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The Challenge for Institutions 2: The Impact on Resourcing and Supporting the Research Data Management Plan

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MaDAM Context

- Institutional Repository – eScholar – launched 2009
- Inconsistent ad hoc data management solutions available within the user community*
- JISC Funded MaDAM project runs until June 2011 to provide a research data management service for the pilot community
- Manchester Informatics – University addressing the problem via “SAC”

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Pre-MaDAM Situation

- Existing data management is ad hoc and varies from group to group
- Multiple copies of data and difficult to track down
- Lab books for experiment metadata – hard to search
- Much use of portable devices for transfers/sharing/storage
- “Failed” experiment data often retained but rarely revisited
- Backup policies not always in place
- De-centralised and fragmented storage
- Limited means to disseminate data
- No archiving policies to support long term curation

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MaDAM Pilot Overview

Aim: Pilot Research Data Management Solution

```

    graph TD
      A[Data storage hardware] -- "+" --> B[File management software  
Tagging, linking, annotation, sharing, access control]
      B -- "=" --> C[Data management guidelines/plan  
"how to" + standards setting]
      C -- "=" --> D[Pilot Research Data Management Solution]
    
```

Many angles to cover:

- Research Practice
- Discipline/Domain
- Technical Solution
- Policies/Procedures
- Institutional Settings (Stakeholder & Infrastructure)
- Funding Landscape
- Cost-Benefit Analysis

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MaDAM Pilot: Data Management

Project/\"Folder\" Data

Context Sensitive Actions

PLUS Procedural Support!

Web Explorer

Bulk Downloads

\"Folder\" Contents

Type	Name	Date Created	Status	Owner
Raw Data	Raw Data	28-MAY-2010	Available	Simon Collins
Analysis	Analysis	28-MAY-2010	Available	Simon Collins

Select	Name	Created On	Size / MB	Version
<input type="checkbox"/>	Analysis Overview.doc	01-JUN-2010	0.02	1

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How is MaDAM approaching Data Management Planning?

- Specified work package to address each of the following:
 - Development of Pilot Data Management Plan Templates
 - Development of Processes for Data Management Plans
 - Integration of the Data Management Plan with the MaDAM Storage Interface
 - Development of Governance Mechanisms
 - Development of Infrastructure Support Structures

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Development of Pilot Data Management Plans

- We decided that we would use the DCC Data Management Plan checklist and the DMP Online as our basis.
- Problems - Getting the researcher to fill in the data management plan
 - Resistance towards filling in even the simplest information
 - A lot of researchers were unaware of:
 - where to go to get help
 - University working practices
 - their funding body retention policies
 - Hence, leading to the failure to envisage the information that needs to be stored alongside the data in order to retain it for ...20 years!!!!

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Development of Processes for Data Management Plans

- Envisaging the problems we wanted to embed the data management planning in the researcher's workflow – so they realised why they had to do it and when
- So we decided to make the DMP a living document within the MaDAM system, but also living alongside the University Research Management Systems
- It was also necessary to automate as much of the input as possible i.e.,
 - Information from research office systems
 - Static information from infrastructure services
 - Funding body policies
 - Metadata from microscopes etc

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Linking with the Research Office

- The DMP should start with the “twinkle in the eye” – once the researcher is putting together his/her research application
- Such information that is input into our CRM system (pre-award part of the Research Management System (RMS)) at the application point is:
 - Basic project information
 - Research Governance Approvals
 - Ethics
 - Clinical Trials
 - Contacts
 - Funder
 - Sponsors
 - Data custodians etc

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Linking with the Research Office (2)

- Therefore, to avoid duplication of effort MaDAM is linked to the RMS and extracts information that is needed for the DMP.
- Benefits:
 - Up-to-date information i.e., if a researcher leaves - who now takes ownership of the research data?
 - Linking the research office with the actual DMP process – ensuring a follow through on funding body requirements
 - Funding body compliance
- Also to help lower the impact on the research office MaDAM has an indepth set of help pages on DMPs e.g.:
 - Funding body policies, how do I write a DMP, contacts

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Linking with IT Services

- At bid submission stage IT Services are notified of researchers storage needs giving them time to plan.
- Once the bid is funded a request is sent to IT Services for the storage.
 - Storage is allocated and a plan is implemented for the life of the project.
- MaDAM is notified and user allocated storage space for project.

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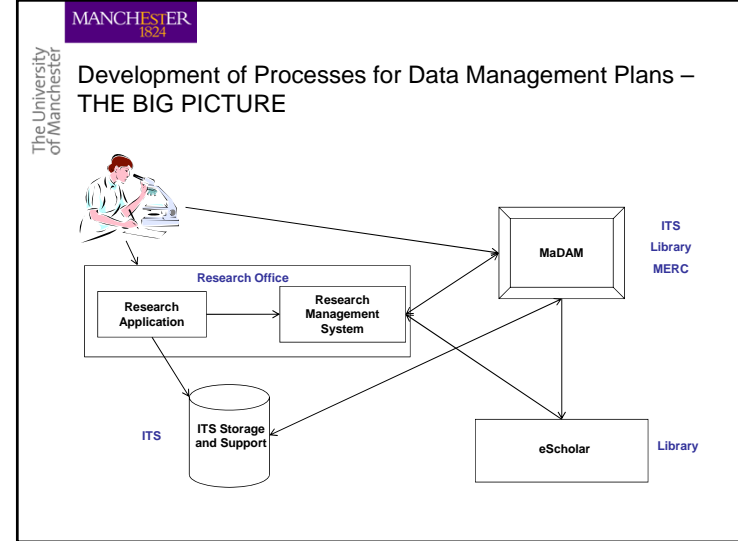
Linking with University Repository (eScholar)

- Once a project is finished the research output is preserved in our University repository alongside it's publications and data management plans.
- Unfortunately, during the MaDAM project none of our user group will be completing a project – but the functionality is being created and tested.
- What impact on resources this will have is:
 - Researcher maybe tempted to archive everything!
 - Curation will be required
 - Provenance will have to accounted for
 - This is going to be difficult!

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Bringing the Data Management Plan together

- University Research Management System input
- Static information due to standard operating procedures/policies i.e., where data is stored, preservation information etc.
- Standard metadata schemas – tailored to user needs.
- As data stored by researchers additional data information gathered for DMP
- MINIMUM DMP INFORMATION INPUT BY RESEARCHER



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Governance

- Assistant Vice President for Research Integrity
 - Who has in turn appointed research office staff to work on clinical trials and human tissue research needs
- MaDAM Steering Committee
 - Continuation beyond MaDAM to include NEW key individuals such as:
 - the AVP for Research Integrity
 - Director of Research and Business Engagement Support Services
 - and the Head of IT Services for Research

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Governance 2

- But if MaDAM should continue as SAC – what do we need. The following are our initial suggestions from a white paper written to continue MaDAM:
 - Research Data Management System (RDMS) Governance Group
 - **Representation:**
 - Research Office
 - Compliance and Risk Office
 - ITSD
 - JRUL
 - VPs or AVPs for Research, Research Integrity, Compliance and Risk Management
 - Faculty representation – professor from each one
 - Research Conduct and Accountability Committee

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Governance 3

- RDMS Operations Group
 - **Representation:**
 - Project Manager
 - Members responsible for technical development and requirements gathering
 - User representation
 - ITSD
 - JRUL

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Governance 4

- Data Custodian Group
 - **Representation:**
 - School/Faculty representation
 - JRUL
 - ITSD
- Watch Group
 - **Representation:**
 - Research Office
 - JRUL
 - ITSD
 - Data Custodian Group

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Summary of impact on resources

- Hardware/software infrastructure
- IT Support
 - Storage
 - System Administrators
 - Help desk
- Specialist support
 - E.g. People who manage the core facilities and scanners
- Research office staff
- Records management, copyright, data security etc.
- Curation staff
- A data management team
- Researcher time to do DMP
- Governance bodies

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Promotion – Benefits for the Researcher

- “I can put my hands straight on my data, through one application”
- “I can easily share and find data within my research group”
- “ I have support in data management planning”
- “I can publish my data, under my control, with the wider community”
- “I’m not repeating experiments unnecessarily”
- “I’m freed up from some of my data management duties to concentrate on my research”
- RESEARCHERS SPENDING LESS TIME MANAGING DATA, GETTING MORE VALUE FOR THEIR EFFORTS AND FREEING MORE TIME FOR RESEARCH!

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Promotion – Institutional Benefits

- Researcher time spent on research
- Linking the researcher with core infrastructure services (IT Services), Research Office(s)....
- Easier compliance with funder & legal obligations
- Cost allocation of resources defined/thought about before the start of a project
- Tie in to central infrastructure services (that is backed up and 24/7 service) rather than dispersed and dysfunctional approaches to storage of data (USB hard drives)
- Asset Management
- Provenance - Complete story of research project stored
- Enhanced Reputation for the University

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Acknowledgements

- MaDAM Team
- MaDAM Pilot Users
- Research Offices – Central, Life Sciences and the Medical School, The University of Manchester
- Records Management, Copyright, FoI, Information Security
- IT Services – Research Management Systems, Interfaces team

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Many Thanks!

MaDAM
<http://www.merc.ac.uk/?q=MaDAM>
<http://www.library.manchester.ac.uk/aboutus/projects/madam>

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