Harnessing the Power of machine actionable DMSPs: Where Are We Now and Building the Future

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Project Overview

SMART-DMSP: Streamlining Metadata, Automation, and Research Tracking for Data Management and Sharing Plans

- Pilot and experiment
- Demonstrate value to our communities
- PI Maria Praetzellis - UC3 Associate Director
What is a maDMSP (or maDMP)?

- Structured, machine-readable versions of traditional narrative based DMSPs.
- Enables automation & integration with administrative & research workflows.
- Living, versioned documents that are updatable over time.
Why are we talking about maDMSPs now?

- With increasing mandates conversations are now turning toward implementation and compliance.
- How to demonstrate and track institutional compliance with these mandates?
- In response we are building robust research data infrastructure using open, community-driven systems and workflows for tracking research outputs.
The goal of a machine actionable DMSP is to support the creation and stewardship of FAIR data:

- Allow data and information about research to be communicated and shared across stakeholders

- Facilitating
  - easy retrieval of info about research
  - notifications and verification
  - automated compliance checks

- maDMSPs should lessen the administrative burden on researchers and grant administrators
Developing the maDMSP

What’s in a maDMSP?

Data type
Tools, software, code
Standards
Preservation and Access
Oversight
What can you do with a maDMSP?

- **Facilitate guidance** – maDMSPs help librarians and administrators provide guidance at scale and with fewer resources
- **Ensure compliance** – DMSPs are a requirement of the NIH Data Management & Sharing Policy, and maDMSPs are specified in the CHIPS and Science Act
- **Promote research integrity** – maDMSPs promote best practices and support research reproducibility and data security
- **Track impact** – maDMSPs help grant administrators track the impact of an organization’s research programs
What integrations could you do with a maDMSP?

- Automate notifications to stakeholders about key data lifecycle events using maDMSPs. Example use cases: sensitive data alerts, managing big data, enabling data transfers, linking planned datasets to outputs.
- Build prototype integrations connecting maDMSPs with existing research systems like RIMS or researcher profiles to exchange info.
- Engage academic departments to test maDMSPs for research workflows and data management needs, providing user feedback to optimize the systems.
- Demonstrate improved communication workflows between campus RDM stakeholders (library, research office, IT/security, IRB, research/HPC) using maDMPSPs as a connecting platform.
Example of a maDMSP landing page
API details

Our project looks to experiment with integrations and extensions from the DMPTool system - driven by our robust API.

- integrate organizational maDMSP data into local systems
- supports maDMSP retrieval, creation and modification

The DMPTool will monitor external systems and funder APIs for research output and award information regardless of whether the maDMSP was created within the DMPTool UI or directly through the API.

Adding additional API functionality throughout project.

See the API documentation for further details.
Project development

**Piloting** additional maDMP workflows

Piloting the integration or creation of prototypes and possible workflows for maDMPs.

**Connecting** with additional open systems for tracking outputs

We’ll be developing additional integrations with funder, APIs as well as larger indexes and aggregators such as Open Alex.

**Developing** a new data model for the DMPTool

This new data model will generate maDMPs more effectively and facilitate additional structured metadata.

**Experimenting** with the use of AI/ML

Investigating entity extraction to structure narrative DMPs, as well as AI to facilitate the generation of plans reflecting best practices.