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Trustworthy Digital (Long-Term) Archives

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for the
nestor-WG „Trusted Repositories – Certification“

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www.langzeitarchivierung.de
www.longtermpreservation.de

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Trustworthy Digital Archives

"… repositories claiming to serve an archival function must be able to prove that they are who they say they are by meeting or exceeding the standards and criteria of an independently-administered program for archival certification .."

Task Force on Archiving Digital Information (1996): Preserving Digital Information, Commission on Preservation and Access, Washington D.C.

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Challenge

- Broad variety of archives
- Different designated communities
- Variety of object types
- Different standards in use

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Digital Long-term Archive

- … is defined as an organisation (consisting of both people and technical systems) that has assumed responsibility for the long-term preservation and long-term accessibility of digital objects, ensuring their usability by a specified target group, or ‘designated community’.

- "Long-term" in this context means beyond technological changes (to hardware and software) and also any changes to this designated community.

- Once more, this definition of digital repository is based on that introduced within the OAIS Reference Model

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Trustworthiness

Trustworthiness is the capacity of a system to operate in accordance with its objectives and specifications (that is, to do exactly what it claims to do).

From an IT security perspective, the fundamental considerations are integrity, authenticity, confidentiality, availability and non-redudiation.

IT security is therefore an important prerequisite for trusted digital repositories.

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Basic principles for application of criteria

Documentation

- The objectives, basic concept, specifications and implementation of the digital long-term repository should be documented.
- The documentation can be used to evaluate the status of development both internally and externally. Early evaluation can serve to avoid errors caused by inappropriate implementation. Correct documentation of workflow also allows` verification of any evaluatory conclusions.
- All quality and security standards must also be suitably documented.

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Basic principles for application of criteria

Transparency

- Transparency is achieved by publishing appropriate parts of the documentation.
- External transparency for users and partners enables these stakeholders to themselves gauge the degree of trustworthiness. Transparency afforded to producers and suppliers enables these groups to determine to whom they wish to entrust their digital objects.
- Internal transparency facilitates reflective self-assessment by the operators, backers, management and also employees.
- The principle of transparency relates closely to trust as it permits interested parties to make a direct assessment of the quality of a digital repository.

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Basic principles for application of criteria

Adequacy

The principle of adequacy derives from the fact that the conception of absolute standards is somewhat unfeasible; rather that evaluation is always based on the objectives and tasks of the individual digital repository concerned.

The criteria have to be related to the context of each individual archiving task. Individual criteria may therefore prove irrelevant. Depending on the objectives and tasks of the digital repository, the required degree of compliance for a particular criterion may differ.

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Basic principles for application of criteria

Measureability

In some cases - especially with regard to long-term issues - there are no objectively measurable characteristics.

In such cases we must instead rely on indicators that demonstrate the degree of trustworthiness. Again, transparency makes the indicators accessible for evaluation.

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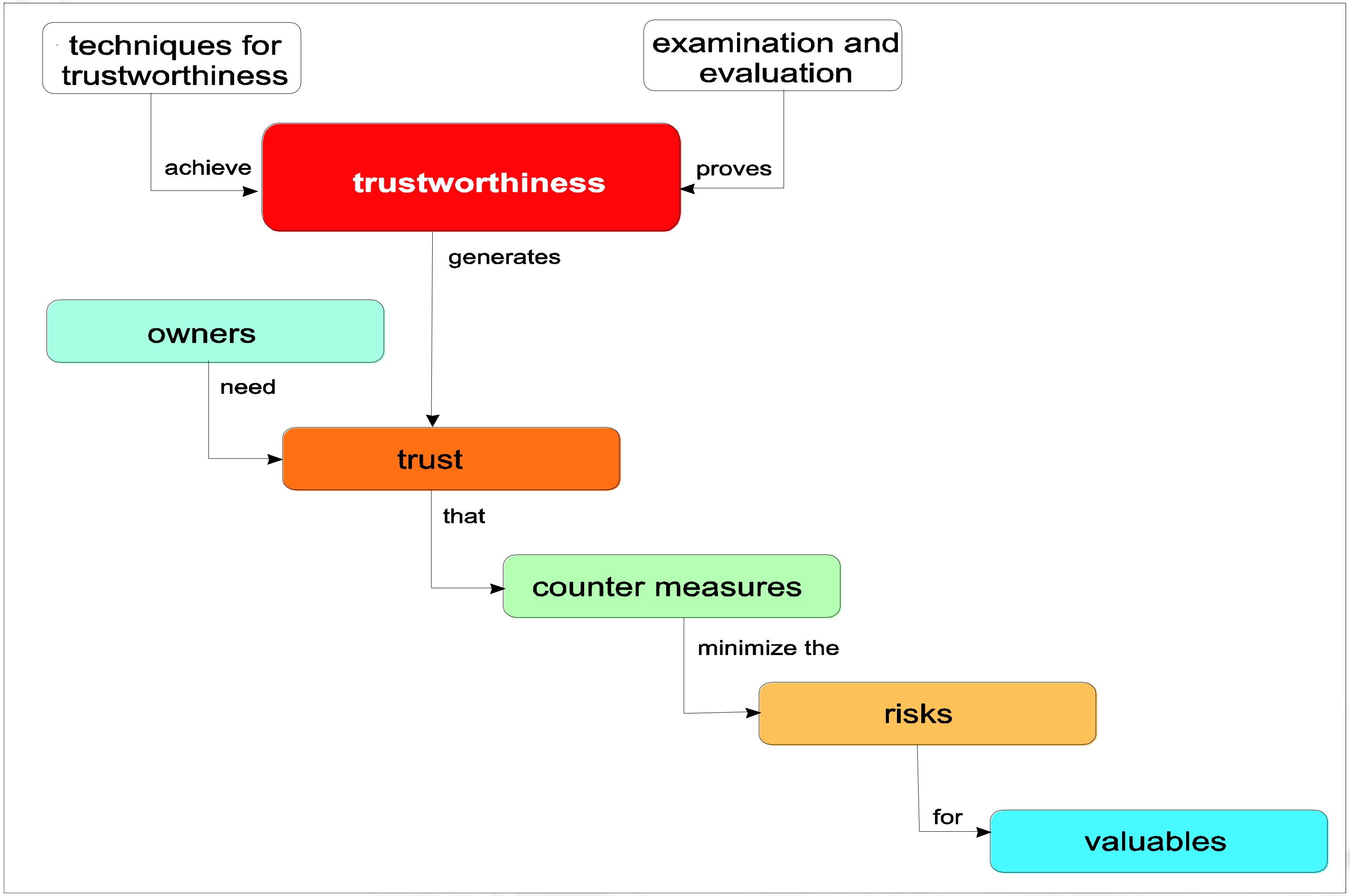
Thrustworthiness



Trustworthiness as risk mangement method direved from „Common Criteria“

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Short Overview of approaches and status

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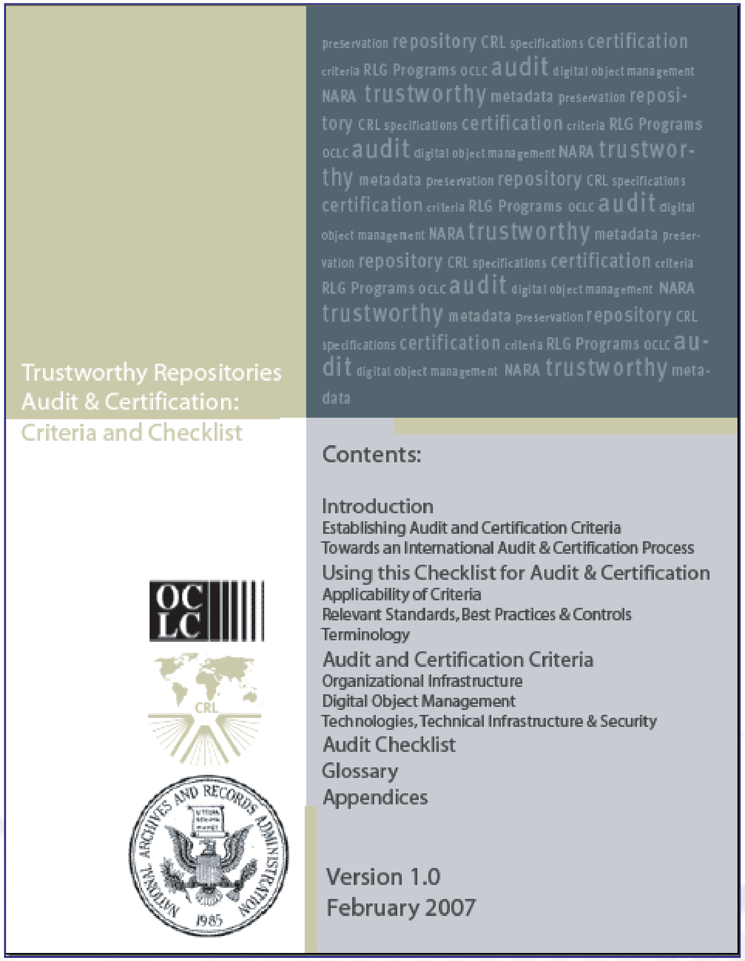
Center for Research Libraries (Research Libraries Group)

- Report: Trusted Repositories: Attributes and Responsabiblities (2002)
- Audit and Certification Criteria: TRAC (2005/2007)
- Test audits conducted in 2006-2007
- Since 2007: CRL Project Long Lived Data Repositories, CRL-Initiative Certification and Assessment of Digital Archives

- Basis for ISO Birds Of Feather Group (David Giaretta) TC20/SC13 (CCSDS)



preservation repository CRL specifications certification criteria RLG Programs OCLC audit digital object management NARA trustworthy metadata preservation repository CRL specifications certification criteria RLG Programs OCLC audit digital object management NARA trustworthy metadata preservation repository CRL specifications certification criteria RLG Programs OCLC audit digital object management NARA trustworthy metadata preservation repository CRL specifications certification criteria RLG Programs OCLC audit digital object management NARA trustworthy metadata preservation repository CRL specifications certification criteria RLG Programs OCLC audit digital object management NARA trustworthy metadata

Trustworthy Repositories Audit & Certification: Criteria and Checklist

Contents:

Version 1.0
February 2007

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Digital Preservation Europe DPE
Digital Curation Centre (DCC)

- DRAMBORA (2007)
- Test audits in 2007
- Auditing continues in 2008/2009
- Project end 06/2009
- Discussions in ISO Group TC46

Digital Repository Audit Method

Based on Risk Assessment

DRAMBORA

Digital Curation Centre (DCC)

&

DigitalPreservationEurope (DPE)

Draft for Public Testing & Comment

Release: Version 1.0 (draft)

Date: 28 February 2007

DCC

digital preservation Europe

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nestor WG Trusted Repository Certification

- nestor catalogue (2006)
- Test audits planned for 2008/2009
- Project end 06/2009
- DIN NABD15 / mirror group to ISO TC46

Kriterienkatalog vertrauenswürdige digitale Langzeitarchive

Version 1
(Entwurf zur öffentlichen Kommentierung)

herausgegeben von der
nestor–Arbeitsgruppe
Vertrauenswürdige Archive – Zertifizierung

nestor-materialien 8

urn:nbn:de:0008-2006060710

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nestor catalogue

C.

Organisational Framework

B.

Object Management

C.

Infrastructure and Security

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Examples

A	**Organisational Framework**
1	**The repository has defined its goals.** •selection criteria •responsibility for the long-term preservation of the information represented by the digital objects •repository has defined its designated community
2	**The repository allows its designated community an adequate usage of the information represented by the digital objects.** 2.1 Access for the designated community 2.2 guarantees interpretability of the digital objects by the designated community

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International

- Projects:
  - CASPAR
  - PLANETS
  - PARSE Insight
- China ?

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Commonalities

- Definition of commonly Agreed Basic Criteria
- Standardisation
- Certification
  - Definition of Metrics
  - Test Audits
  - „Agency“
    - Responsibility
    - Liability
  - Real Certification

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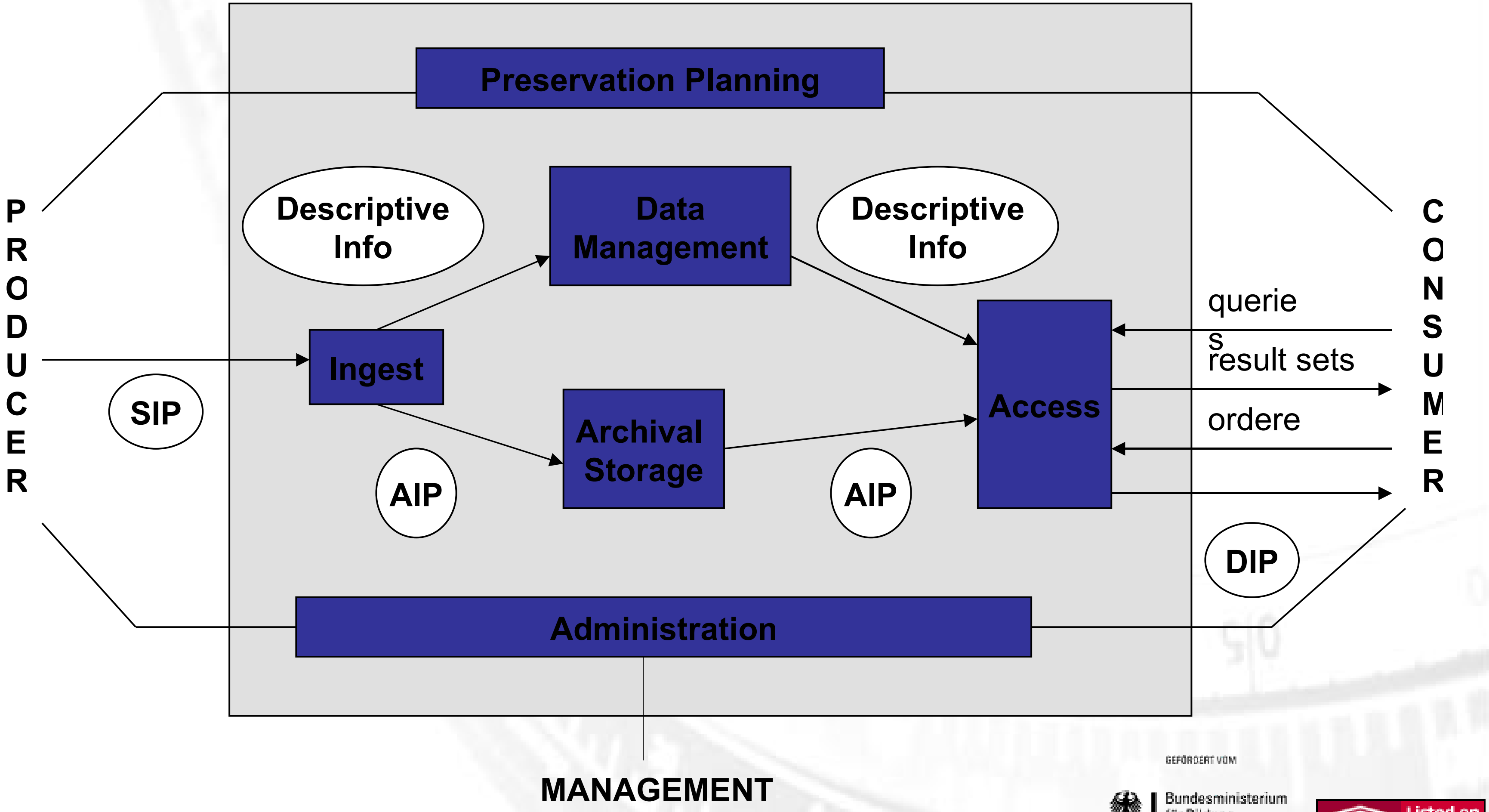
Open Archival Information System



Preservation Planning

Descriptive Info

Data Management

Descriptive Info

PRODUCER

Ingest

SIP

Archival Storage

AIP

AIP

Access

querie s

result sets

ordere

CONSUMER

DIP

Administration

MANAGEMENT

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Core Requirements for demonstrating trustworthiness

- nestor, CLR, RLG, DPE; DCC
- January 2007

1) The repository commits to continuing maintenance of digital objects for identified community/communities.

2) Demonstrates organizational fitness (including financial, staffing structure, and processes) to fulfill its commitment.

3) Acquires and maintains requisite contractual and legal rights and fulfills responsibilities

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Core Requirements for demonstrating trustworthiness

4) Has an effective and efficient policy framework.

5) Acquires and ingests digital objects based upon stated criteria that correspond to its commitments and capabilities.

6) Maintains/ensures the integrity, authenticity and usability of digital objects it holds over time.

7) Creates and maintains requisite metadata about actions taken on digital objects during preservation as well as about the relevant production, access support, and usage process contexts before preservation.

Core Requirements for demonstrating trustworthiness

8) Fulfills requisite dissemination requirements.

9) Has a strategic program for preservation planning and action.

10) Has technical infrastructure adequate to continuing maintenance and security of its digital objects.

The key premise underlying the core requirements is that for repositories of all types and sizes preservation activities must be scaled to the needs and means of the defined community or communities.

Summary

- Goal: Trustworthy Digital Archives
  - Possibility to define criteria and evaluation schema
- Challenge: Variety of Archives
- Coexistence of Several International Approaches
  - Step 1: Criteria standardisation
  - Step 2: metrics and audits
  - Step 3: certification as business process

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Thank You!

- Questions?
- dobratz@cms.hu-berlin.de

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References

- Trustworthy Repositories Audit & Certification (TRAC) Criteria and Checklist
  - http://www.crl.edu/PDF/trac.pdf
- nestor Catalogue of Criteria for Trusted Digital Repositories
  - http://www.nbn-resolving.de?urn:nbn:de:0008-2006060703
- DCC/DPE Digital Repository Audit Method Based on Risk Assessment (DRAMBORA)
  - http://www.repositoryaudit.eu/download
- Ten basic characteristics of digital preservation repositories
  - http://www.crl.edu/content.asp?l1=13&l2=58&l3=162&l4=92

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Overview of Main Criteria I

A Organisational Framework

1. Goals are defined
2. Adequate usage is guaranteed
3. Legal rules are observed
4. Adequate organization is chosen
5. Adequate quality management is conducted

Overview of Main Criteria II

B Object Management

1. Integrity of digital objects is ensured
2. Authenticity of digital objects is ensured
3. A preservation planning is implemented
4. Transfers from producers are defined
5. Archival storage is well defined
6. Usage is well defined
7. Data management guarantees the functionality of the repository

Overview of Main Criteria III

C Infrastructure and Security

1. The IT infrastructure is adequate
2. The infrastructure ensures the protections of the repository and its digital objects

Example

1.1 The digital repository has developed criteria for the selection of its digital objects.

The DR should have laid down which digital objects fall within its ambit. This is often determined by the institution's overall task area, or is stipulated by laws. The DR has developed collection guidelines, selection criteria, evaluation criteria or heritage generation criteria. The criteria may be content-based, formal or qualitative in nature.

- In the case of both state-owned and non-state-owned archives, the formal responsibility is generally derived from the relevant laws or the entity behind the archive (a state-owned archive accepts the documents of the state government, a corporate archive the documents of the company, a university archive, the documents of the university).

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