

# TRAC: In Principle and In Practice

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## Trustworthy Repositories

- In the Beginning...
- TRAC: In Principle...
- Assessment & Digital Repositories: In Practice...

# In The Beginning...

A Bit of DP Standards & Best Practices Genealogy

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## DP Standards & Best Practices Genealogy

- *Preserving Digital Information*, 1997
- *Trusted Digital Repositories*, 2002
- *Reference Model for an Open Archival Information System*, 2002
- *Preservation Metadata: Implementation Strategies (PREMIS)*, 2005
- *Trustworthy Repositories Audit & Certification: Criteria and Checklist*, 2007
- And more...

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## Assessment & Digital Repositories: Why?

- Trust, verify, and clarify – an iterative process
  - Institutional commitment, intent for collections, objects
  - Infrastructure demands
  - Technical system and staffing capabilities
  - Sustainability (funding, technology, collaboration)
  - And if all else fails? “Fail-safe” partners?
- Identify and communicate *context*
- Identify and communicate risks to content
- Future planning
  - Identify best practices
    - Map best practices against current system
    - Identify gaps in practice, policy, procedure, functionality
  - Map best practices against local capabilities/goals
  - Identify opportunities for future expansion and needs associated with them

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# TRAC

In Principle....

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# Trustworthy Repositories: Audit & Certification, 2007 (TRAC)



- Criteria checklist for evaluating trustworthiness of repositories & archives
  - Derived from TDR, OAIS and other standards
- Helpful for ...
  - Digital repository planning
  - Digital repository assessment/audit/evaluation/gap analysis/weaknesses
  - Evaluating third party service provider capabilities
- *Evidence-based assessment*
- Focusing on Designated Community Needs

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# Assessment of...

1. Organizational infrastructure
  - Governance, structure, staffing, policies, procedures, finances, contracts, licenses, etc.
2. Digital object management
  - Acquisition, creation of archival package, preservation planning, archival storage, information [metadata] management, access management [designated community]
3. Technologies, technical infrastructure, & security
  - System infrastructure, appropriate technologies, security

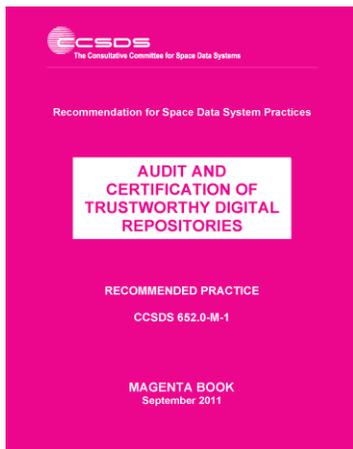
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# TRAC Has Been Utilized By...

- Organizations doing gap analysis
- Organizations building local or collaborative repositories
- Center for Research Libraries to certify repositories and/or services
  - Portico
  - HathiTrust
  - Chronopolis
  - Scholar's Portal
- But others wanted it to become an international standard...

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# Four + years later... ISO 16363: 2012



- An international standard is born
- Part of the OAIS family of standards
- Very similar in nature to TRAC, content-wise
- 3 Sections, 109 criteria
- For formal audit, should be done with auditors conforming to ISO/DIS 16919

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# Technology + Sensitivity =

“The ISO 16363 metrics focus on combining the mechanics of computer systems and information technology security with the spirit and sensitivity of being a trustworthy digital repository entrusted with the care of digital information of long-term value for multiple communities and future generations.”

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## Quick comparison: TRAC & ISO 16363

- Organizational infrastructure
  - Governance & org viability; Structure & staffing; Procedural accountability & preservation policy framework; Financial sustainability; Contracts, licenses, & liabilities
- Digital object management
  - Acquisition of content; Creation of archival package; Preservation planning; Archival storage and preservation/maintenance of AIPS; Information (metadata) management; Access management
- Technologies, technical infrastructure, & security
  - System infrastructure; Appropriate technologies; Security
- Organizational infrastructure
  - Governance & org viability; Structure & staffing; Procedural accountability & preservation policy framework; Financial sustainability; Contracts, licenses & liabilities
- Digital object management
  - Acquisition of content; Creation of the AIP; Preservation planning; AIP preservation; Information (metadata) management; Access management
- Infrastructure and Security Risk Management
  - Technical Infrastructure Risk Management; Security Risk Management

## ISO 16363 is Utilized By...

- **No one!**
- Officially, must be completed by ISO/DIS 16919, still in the standards approval stage, *until this can be formalized, NO ISO 16363 formal audit can be conducted nor can certifications be issued.*
  - *As of 7-8-2014, it is now out for ballot for 2 months*
  - Also, only 1 organization – Primary Trustworthy Auditing Body or PTAB – has been set up
    - Primarily comprising people who worked on ISO 16363
    - Based in Europe
- Unofficially, it can be used as the same gap analysis / risk management / weakness identification tool as TRAC
  - Could better prepare you for international certification if that is the end goal you seek
  - ISO 16363 Self Assessment Tool available

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## Assessment & Digital Repositories

In Practice...

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## Using TRAC: In Practice... (1)

- Is your organization considering building a digital repository/archive?
- Is your organization considering buying into a service for *digital preservation services*?
- Are you part of a larger group (regional/subject/etc) planning to build collaborative repository services?
- Are you reconsidering the infrastructure you have in place (maybe moving from separate systems to a more holistic option)?

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## Using TRAC: In Practice... (2)

- Is your funding agency asking about sustainability plans?
- Do you know
  - ...all of the questions to ask?
  - ...standards and best practices related to choices available?
  - ...the risks related to choices available?
  - ...how other organizations are tackling their choices?
  - Could you use a guide to walk you through the issues?
- TRAC can help!

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# TRAC Will Require...

- A Team
  - Administration (Finance, Legal), Collections, Metadata, IT, Preservation, and more...
- Time!
  - Average time for review, compiling docs, assessment = MONTHS
  - Consider addressing in chunks
- Patience!
  - Time + Change
  - Iterative Process

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# TRAC and ISO 16363 Tools

- TRAC Checklist (for self audit or just the curious): [http://www.crl.edu/sites/default/files/attachments/misc/TRAC\\_Checklist%20TemplateWeb.xlsx](http://www.crl.edu/sites/default/files/attachments/misc/TRAC_Checklist%20TemplateWeb.xlsx)
- ISO 16363 Checklist (from PTAB): <http://www.iso16363.org/assets/Self-AssessmentTemplateforISO16363.xls>

	A	B	C	D	E
1	<b>Metric</b>	<b>Example Evidence</b>	<b>Response</b>	<b>Documentation</b>	<b>Notes</b>
2	<b>Section A. Organizational Infrastructure</b>				
3	<b>A1. Governance &amp; organizational viability</b>				
4	A1.1 Repository has a mission statement that reflects a commitment to the long-term retention of, management of, and access to digital information.	Mission statement for the repository; mission statement for the organizational context in which the repository sits; legal or legislative mandate, regulatory requirements.			
5	A1.2 Repository has an appropriate, formal succession plan, contingency plans, and/or escrow arrangements in place in case the repository ceases to operate or the governing or funding institution substantially changes its scope.	Succession plan(s); escrow plans); explicit and specific statement documenting the intent to ensure continuity of the repository, and the steps taken and to be taken to ensure continuity; formal documents describing exit strategies and contingency plans; depositor agreements.			
6	<b>A2. Organizational structure &amp; staffing</b>				
7	A2.1 Repository has identified and established the duties that it needs to perform and has appointed staff with adequate skills and experience to fulfill these duties.	A staffing plan; competency definitions; job description; development plans; plus evidence that the repository review and maintains these documents as requirements evolve.			
8	A2.2 Repository has the appropriate number of staff to support all functions and services.	Organizational charts; definitions of roles and responsibilities; comparison of staffing levels to commitments and estimates of required effort.			
9	A2.3 Repository has an active professional development program in place that provides staff with skills and expertise development opportunities.	Professional development plans and reports; training requirements and training budgets; documentation of training expenditures (amount per staff); performance goals and documentation of staff assignments and achievements, copies of certificates awarded.			
10	<b>A3. Personnel competencies &amp; other formalized documentation</b>				

# TRAC Results Might Look Like:

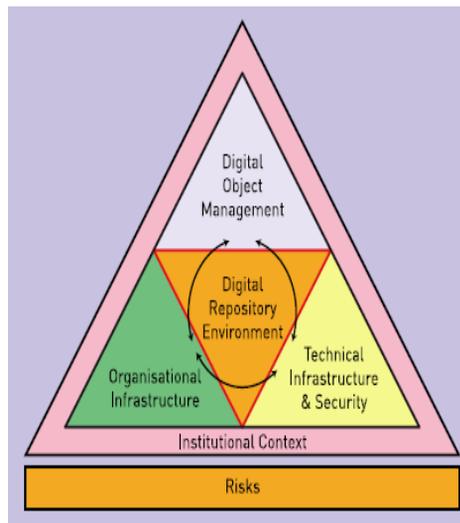
- Gap analysis
- Recommendations for administration
- Policy documents created or strengthened
- Responsibilities assigned/reassigned
- Inter-organization partnerships forged
- Intra-organization partnerships forged
- Well-reasoned, actionable plans formed
- Provided services understood
- Full certification

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# Feeling Risky? Try DRAMBORA

Digital Repository Assessment Method Based on Risk Assessment

- Linked to TRAC development
- Initial focus on existing repositories and data already entrusted
- Self & facilitated audit options
- "seeks to determine whether the repository has made every effort to avoid and contain risks that might impede its ability to receive, curate and provide access to authentic, and contextually, syntactically and semantically understandable digital information."



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# Got Data? Data Seal of Approval (DSA)

- Long-term archiving of **research data**
- Guarantee the **durability** of archive data
- 16 requirements
- Stage 1: Self assessment via DSA online tool
- Stage 2: Archive/Repository assessed by peers – review based on **trust**
- Stage 3: Awarded DSA – **indefinite, no review necessary (but updated periodically to ensure compliance with new standards)**



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# Need to Evaluate Existing Tools or Systems? Digital POWRR Tool Grid

Digital POWRR Tool Evaluation Grid	Copy	Fixity Check	Virus Scan	File Dedupe	Auto Unique ID	Auto Metadata Creation	Auto Metadata Harvest	Manual Metadata	Rights Management	Package Metadata	Auto SIP Creation	Public Interface	Auto DIP Creation	Auto AIP Creation	Rescue, Long-Term Bit Preservation	Redundancy	Geographically Distributed Data Storage Media	Exit Strategy	Migration	Monitoring	Auto Recovery	Open Source	Clear Documentation	Cost
ACE (Audit Control Environment)	x																		x		x		Free	
AFF Open Source Computer Forensics Software						x															x		Free	
Amazon S3	x	x			x	x									x	x	x	x		x	x	x	Varies	
Archive-It	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x		x	Varies	
**Archivematica	x	x	x		x	x	x	x	x	x	x	x	x	x					x		x	x	Free	
BagIt Library		x			x	x				x														
BagIt Transfer Utilities																							Free	
BitCurator	x	x				x	x	x		x													free	
BWF MetaEdit		x						x	x													x	free	
Carbonite	x	x										x			x	x		x		x	x		\$149 – \$599	
Chronopolis	x	x		x	x	x	x	x	x	x				x	x	x	x	x	x	x	x		\$1,500 – \$2,200	
Clinch		x	x	x	x		x															x	Free	
ContextFusion																						x	Free	

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## References

- *Audit and Certification of Trustworthy Digital Repositories, ISO 16363: 2012 (magenta book):* <http://public.ccsds.org/publications/archive/652xom1.pdf>
- *Data Seal of Approval:* <http://www.datasealofapproval.org/>
- *Digital POWRR Tool Grid:* <http://digitalpowrr.niu.edu/tool-grid/>
- *DRAMBORA:* <http://repositoryaudit.eu>
- *ISO16363 Self Assessment Tool:* <http://www.iso16363.org/assets/Self-AssessmentTemplateforISO16363.xls>
- *Reference Model for an Open Archival Information System, ISO 14721: 2012 (magenta book):* <http://public.ccsds.org/publications/archive/650xom2.pdf>
- *Requirements for Bodies Providing Audit and Certification of Candidate Trustworthy Digital Repositories, ISO/DIS 16919 (magenta book):* <http://public.ccsds.org/publications/archive/652x1m1.pdf>
- *Trustworthy Repositories Audit and Certification: Criteria and Checklist:* [http://www.crl.edu/sites/default/files/attachments/pages/trac\\_o.pdf](http://www.crl.edu/sites/default/files/attachments/pages/trac_o.pdf)

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## Questions:?

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