

DRAMBORA



Building Trust in Digital Repositories Using DRAMBORA

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Trust in Digital Preservation

- Archives and libraries traditionally enjoy a high level of trust in the society
- Digital materials require archives be more transparent, public, and open to continue maintaining this trust level
- Defining the problem
 - *Preserving Digital Information*
 - *Trusted Digital Repositories: Attributes & Responsibilities*

DCC Pilot Audits

- Trustworthy Repository Audit and Certification (TRAC) Criteria and Checklist Working Group
 - <http://www.crl.edu/PDF/trac.pdf>
- The UK Digital Curation Centre (DCC) engaged in a series of pilot audits in diverse environments
- 6 UK, European and International organisations: National Libraries, Scientific Data Centers, Cultural and Heritage Archives
- Rationale
 - establish evidence base
 - refine metrics for assessment
 - contribute to global effort to conceive audit processes
 - establish a methodology and workflow for audit

Meeting the Shortfall

- Pilot audits showed that existing methods:
 - are too static – ‘one size fits all’ approach
 - are too much fixed on the OAIS reference model
 - put too little emphasis on evidence in the auditing process
- Audit results should help to manage the repository better continuously, not just give a one-time snapshot evaluation

Digital Repository Audit Method Based on Risk Assessment



- Developed by DPE & DCC, first version released in March 2007
- Second version released as an electronic tool in November 2007
- DRAMBORA helps repositories to:
 - **develop an organisational profile**, describing and documenting their mandate and objectives;
 - **compile** a comprehensive list of repository activities and assets;
 - **identify** and **assess** the risks that impede their activities and threaten their assets;
 - **manage** the risks to mitigate the likelihood of their occurrence;
 - establish effective **contingencies** to alleviate the effects of the risks that cannot be avoided.

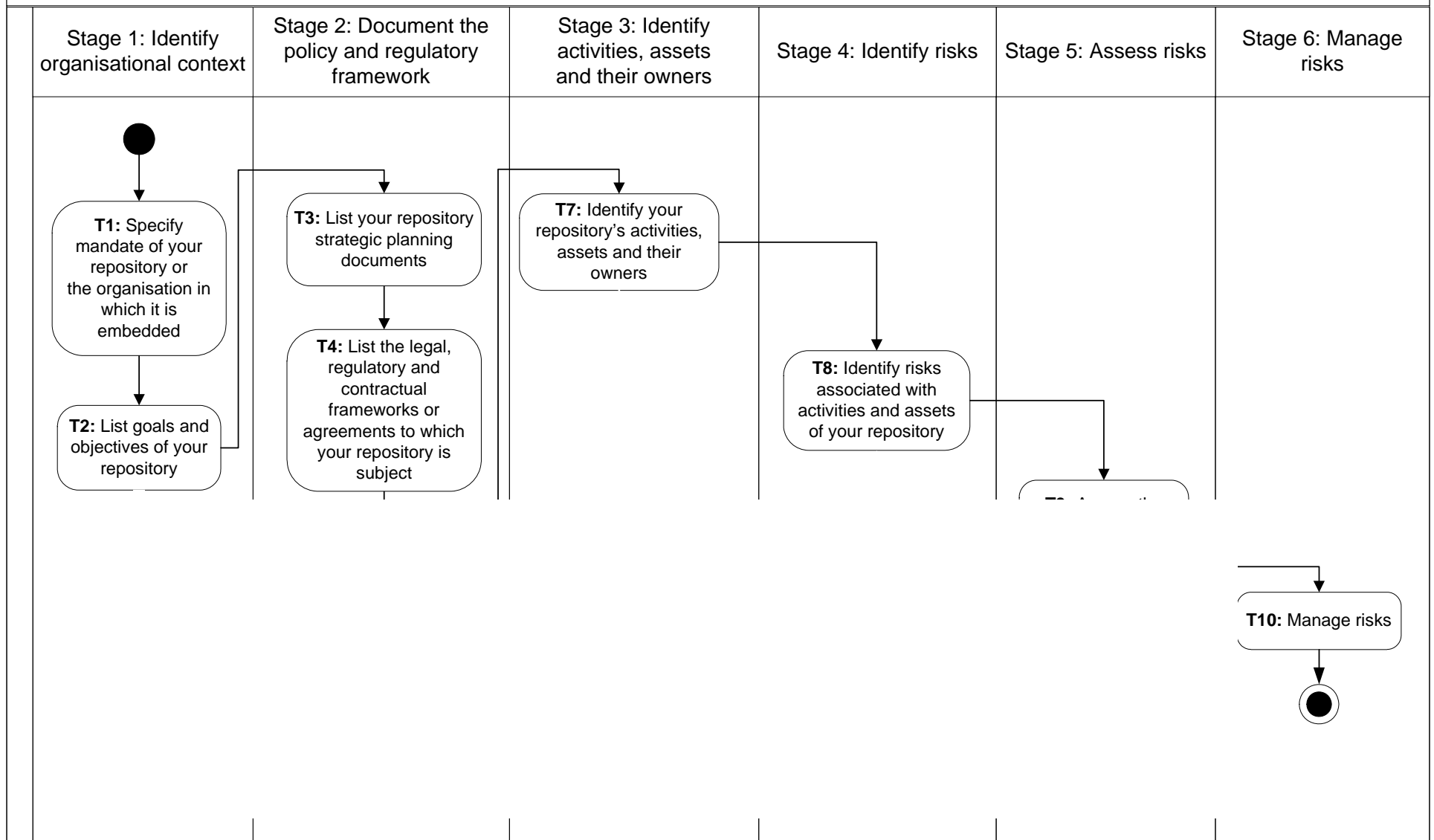


Core Aspects

- Represents a bottom-up approach to assessment (in contrast with benchmark-based approaches)
- The ability to preserve and deliver authentic and understandable digital objects is placed in the centre of measuring the risks in a repository
- Based upon established risk management principles
- Supports retroactive and proactive audits:
 - **Validation** [*“Are my efforts successful?”*]
 - **Preparation** [*“What must I do to satisfy external auditors?”*]
 - **Anticipation** [*“Are my plans and proposals likely to succeed?”*]

DRAMBORA Workflow

Using the digital repository self-audit toolkit



DRAMBORA Workflow

- The DRAMBORA toolkit assists an auditor in:
 - defining the mandate and scope of functions of the repository
 - identifying the activities and assets of the repository
 - identifying the risks and vulnerabilities associated with the mandate, activities and assets
 - assessing and calculating the risks
 - defining risk management measures
 - reporting on the self-audit

DRAMBORA on-line

DRAMBORA Digital Repository Audit Method Based on Risk Assessment

Logged in as: amh

Last Login: 02 Oct
2007

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Home

About

Objectives

Benefits

Register a New
Repository

Online Help

User Admin


Repository Admin

Audit Centre

Reporting Centre

DRAMBORA Online Tool :: Audit Centre :: Identify Risks

| [Home](#) | [Select Functional Classes](#) | [Define Mandate](#) | [Define Objectives](#) | [Identify Constraints](#)
| [Identify Activities, Assets and Owners](#) | **Identify Risks** | [Assess Risks](#) | [Manage Risks](#) |

Identify risks 

Select existing risk
Define new risk

Risk Name:

**Risk
Description:**

**Corresponding
Objective(s):**

- File ingestion system to actively verify and validate files ...
- Provide dataset usage statistics for data depositories ...
- Ensure that data handling within the repository is sufficien...
- Continue serving the designated community with ready access ...

**Corresponding
Activity(ies):**

- Define mission statement and organisational objectives...
- Plan for continuation of preservation activities beyond repo...
- Establish an utilise mechanisms for soliciting feedback from...

**Functional
Class(es):**

- Acquisition and Ingest
- Preservation and Storage
- Metadata Management
- Access and Dissemination

Identified risks

Interactive

- Management Failure...
- Loss of trust or reputation...
- Activity is overlooked or allo...
- Business objectives not met...
- Repository loses mandate...
- Community requirements change ...

...or

defined activities

defined objectives

defined mandate

current progress

saved assessments

Benefits of DRAMBORA

- Following the successful completion of the self-audit, organisations can expect to have:
 - Established a comprehensive and documented self-awareness of their mission, aims and objectives, and of intrinsic activities and assets
 - Constructed a detailed catalogue of pertinent risks, categorised according to type and inter-risk relationships
 - Created an internal understanding of the successes and shortcomings of the organisation
 - Prepared the organisation for subsequent external audit

What it does not do for you?

- It is not a certifying tool or a OAIS-compliance toolkit, but rather a self-assessment and repository management tool
- The organisation itself sets the benchmark against which it is assessing itself
- The task of DRAMBORA and its staff is not to audit or assess anyone's result, but to provide the tools for them to do it

Risk

- Are repositories capable of:
 - identifying and prioritising the risks that impede their activities?
 - managing the risks to mitigate the likelihood of their occurrence?
 - establishing effective contingencies to alleviate the effects of the risks that occur?
- If so, then they are likely to engender a trustworthy status – if they can demonstrate these capabilities

Kinds of risk

- **Assets or activities fail** to achieve or adequately contribute to relevant goals or objectives
- **Internal threats** pose obstacles to success of one or more activities
- **External threats** pose obstacles to success of one or more activities
- **Threats to organisational assets**

Example Risk: Budget cut or withdrawal of funding



- **Description**
 - Repository operational budget is cut or withdrawn
- **Example manifestation**
 - Local recession provokes budgetary reduction of government financed repository
 - Digital Library fails to demonstrate its centrality to its funding and user community

Example Risk: Legal liability for IPR infringement

- **Description**
 - A repository is legally accountable for a breach of copyright, patent infringement or other IPR-related misdemeanor as a direct result of its business activities
- **Example manifestation**
 - The reverse engineering of a software application in contravention of its end user license agreement, and the copyright breach of a institutional repository in disseminating e-journal content

Example risk: Exploitation of IT security vulnerability



- **Description**


- Shortcomings in the repository's security provisions can be identified and used to gain unauthorized access to its systems

- **Example manifestation**

- Unpatched software security loopholes are hacked, or intruders gain physical access to the repository through a security door that is wedged open

Testing DRAMBORA 1.0



- National Archives of Scotland, UK 
- National Library of the Czech Republic
- National Central Library of Florence, Italy
- International Institute for Social History, Amsterdam, The Netherlands
- Netarkivet, Denmark
- Ludwig Boltzmann Institute in Linz, Austria, in cooperation with the Ars Electronica Center
- E-LIS repository managed by CILEA, Rome, Italy
- Lithuanian Museum of Ethnocosmology, Lithuania

The NATIONAL ARCHIVES of SCOTLAND



Ludwig Boltzmann Gesellschaft



E-prints in Library and Information Science



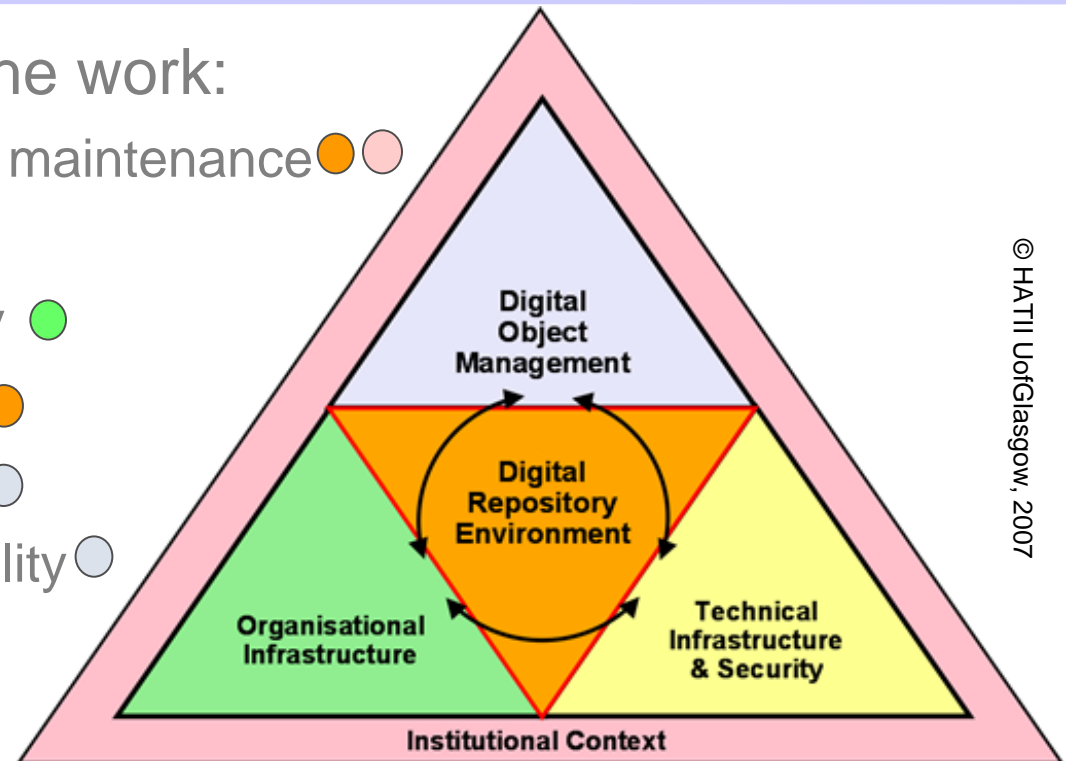
What DRAMBORA users learned...



- *“Good, visible and persuading documentation of risks might help to improve conditions for their successful management. And, of course, as soon as you have the truly trusted repository, you need the good documentation and certification to prove it”*
- *“We discovered some points of weakness in the repository and also learned to stop fretting about the stuff we actually do very well”*
- *“Assessment will be continued and the risk register will be an integral part of the repository once it becomes operational”*
- *“We originally planned to use TRAC for both our internal and later external audit. We also looked at NESTOR. [...] we believe that regular self audits using DRAMBORA will make the external audit easier and cheaper”*

10 Characteristics of Digital Repositories

- An intellectual context for the work:
 - Commitment to digital object maintenance ●●
 - Organisational fitness ●
 - Legal & regulatory legitimacy ●
 - Effective & efficient policies ●
 - Acquisition & ingest criteria ●
 - Integrity, authenticity & usability ●
 - Audit trail and metadata ●
 - Dissemination ●
 - Preservation planning & action ●
 - Adequate technical infrastructure ●



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(CRL/OCLC/NESTOR/DPE/DCC meeting, January 2007)

Collaboration

DRAMBORA collaborations include:

- Trustworthy Repository Audit and Certification (TRAC) Criteria and Checklist Working Group
 - <http://www.crl.edu/PDF/trac.pdf>
- Center for Research Libraries (CRL) Certification of Digital Archives Project
 - <http://www.crl.edu/content.asp?l1=13&l2=58&l3=142>
- Network of Expertise in Long-term storage of Digital Resources (nestor)
 - <http://edoc.hu-berlin.de/series/nestor-materialien/8/PDF/8.pdf>
- International Audit and Certification Birds of a Feather Group
 - <http://www.digitalrepositoryauditandcertification.org>

DRAMBORA Future

- Autumn/Winter 2007: Digital Libraries audits within Digital Preservation Cluster of DELOS (JPA4)
- Training within DPE Training Programme
- Dissemination of results and activities in scientific journals and conferences
- Version 3.0 in Spring 2008
- Accreditation of self-auditors in 2008

Think metric!

DRAMBORA: converting uncertainties into manageable risks



Get involved!

If your organisation wishes to learn more about DRAMBORA, request support or join the growing network of DRAMBORA users, contact us online at

www.repositoryaudit.eu

or by email at

feedback@repositoryaudit.eu

and

support@repositoryaudit.eu

THANK YOU!