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# Delivering a Research Data Management Infrastructure at the University of Manchester: the MaDAM and MiSS Projects

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**David Knight** (Life Sciences), **John Ainsworth** (Medical School)

**MaDAM Project:** Mhorag Goff, Simon Collins, Tom Grahame – Simon Hubbard, Alan Jackson

Funded by the

JISC

+ University of Manchester  
Contribution

# MaDAM Project Overview

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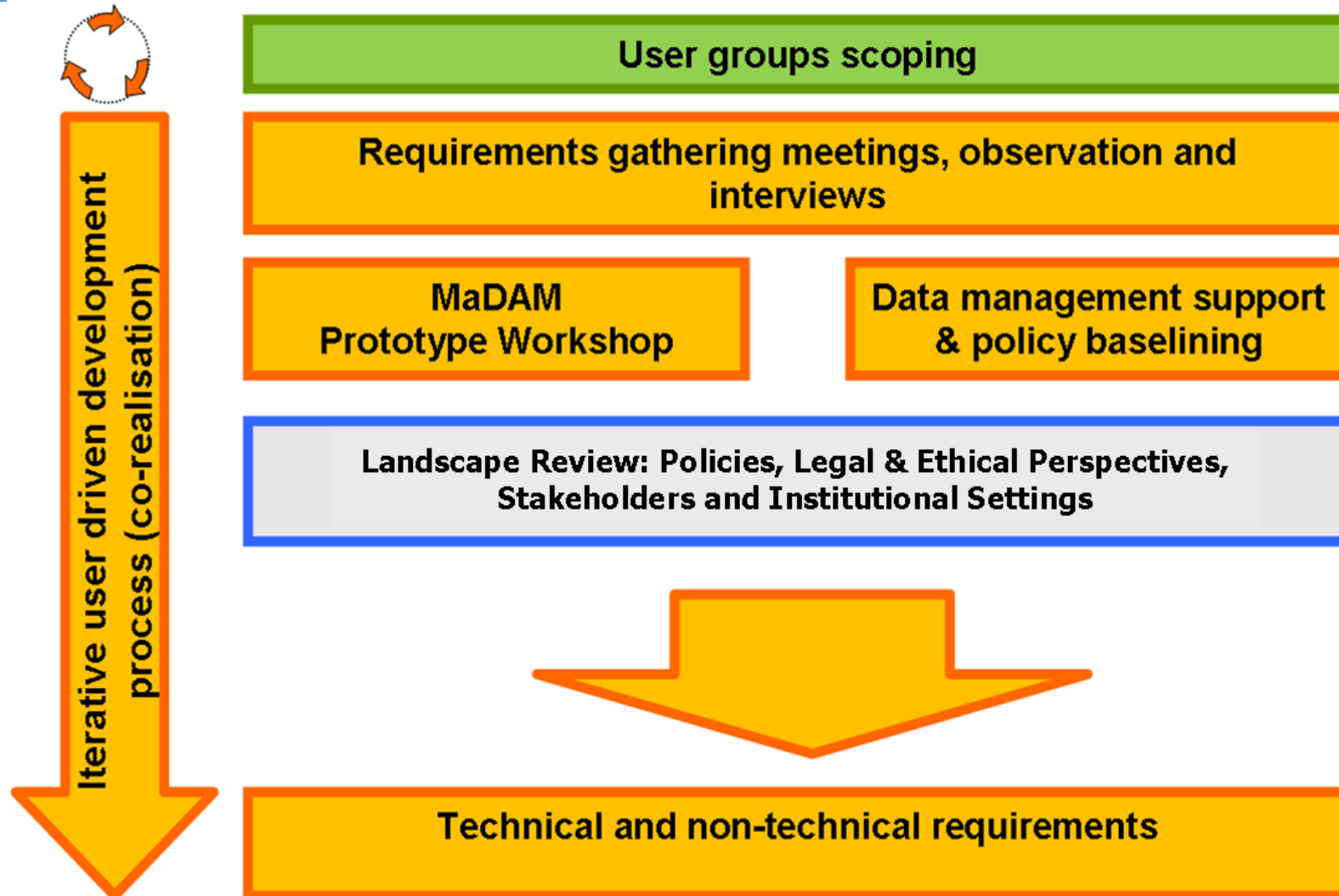
**Aim:** To produce a technical & governance solution based on researchers' requirements with flexibility to meet needs across multiple research groups / disciplines and taking into account the institutional landscape and its policies (JISCMRD Oct'09 – June'11).

**Rationale:**

- Researchers need to be supported to manage their data well (day-to-day) and comply with legal and funder policies.
- 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:** No existing institutional repository or strategy for management of research data – BUT the MaDAM Pilot became part of a wider endeavour at University of Manchester to develop such.

# MaDAM 'Method-flow'




# Pilot Users: Findings

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- No official backup policies to protect against loss of data
  - Decentralized & fragmented storage (USB sticks, optical disks)
  - Limited ability to share data internally or externally
  - High levels of redundant data (duplicate copies)
  - No structured annotation of data
  - Limited search capabilities
  - Limited means to disseminate data
  - No archiving policies to guarantee long term curation
- waste of time – risk of data loss – finding, reuse & sharing difficult – clogging of valuable storage space**

# Final Web-based MaDAM Pilot System



Welcome: ██████████ Meik Poschen Madam Group Logout

Home Page
Search
Calendar
Bookmarks
Latest Data
Recycle Bin
Feedback

**Checkout > PubsA**

**Explorer**

- ✓ Checkout (W)
- ✗ BenefitsCaseStudy
- ✗ BusinessCase
- ✗ ProjectReports
- ✗ PubsA
  - draft = 0
  - internal doc = 1
  - published = final
- ✗ MaDAM-BusinessCaseFull-draft...
- ✗ PubsConf
- ✗ Madam Project (W)
- ✗ V4 Testing (W)

Upcoming reminders (next 2 weeks)  
No review dates upcoming

Update Delete

**PubsA**

**Name**

**Comments**

**Creator** Meik Poschen **Owner** Meik Poschen

**Create Date** 17-MAY-2011 11:07 **Review Date**

**Status** Available **Folder Type** Publication

**Folder Size** .09M **File Count** 1 (0)

**Folder Details**

Files

Name	Created On	Mime Type	Size / MB	Created By
MaDAM-BusinessCaseFull-draf...	17-MAY-2011 11:32	application/msword	0.09	Meik Poschen

1 - 1

**Help**

Page Help

**Create**

Create "Folder"

**Folder Actions**

- Upload Files
- Download Folder
- Create Note
- Email Folder Link
- Bookmark Folder
- Create Shortcut
- Move Folder
- File View

**Attributes**

- Add Template
- Add Adhoc

Sub Folders

Attributes

Keywords

Notes

# Transition from MaDAM to MiSS

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- MaDAM: successful in addressing the needs of its user groups and in developing a pilot infrastructure, which is live, maintained and actively utilised by its pilot user base.
- Proof-of-concept integration of UoM Research Information Management Data (grant/accounting systems), DMPs and eScholar on the dissemination end.
- MaDAM 's outputs & findings (researchers' benefits) together with being part of an initiative for a sustainable University-wide Research Data Management Service led to funding the successor project

MiSS (MaDAM into Sustainable Service)

# MiSS (MaDAM into Sustainable Service)

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- MiSS is building on MaDAM, although it is more a transitional project than a continuation which will establish a sustainable service within the University's technical framework at the end of its lifetime in March 2013.
- Funded under JISC's Managing Research Data 2 strand, plus significant University of Manchester contribution.
- The RDMI will support researchers to manage (day-to-day), discover, store, archive and disseminate their data and comply with UoM, legal and funder policies and requirements.
- It will address the risk of data loss, potential re-use of data, preservation of future value in data assets, (open & community) standards, different research practices & data life cycles.

# Delivering MiSS

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## **MiSS will be delivering a service which will include**

- 1) Rebuilding the MaDAM technical service infrastructure, making it more generic but tailorable (domain/discipline specific plug-ins/plugin points), integrating it into the Manchester Working Environment (MWE),
  - 2) providing a Research Data Management Policy (incl. DMPs), along with a supporting Service, and
  - 3) integrating with the necessary human infrastructure, addressing needs across UoM.
- + This core service will further integrate with the infrastructure holding administrative data (grants/financials) and eScholar.



# Technical Framework

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- Integration/complying with MWE: standard set of software to create MWE-centric services and applications, including SharePoint - .NET Framework 4 - Microsoft IIS web server
- Shared Storage Project: automatic storage tiering – but potential cost implications for faster (= frequently accessed) storage → sustainability question for long term data storage/ retention
- Managing & linking external data: for data not stored in the main MiSS storage the RDMI will have to keep a record of that data and/or link to it
- RESTful API - SQL Server - ASP .NET (GUI) - C#

# Picking up from MaDAM..

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..in MiSS on endeavours started but not completed/evaluated within pilot's lifetime/remit:

- Researchers' dissemination practices...
- ...and full integration of eScholar (MaDAM: proof of concept)
- Automatic population of research information data (accounting, grants) into DMPs
- Enabling better metadata ingestion from different sources in various disciplines (via community input)
- Setting up a financial model for the service (costing of storage, support, sustainability)

# MiSS User Community

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For the domain specific user community the project includes five research groups covering all four faculties.

Academic Champions in

- Life Sciences
- Engineering and Physical Science
- Medical and Human Sciences
- Humanities/applied quantitative social research

We will furthermore set up a user committee open to all research disciplines at UoM to balance specific with generic needs.

# MiSS Baseline Requirements (1)

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- Avoid duplication of data & enable linkage, create data records when data has not to be moved, especially if it is big.
- Try to keep the effort of (additional) data entry as low as possible, again avoid the duplication of effort on e.g. the creation of metadata entries (and DMPs).
- The openness of the RDMI (API, plug-in points) is crucial, not only to provide linkage to other systems, databases and repositories but also to prepare for automatic ingestion of metadata, e.g. from instruments or files.
- Metadata functionality is a base requirements, although some domains have a stronger need for enhancing discoverability and search than others.

# MiSS Baseline Requirements (2)

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- Data access, version control, security and integrity models and policies are widely seen as integral for the RDMI, providing an audit trail or transparent path for data sets throughout the data lifecycle will be important.
  - Unique Digital Identifiers (DOI & URI) will foster sharing and make linking data and publications easier.
  - Transparent financial models are needed for storage and the service in general.
  - The RDMI system has to be easy usable – and a tailorable interface would be ‘nice to have’..
- ➔ currently broken down into functional specification

# MiSS Challenges

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- Bridge between and cater for generic and specific needs, making the RDMI easy usable but open enough for specific tools and automated data ingestion by providing 'plug-in points' (open API)
- Integration with the Manchester Technical IT Services infrastructure, which is evolving concurrently (Manchester Working Environment, MWE) – but different time scales
- Balance researcher, internal and external research data management needs and policies (research cultures & work practices, University structure with research offices & faculties and funder requirements)
- Engagement of existing support/admin structures at UoM is essential – high level institutional support is crucial

Many Thanks!

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## **MiSS**

<http://www.manchester.ac.uk/miss/>  
[@MISS\\_RDM](#)

## **MaDAM**

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

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<http://www.merc.ac.uk/?q=Meik>