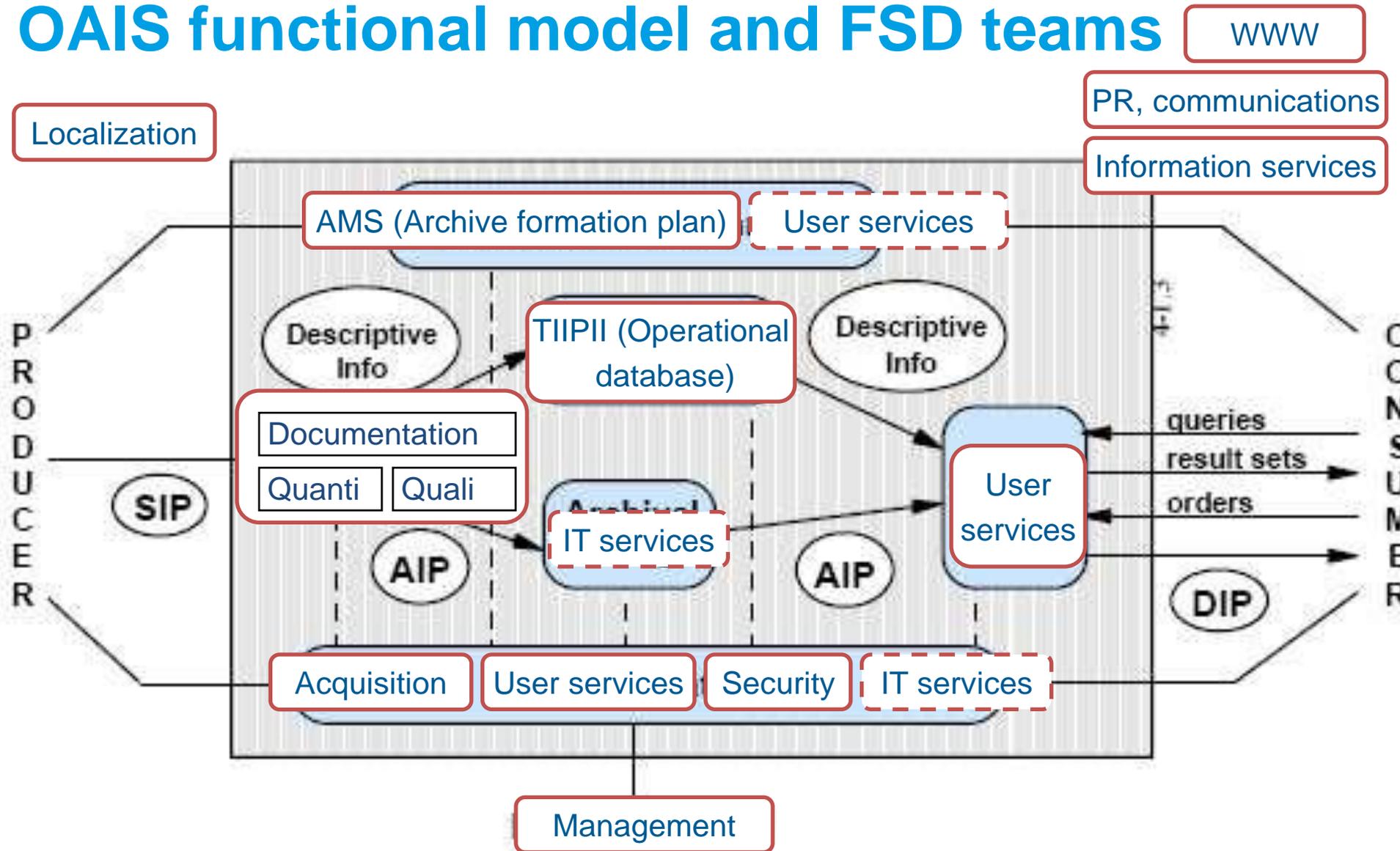
- ✓ FSD supports OAIS model of information
- ✓ FSD fulfils all six mandatory OAIS responsibilities.

**=> FSD is OAIS-compliant**

... NOT a surprise!

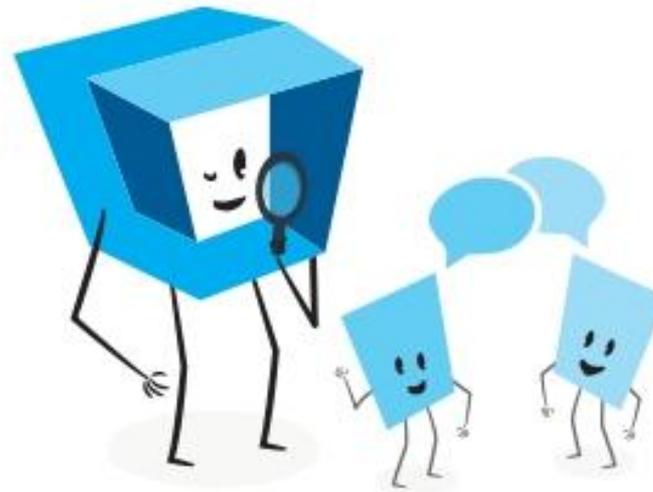


# OAIS functional model and FSD teams





# Self-Audit of FSD Using TDR



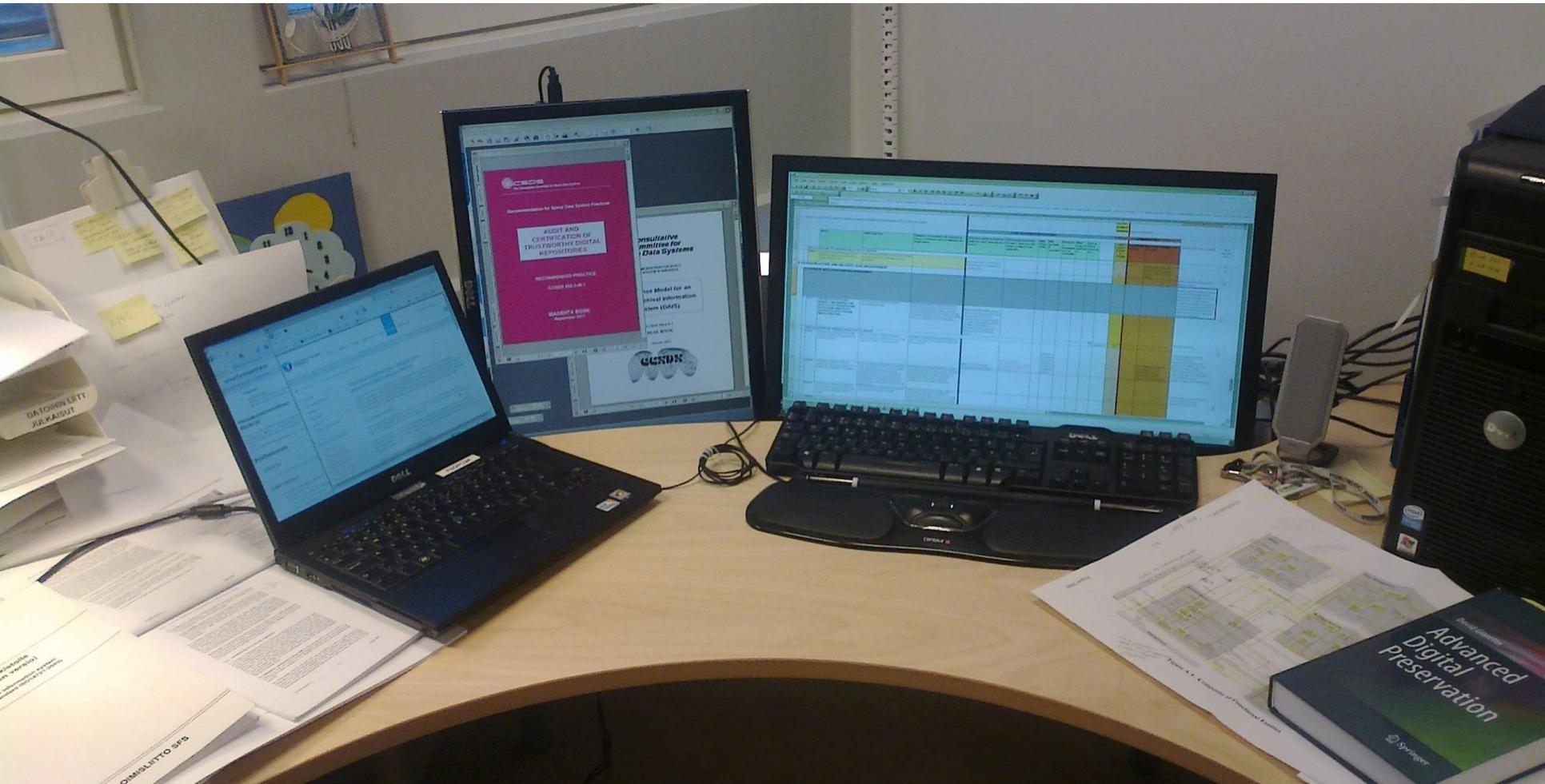


# Requirements / Starting points

Commitment from management	FSD Upgrade Project
Resources	FSD Upgrade Project
Access to all relevant documents	AMS Archive Formation Plan, Handbook, Website, Administrative documents
Metrics	TDR (CCSDS 652-R-1), OAIS



... and hardware...





# Audit and Certification of Trustworthy Digital Repositories (TDR Checklist)

- > Based on TRAC and the OAIS framework
- > Is in final stages of approval as ISO 16363
  - available as CCSDS 652.0-M-1 (Magenta Book)
  - also available: TDR Checklist in Excel format (Preliminary version), provided by Center for Research Libraries (CRL)



# TDR Checklist Structure

- > Main sections:
  - Organizational infrastructure
  - Digital object management
  - Infrastructure and security risk management
- > 100+ clauses; for each clause:
  - description of (written) evidence
  - assessment: 0 (not compliant) – 3 (fully c.)



# Examples of Identified Strengths and Weaknesses at FSD

## *Full Compliance:*

- > mission statement ok (3.1.1)
- > collection policy ok (3.1.3)
- > preservation policies ok (3.3.2)
- > short and long term business planning in place (3.4.1)
- > appropriate deposit agreements (3.5.1)
- > minimum information requirements specified (4.5.1)
- > minimum descriptive information captured (4.5.2)

## *Non-compliance:*

- > no formal succession plan (3.1.2.1)
- > no commitment to regular self-assessment or external certification (3.3.6)
- > no documented process for testing the understandability of the AIP Content Information (4.2.7.1)
- > no systematic analysis of security risk factors (5.2.1)



# Results of Assessment

- > Major failures or risks not found
- > Average ~2.2
- > FSD is fully compliant with ~half of the clauses
- > Need to clarify several processes
- > Need to improve documentation (especially re: technical infrastructure and security risk mgmt)
- > Can't say if FSD passed or not – need to assess if non-conformities are unacceptable – but: FSD is definitely on the right track



# Next Steps

- > Discuss "lessons learnt" within FSD
- > Create an action plan for changes and improvements
  - Minor adjustments immediately
  - Major changes subject to discussions
- > Publish a report
- > Discuss the metrics with sister organisations
- > Re-audit (after FSD Upgrade completed)



# Notes About Use of Metrics

- > Learning curve is steep; no detailed examples available yet
- > TDR audit is not a tick box exercise
- > The standards describe a large and automated system; FSD has a set of systems and manual (human) processes
- > Objective self-audit is difficult



# Conclusions (1/2)

- > FSD is OAIS-compliant (as expected)
- > TDR exercise confirmed that FSD is doing things rightly
- > OAIS and TDR provided new viewpoints to, and deeper insights of FSD's processes.
- > The results will be useful in:
  - supporting and initiating organisational changes
  - revealing existing and possible problems
  - identifying and managing risks
  - improving processes (reducing costs)
  - planning strategies



## Conclusions (2/2)

- > The awareness about OAIS facilitates comparison and unification both nationally and internationally
  - provides common vocabulary
  - helps to identify common processes
- > TDR provides means to continually improve processes and services
  - Only identified weaknesses can be corrected!



# Sources

- > Giaretta, David (2011). Advanced Digital Preservation. Heidelberg: Springer-Verlag Berlin.
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