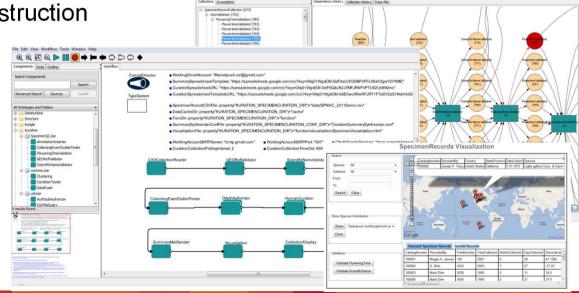




Automating Data Curation By Using Kepler Workflow Technology

- Problems with the current data curation pipeline
 - Lots of manual work
 - Hard to maintain, extend and share
- Kepler scientific workflow platform automates curation pipeline via workflow development, schedule and management
 - Convenient workflow construction
 - Evolvability
 - Modularity & reusability
 - Re-run capability
 - Provenance Tracking
 - Fault-Tolerance
- Kepler Curation Package





BlogForever Overview

- Vision is to build a digital archiving solution for blogs safeguarding their authenticity and integrity to promote open access to information. Its key objective is to develop robust digital preservation, management and dissemination facilities for blogs
- The main scientific and technical objectives are:
 - Study blog structure and semantics
 - Define a generic data model for blog metadata and semantics
 - Define a robust digital preservation policy for blogs
 - Implement a blog digital repository
 - Implement specific case studies
- **BlogForever** is a collaborative (12 partners) EU funded project under the Information and Communication Technologies theme. Its duration is March 2011 Sep 2013.
- Learn more:
 - http://blogforever.eu
 - http://twitter.com/blogforever

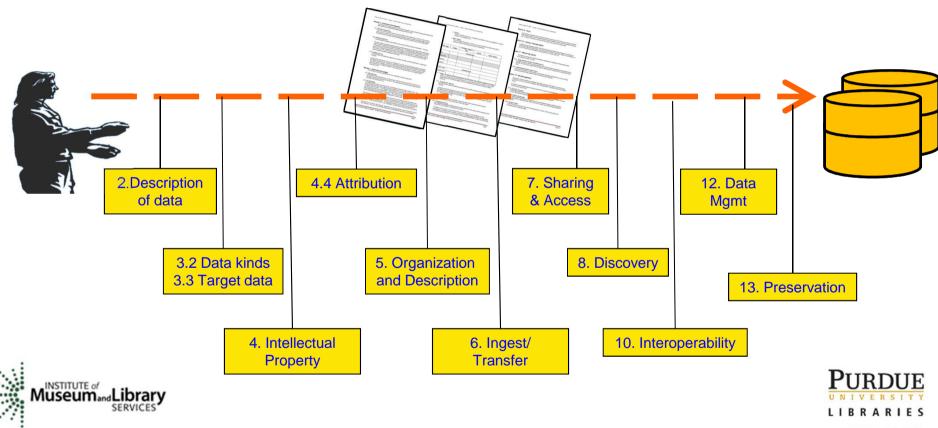


Managing data in collaborative research





Data Curation Profiles can help negotiate deposit



"Data Curation Profiles and the Role of Gatekeeper" D. Scott Brandt, Purdue University Libraries funded by grants from IMLS: LG-06-07-0032-07 (w/ UIUC GSLIS) & RG-06-10-0101-10 (w/ Jake Carlson)





DM Vitals: A Data Management Assessment Recommendations Tool

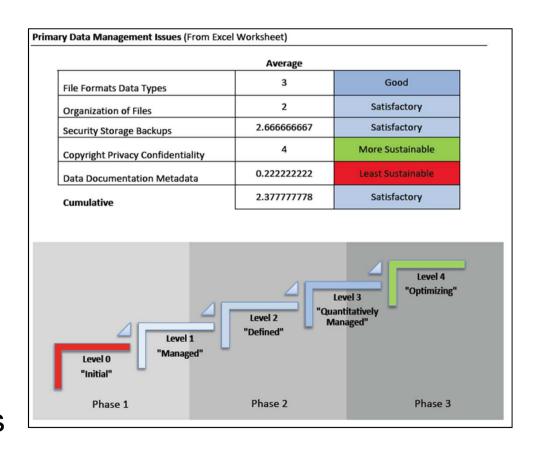
Researcher Interview Response



Data Management Maturity Level



Implementation Plan Tasks grouped into phases





VIDaaS – VIRTUAL INFRASTRUCTURE with DATABASE AS A SERVICE

Funded by the JISC UMF Shared Services and the Cloud Programme



James A J Wilson, University of Oxford vidaas@oucs.ox.ac.uk

Project team: Paul Jeffreys, Mike Fraser, John Ireland, Jon Hutchings, Adrian Parks, Peter Jones, Asif Akram, Christian Fernau, David Paine, Meriel Patrick, Elena Blanco



DATABASE AS A SERVICE

MONITORING & BILLING

DENTITY & ACCESS MANAGEMENT

HYBRID CLOUD INFRASTRUCTURE

Oxford Private Cloud

Edusery **HE Community** Cloud

Public Cloud



Archive data of long-term value



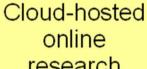
Be inspired with an idea for a new research project



Choose the type of database you want (large or small, relational or XML)



Share your data with colleagues or the general public



research databases on demand



Cost the database into your funding proposal



Analyse the data





Gather your data





Dial-up the DaaS and start structuring your database or import an existing one







"Reimagining the institutional repository as an open data archive"

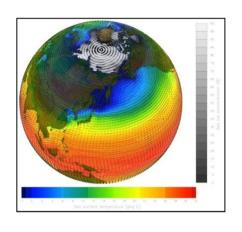
- A. IRs make scholarship openly available and persevered for long-term access.
- B. Research Data is scholarship that must be shared and preserved.
- C. Therefore...let's archive data in our IRs.
 - Size limits
 - Format recommendations
 - Metadata requirements
 - Many kinks to work out, but the service is there...just need to reimagine it for data!

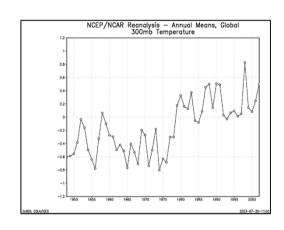


Enabling Professionals for Digital Curation and Digital Archiving: DAS and DigCCurr - Christopher A. Lee and Helen R. Tibbo, UNC at Chapel Hill

- The DigCCurr Matrix was developed within the context of graduate education, used to guide curriculum development
- In 2010, the Society of American Archivists (SAA) formed the Digital Archives Continuing Education Task Force (or DACE) that used the DigCCurr Matrix to shape the resulting Digital Archives Specialist (DAS) curriculum, involving four tiers of study: foundational, tactical and strategic, tools and services courses, and transformational
- We point out DAS curriculum learning objectives that resonate with the DigCCurr Matrix and highlight aspects of the Matrix that intersect with long-standing archival competencies

Making Data Visible: Data Citation Policy and Implementation at NCAR







Matthew Mayernik, Karon Kelly, Mary Marlino, & Mike Wright

NCAR Library/Integrated Information Services

National Center for Atmospheric Research/

University Corporation for Atmospheric Research

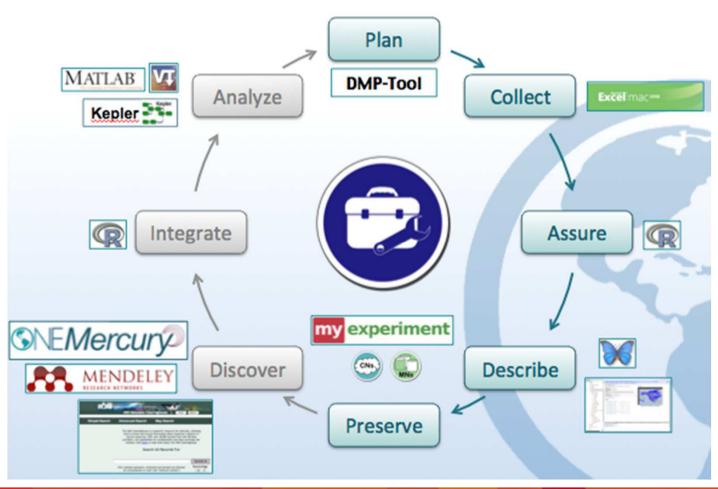
Boulder, CO, USA







DataONE: Enabling New Science by Supporting the Management of Data Throughout its Life Cycle





Bill I Tale Tools for Digital Forensics Methods and Workflows in Real-World Collecting Institutions

Saving the bits

Safe, accurate disk imaging and image processing metadata creation

Data Analytics and Reporting

Knowing what you have, finding sensitive info, identifying problem areas

Forensic Augmentation of Existing Workflows

Every workflow has weak spots and compromises. BitCurator will provide forensic software tools that act as supporting microservices, operate alongside existing components, and can be run from dedicated VMs.

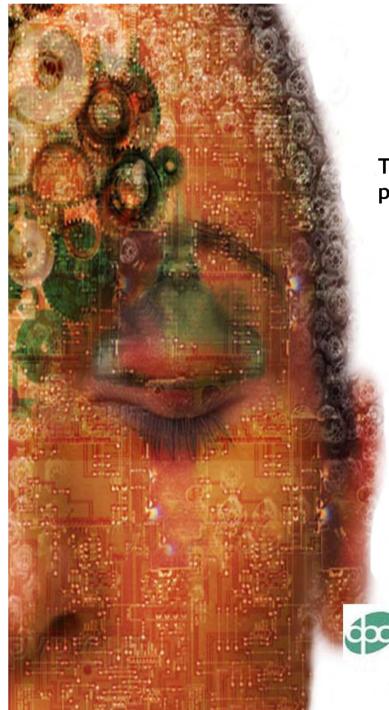
http://www.bitcurator.net/ Find out more:

@bitcurator Follow us on twitter:



The Andrew W. Mellon Foundation





DIGITAL PRESERVATION TRAINING PROGRAMME



Three day intensive entry level course in digital preservation

Offers practical techniques and methodologies for all digital preservation practitioners, both open and in-house courses offered. Scholarships available for DPC members.

Pedagogical approach to delivery makes course dynamic and interactive. Participation and interaction key to course. A kinaesthetic approach to learning.

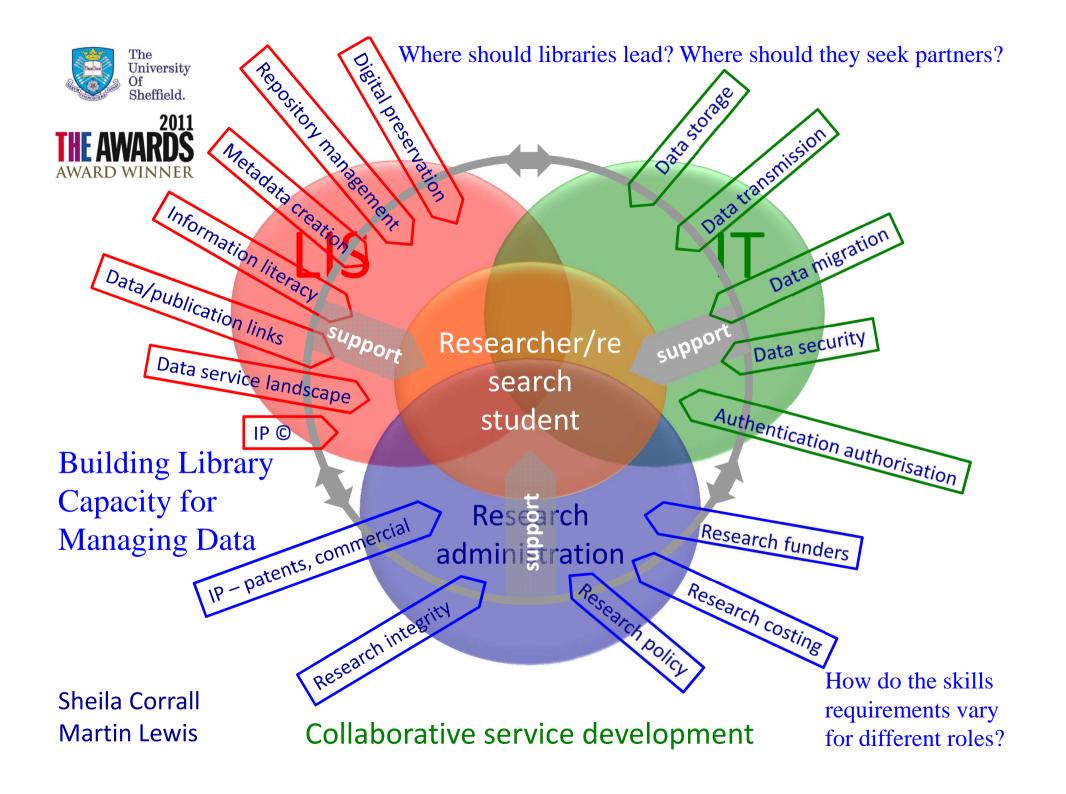
Contents include planning and strategy, OAIS, tools, metadata, costs, risk management, legal issues and much more.

"Fantastic! If you only do one digital preservation course - do this one!" Gary Brannan, West Yorkshire Archives

Digital Preservation Coalition

www.dptp.org







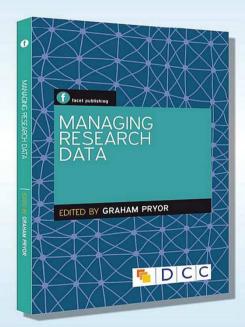
facet publishing MANAGING RESEARCH DATA

EDITED BY GRAHAM PRYOR

This international collection:

- provides an introduction to all the key data issues facing the HE and information management communities.
- defines what is required to achieve a culture of effective data management.
- offers practical advice on the skills required, legal and contractual obligations, strategies and management plans and the data management infrastructure of specialists and services.

Contact: graham.pryor@ed.ac.uk



Contents

- Why manage research data? Graham Pryor
- The lifecycle of data management Sarah Higgins
- Research data policies: principles, requirements and trends
 Sarah Jones
- Sustainable research data
- Data management plans and planning Martin Donnelly
- Roles and responsibilities libraries, librarians and data Sheila Corrall
- Research data management: opportunities and challenges for HEIs Rob Procter, Peter Halfpenny and Alex Voss
- The national data centres
- Contrasting national research data strategies: Australia and the USA Andrew Treloar, William Michener and G Sayeed Choudhury
- Emerging infrastructure and services for research data management and curation in the UK and Europe Angus Whyte

January 2012 224pp paperback ISBN 978-1-85604-756-2 £49.95 Order online at www.facetpublishing.co.uk

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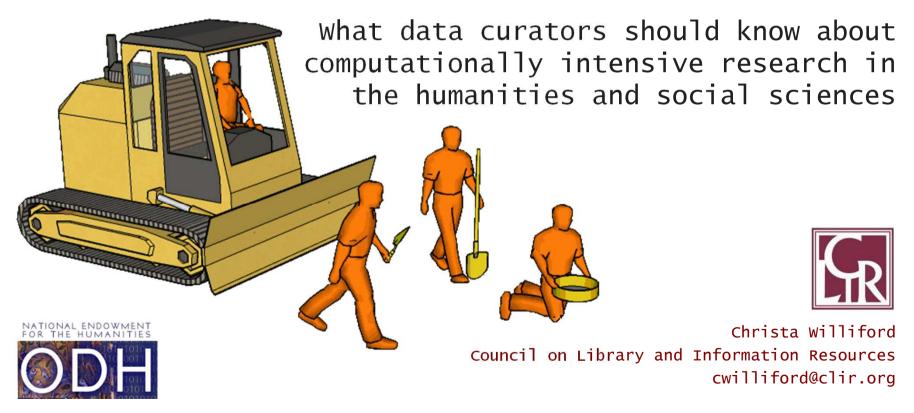
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Alex Voss is a Lecturer in Software Engineering in the School of Computer Science at the University of St Andrews.

Angus Whyte is a Curation Research
Officer (Research Liaison) with the
Digital Curation Centre in Edinburgh.



Lessons from the Digging into Data Challenge



Modelling Digital Preservation Costs for ISIS Instrument Data

Alice LEFORT - a.e.lefort@gmail.com

Esther CONWAY - esther.conway@stfc.ac.uk

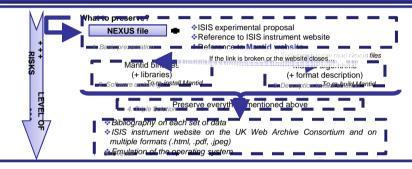


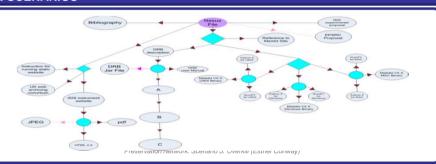


AIM

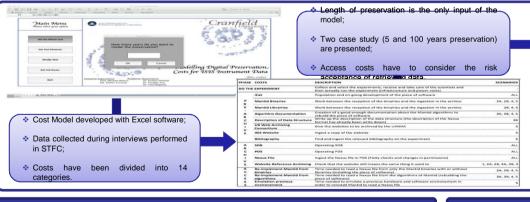
To develop a long-term preservation cost model for scientific data, estimating five preservation scenario costs in ISIS facility.

PRESERVATION SCENARIOS





COST MODEL



| MATINE, COST PER DEFERMENT | THE ABOUT | THE MATINE | THE ABOUT | THE ABOUT

CONCLUSIONS

- Pre-archive costs increase with scenario complexity and preservation length;
- *Archive costs are identical through scenarios and increase with preservation length;
- *Access costs are identical through the years, however, the risk acceptance and the number of sets of data required have to be considered;

Running costs are defined for one day

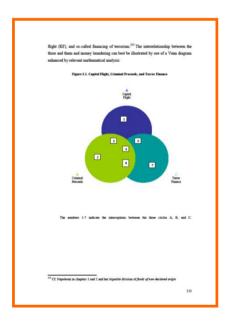
FURTHER WORK

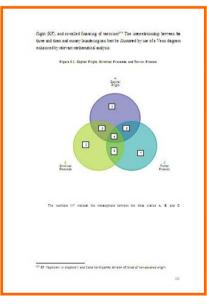
- Add more details inside input data (cost drivers and activities not considered);
- Handle technological changes;
- Develop tools inside the cost model to manage particular scenarios (number of files required, length of experiments, ...);
- Case study for the clinical trial of the ENSURE project.

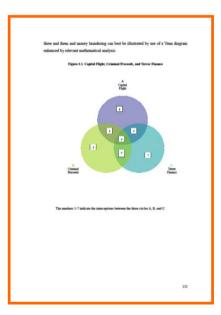


EPIC: A Journey into Preservation Planning

Spot the difference:



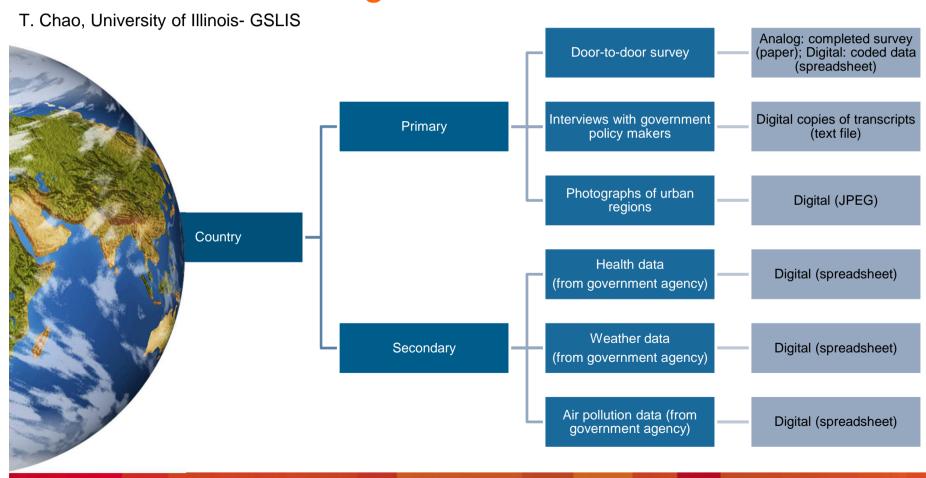




Can we ensure that digital documents retain their important characteristics in the future?



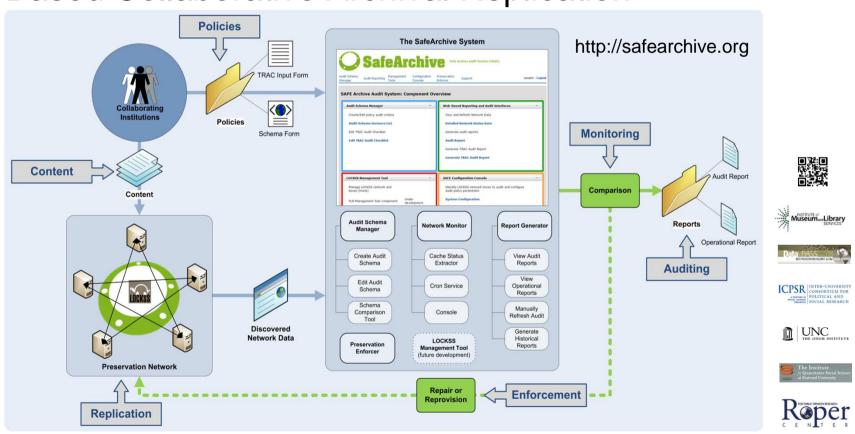
International Waters: the case of interdisciplinary research data management





The SafeArchive System

An Open-Source System for Automatic Policy Based Collaborative Archival Replication





Reuse at data repositories: User and staff perspectives on the dissemination process

- 1. How do ICPSR staff anticipate data reuse?
- 2. What aspects of ICPSR staff work do ICPSR users recognize, value, or overlook?

www.dipir.org







One Thing is *Missing* or Two Things are *Confused* TE SCHOOL OF LIBRARY AND INFORMATION SCIENCE An Analysis of OAIS Representation Information The iSchool at Illinois

Simone Sacchi, Karen M. Wickett, Allen H. Renear, David Dubin {sacchi1, wickett2, renear, ddubin}@illinois.edu
Center for Informatics Research in Science and Scholarships — GSLIS — University of Illinois at Urbana-Champaign



We describe two alternative interpretations of **OAIS Representation Information** and show that both are flawed. The first is insufficient to formalize a model of preservation, and the second leads to category mistakes in conceptualizing the nature of digital artifacts.

OAIS Information Model

The OAIS Reference Model (CCSDS, 2002) claims that:

Data [Objects] interpreted using its Representation Information yields Information

And provides the following definitions:

Data Object: either a Physical Object or a Digital Object

Information: any type of knowledge that can be exchanged

Representation Information: information that maps a Data
Object into more meaningful concepts

The example

The following example is offered as an illustration:

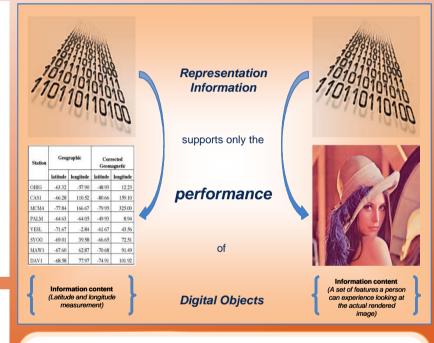
"The information stored within a CD-ROM file is expressed by the bits (the data) ... Assume the bits represent an ASCII table of numbers giving the coordinates of a location on the Earth measured in degrees latitude and East longitude. The Representation Information will typically include the definition of ASCII together with descriptions of the format of the numbers and their locations in the file, their definitions as latitude and longitude, and the definition of their units as decrees" (CCSDS, 2002).

Two possible (flawed) interpretations

If Data Objects "interpreted using Representation Information" do directly "yield Information" then either:

- there is a conflation of entities: information content (latitude and longitude measurements) and its expression (the *primary symbol structure*, a table of numerals) conflated with the Information Object entity: or
- the primary symbol structure, the one expressing content, is not represented at all.

Both these interpretations will result in confusion and vulnerability if reflected in preservation systems designs.



Restructuring OAIS Representation Information

To have a correct, and sufficiently fine-grained representation of digital artifacts our model should include:

- Digital objects (the OAIS Data Objects): a lower level symbol structure in the form of a bit sequence
- **Primary expressions**: the table of numeral or the rendered image (in our examples)
- Information content: latitude and longitude measurement or the a set of feature a person can experience from a rendered image (in our examples)

Representation information support only the performance of a digital object (the decoding of the primary symbol structure or the rendering of the image from the bits)

Our interpretation

Data Objects "interpreted using ... Representation Information" do not directly "yield Information".

 Data Objects are symbol structures and interpretation via Representation Information "yields" (more precisely, is mapped to) not information, but another symbol structure – and it is this symbol structure that expresses information.

n particular

- There is a table (a structure) of numerals (symbols)
- That table expresses latitude and longitude measurements (information content).
- This table is encoded by an ASCII file an OAIS
 Data Object which is a lower level symbol
 structure (Sacchi et al., 2011).

In this case, however, *Representation Information* supports only the encoding and decoding of particular expressions of information content — the *performance* (Heslop et al., 2002) of a digital object.

Conclusion

Preservation actions like migrations can only be assessed if preservation models reflect a correct, complete, and sufficiently fine-grained representation of digital artifacts. Restructuring the OAIS account of Representation Information as described above will bring us closer to this.

But our analysis also reveals that there is still more work to be done: an account of how the primary (expressing, not encoding) symbolic expression (the performance of a digital object) is connected to content must also be provided. This is part of our ongoing research related to interpretive frames (Dubin et al. 2011).

References

[report] CCSDS, J. (2002). Reference Model for an Open Archival Information System (OAIS). CCSDS 650.0-B-1, Blue Book.

[proceedings] Dubin, D., Wickett, K. M., & Sacchi, S. (2011). Content, format, and interpretation. In B. T. Usdin (Ed.), Proceedings of balisage: The markup confer- ence. Montreal, Quebec. Hesloo. H., Davis. S., & Wilson, A. (2002). An Approach to the Preservation of Digital Records.

[proceedings] Sacchi, S., Wickett, K. M., Renear, A. H., & Dubin, D. S. (2011). A Framework for Applying the Concept of Significant Properties to Datasets. Proceedings of the 74th ASIS&T. Annual Meeting on Bridging the Gulf: Communication and Information in Society, Technology, and Work. New Orleans, Louisiana, October 9-12, 2011

Acknowledgm ents



The research reported here is being carried out at the Center for Informatics



Data Management Skills Support Initiative (DaMSSI)

The Data Management Skills Support Initiative (DaMSSI)

Laura Molloy and Kellie Snow

Digital Curation Centre (DCC), and HATII, University of Glasgow

To review, synthesise and augment the training offerings of the JISC Research Data Management Training Materials ('RDMTrain') projects: CAIRO, DataTrain, DATUM for Health, DMTPsych, MANTRA. To test usefulness of the Vitae Researcher Development Framework ('RDF') and SCONUL Seven Pillars of Information Literacy model ('7P') in RDMTrain context. Two skills development models for describing Findings of synthesis of training approaches and embedding data management training - Generic RDM principles apply across all disciplines; RDMTrain training materials were mapped to the - Need for discipline-specific definitions, examples, case studies, RDF and Seven Pillars models to highlight generic exercises, etc; and discipline-specific elements. We found: - Data management plan (DMP) templates and guidance need - Overall consistency in the data management discipline-specific interpretation or customisation to be of skills required across the disciplines; most value to students and early career researchers; Examples of discipline-specific variations through Some disciplines require a more granular approach for data interviews and case studies. management training; Training providers should avoid the use of specialist language from the information or preservation worlds; - A considered balance between discipline-specific detail with general RDM training works well. Need for data management skills in various professions DaMSSI produced a series of career profiles to emphasise the role that good data management practice plays in many professions. Disciplines covered in the series so far include archaeology, conservation, social sciences, clinical psychology NIDICIC ISC NO. The profiles can help: - Coherently describing learning outcomes of Illustrate how data management is core Helping to embed courses within institution's to many professions; continuing professional development curriculum. Secure engagement with professional - Information-handling / data management lens for Advertise educational User-friendly language / terminology; and training courses Including all stages of the data curation lifecycle. to prospective students Recommendations for postgraduate data management training providers: Offer training in the basic principles of data management at an early stage in postgraduate studies; Be concise and avoid data management / preservation jargon; Provide training face-to-face with access to high quality online learning resources; Stress the potential benefits associated with good data management practice: Keep overviews and central descriptions of topic areas basic and generic: Interlace generic with discipline-specific examples, references and case studies; Work closely with discipline experts to ensure that terminology used within courses is accurate and clear; Offer access to customised DMP guidance for the discipline; Use trainers with knowledge of discipline practice; Work with professional bodies and funders to endorse and promote good data management practice.



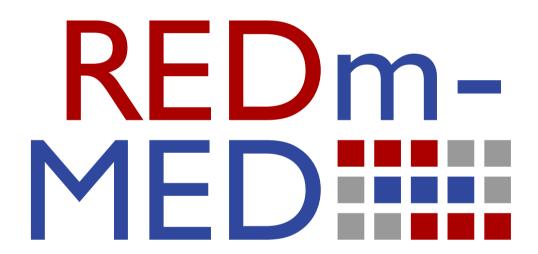




DCC: Working with Institutions

- New DCC Institutional Support Team
- Now working with a number of universities to help them utilise the tools and knowledge already available in RDM
- Can offer support in use of tools, policy development, training, costing, risk management etc.
- Lessons learnt will be shared with sector
- Would your institution like to benefit?







JISC

KAPTUR - managing visual arts research data

what?

a highly collaborative research project funded by the JISC Managing Research Data Programme from October 2011 to March 2013

why?

- to investigate the nature of visual arts research data
- to support visual arts researchers through institutional infrastructure

how?

- user engagement
- modelling
- technical structure
- training and support
- sustainability



THE GLASGOW SCHOOL PARE







Denise Wren. 1960s. 21 small tiles, saltglaze tests on stoneware. © Rosemary Wren/Crafts Study Centre 2004. Photo: David Westwood.



MiSS (MaDAM into Sustainable Service)

Delivering a Research Data Management Infrastructure at the University of Manchester

MiSS (MaDAM into Sustainable Service) - Delivering a Research Data Management Infrastructure at the University of Manchester

http://www.manchester.ac.uk/miss/

Mary McDerby, Meik Poschen, June Finch, Rob Procter, Jon Besson, Phil Butler, Lorraine Beard

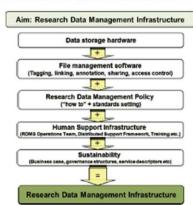
To deliver a Research Data Management Infrastructure (RDMI) at the University of Manchester, including a Research Data Management Policy, together with a supporting Service and the necessary human infrastructure to provide the Research Data Management needs across the institution.

Rationale:

- Researchers need to be supported to manage their data well and comply with legal and funder
- Funders want to ensure public money spent on research is maximised —this means ensuring research data is preserved for reuse.
- Potential future value in data assets needs to be preserved.

Background

- 18 month project time frame starting Oct 2011
- MiSS builds on the previous experience of the JISC funded MaDAM project.

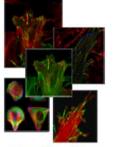


Ilser Communities

To ensure that the MiSS RDMI is capable of meeting the needs of all University of Manchester researchers, user case groups, consisting of key researchers and core facilities have been recruited from each faculty, with requirements across the full research data lifecycle:

- Engineering and Physical Sciences: Henry Moseley X-ray Imaging Facility, and University of Manchester's Diamond Light Source beamline
- Life Sciences: The Bioinformatics Core Facility.
- Medical and Human Sciences: The Northwest Institute for Bio-Health
- Humanities: The Cathie Marsh Centre for Census and Survey Research

These groups will also form the basis of a user committee which will encompass other interested parties from around the University.



Up to 12 different file types From 0.5MB to 17GB/file 'Raw data'

Technical Architecture

Building on the technical services created by MaDAM, the aim is to refine, extend and integrate them into the Manchester Working Environment (the University's strategic information system platform).

Institutional Research Data Management Policy

Miss will define a policy for data management, preservation and publication and put the policy into practice through the University of Manchester's Research Data Management Working Group; a high-powered group consisting of AVPs for Research and Data Integrity, Deputy Secretary of the University, Director of John Rylands University Library (JRUL), Director of IT Services, Director of Research and Business Engagement Support Services, Head of IT Services for Research, Head of Digital Technology and Services at JRUL, eScholar Manager, TRAC Manager, and members of the Miss project team.



Human Support Infrastructure and Sustainability

The aim is to investigate and establish human support infrastructure requirements for an effective RDMI:

- Research Data Management Service Operations Team: Establish the service centre and liaison
- Distributed Support Framework required to support RDMI throughout the institution (e.g., Research Office, IT Services, Trainers, School level contacts, Manchester eScholar etc).
- Training courses and materials
- Governance







The University of Manchester The John Rylands University Library

K data.bris









Project Team



Simon Price (*project manager*)
Stephen Gray
Dr Virginia Knight
Damian Steer

Library
David Boyd



Caroline Gardiner Dr Bob Cregan



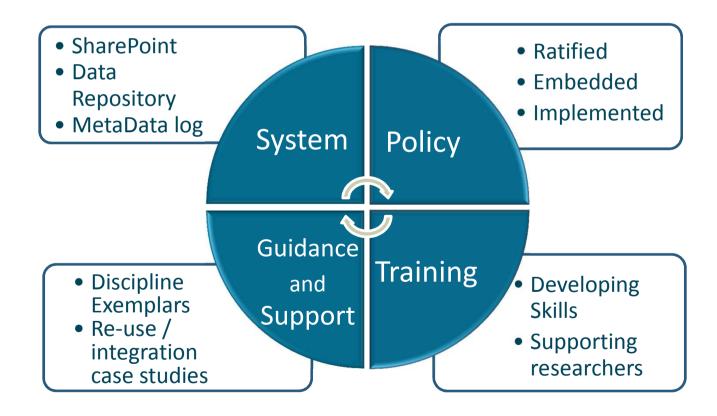




JISC DataPool Project



Building Capacity, Developing Skills, Supporting Researchers





Research 360 @ Bath

Managing Data Across the Institutional Research Lifecycle

Research360



Managing data across the institutional research lifecycle

The Research360 Project will develop technical and human infrastructure for research data management at the University of Bath, as an exemplar research-intensive university within the 1994 Group.

Overview

Research360 uses a multi-level planning approach and builds on the I2S2/KRDS Benefits Toolkit with a focus on faculty research data drivers for the REF. It draws on a cross-Faculty Doctoral Training Centre as a central hub for data management planning and training activities. A transferable Faculty cascade approach will be adopted to scale the RDM implementation across the whole institution.

We will build on and extend selected Digital Curation Centre services and tools by applying them in the novel context of data management practice closely Inked to multidisciplinary industrial and private sector research partnerships. We articipate the data requirements and management challenges that these particular business partnerships highlight will be very valuable for many other HEIs who also work closely with corporate partners. We will capture this knowledge and experience in a new DCC Britising Paper and "How to Guide", which will inform the wider JISC community.

Key objectives

The project wil:

- Build on a 360-degree institutional research lifecycle model which is transferable to other research-intensive Hiller
- Focus on issues and challenges that arise from private sector partnerships and research collaborations;
- Describe the roles and responsibilities of institutional stakeholders required to meet funder expectations;
- Target the research practitioner, Faculty, support services and senior institutional managers in the development of PDM plane.
- Position funder expectations and the Research
 Excellence Framework (REF), as key drivers for change;
- Deconstruct the process that results in institutional research data management policy.
- Develop an extensible technical infrastructure for RDM within the Faculties of Science and Engineering & Design, as a proof-of-concept for the Faculty cascade model;
- Use Doctoral Training Centres as hubs for the development and delivery of training and advocacy modules in partnership with librarians.

Discover and Reuse Plan and Design Release and Publish Manage and Preserve Interpret and Analyse Institution

Major outputs

- Roadmap / Implementation Plan which addresses funder expectations (EPSRC).
- Faculty-Industry Data Requirements Report.
- Institutional RDM4REF Business Case
- Draft University of Bath Research Data Management Policy
- Faculty-Industry RDM Case Studies
- Faculty-Industry Data Storage Guidelines
 DCC How-to Guide on Managing Faculty-Industry
 Percent Parts
- RIM Guidelines for Data-driven Reporting and Institutional Benchmarking
- Benchmarking
 VRE (Sakal) training module.

Project team

Pro-vice Chancellor's Office (research) Professor Jane Milar Dr Maria Wells

Faculty of Science Professor Matthew Davidson Jez Cope

UKOLN/Digital Curation Centre Dr Liz Lyon Alex Ball

Bath University Computing Services (BUCS) John Howell Dr Roger Jardine Research Development and Support Office Robert Head Katy McKen David Allen

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Contact details

M.G.Davidson@bath.ac.uk

http://go.bath.ac.uk/research380



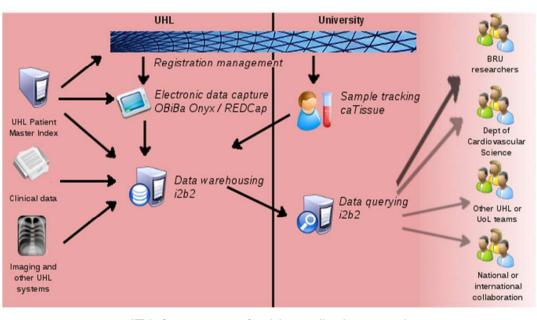
Biomedical Research Infrastructure Software Service (BRISSkit)

http://www.le.ac.uk/brisskitJISC University Modernisation Fund 2011/12

Jonathan Tedds jat26@le.ac.uk

@itedds

Edusery UMF cloud platform for brokered by JANET network



HEIs and their users Advice and requirements Response Brokerage and Strategic Support JANET(UK) Others Service delivery Service delivery e.g. HPC and support and support SLAs Ts and Cs Compliance monitoring Cloud Storage Other Cloud XaaS Providers Infrastructure

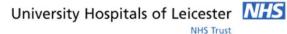
- open source IT infrastructure for biomedical research
- web services bridge healthcare / research domains
- host, implement, deploy biomedical research DBs
 - Remove duplication of highly skilled development effort via
 - Design from scratch
 - Buy & administer

Workshop - Thurs 19th Jan 2012, Leicester BRU









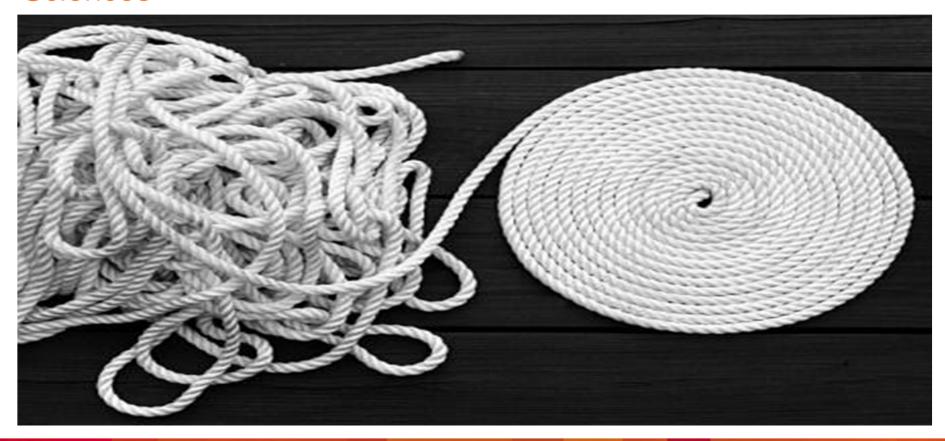




Managing research data:

a pilot study in Health and Life Sciences









MIT Exhibit:

an open source data publishing and visualization platform for the web

MacKenzie Smith, MIT Eric Miller, Zepheira



