Beyond machine-actionable DMPs - let's go forward together!

Joint session of DMP Common Standards WG and Active Data Management Plans IG

19th RDA Plenary

Tomasz Miksa (@miksa_tomasz)
Agenda

▷ Part 1 – Getting to know each other and meeting objectives
▷ Part 2 – Introduction on machine-actionable DMPs for newcomers
▷ Part 3 – Reports on the adoption of the maDMP recommendation and discussion
  ▷ DAMAP – a new tool for machine-actionable DMPs by Zeno Casellato
  ▷ GC-DSW Proof-of-Concept (POC): maDMPs in a government context by Claire Austin
  ▷ Automating the writing and publishing of FAIR DMPs with ARGOS service by Elli Papadopoulou
▷ Part 4 – Open Discussion
  ▷ What are the new topics we should tackle together to ease adoption of maDMPs?
  ▷ Are there any updates needed in the recommendation?
▷ Part 5 – Maintenance of the recommendation
▷ Part 6 – Elections of new chairs
▷ Part 7 – Wrap up
Participants

› Collaborative notes
  › LINK
  › Add your name to the list
  › Co-edit!

› Let’s get to know each other
  › Go to slido.com

#maDMPs
#activeDMPs
Where are you located?

Start presenting to display the poll results on this slide.
Are you a member of the WG and/or the IG?

Start presenting to display the poll results on this slide.
How familiar are you with maDMPs?
Why joint session?

- **DMP Common Standards Working Group**
  - Maintenance mode
  - Updates the recommendation when necessary
  - Can add new serializations
    - JSON, RDF, ...
  - Supports adopters of the recommendation

- **Active DMPs Interest Group**
  - Place for discussion on all topics related to DMPs
  - Can trigger new WGs
    - Like it happened in the past with the DMP Common Standards WG

**Objective for today**
- Identify new hot topics relevant for this community
Introduction on maDMPs for newcomers

Part 2
Data Management Plans (DMPs)

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4 For procedural elements of implementing DMPs, see the RDA DMP Common Standards Working Group: https://www.rda-alliance.org/groups/dmp-common-standards/wp
Machine-actionable DMPs (maDMPs)

- **Living documents**
- **automate data management**
  - collect information from systems
  - trigger actions in systems
- **facilitate validation**

**This requires**

- well-defined RDM workflows
- data management infrastructure
- **common standard**
  to represent information
Official RDA Recommendation on maDMPs

RDA DMP Common Standard for Machine-actionable Data Management Plans

The Challenge:
Data Management Plans are free-form text documents describing the data that is used and produced during the course of research activities. They specify where the data will be archived, which licenses and constraints apply, and to whom credit should be given, etc. The workload and bureaucracy often associated with traditional DMPs can be reduced when they become machine-actionable.

Produced by: DMP Common Standards WG
https://www.rd-alliance.org/groups/dmp-common-standards-wg

### Properties in 'dmp'

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Data Type</th>
<th>Cardinality</th>
<th>Example Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>contact</td>
<td>Contact person for a DMP</td>
<td>Nested Data Structure</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>contributor</td>
<td>To list people that play role in data management related to this DMP, e.g. responsible for performing actions described in this DMP.</td>
<td>Nested Data Structure</td>
<td>0..n</td>
<td></td>
</tr>
<tr>
<td>cost</td>
<td>To list costs related to data management. Providing multiple instances of a 'Cost' allows to break down costs into details. Providing one 'Cost' instance allows to provide one aggregated sum.</td>
<td>Nested Data Structure</td>
<td>0..n</td>
<td></td>
</tr>
<tr>
<td>created</td>
<td>Date and time of the first version of a DMP. Must not be changed in subsequent DMPs.</td>
<td>DateTime</td>
<td>1</td>
<td>2019-03-13 13:13</td>
</tr>
<tr>
<td>dataset</td>
<td>To describe data on a non-technical level.</td>
<td>Nested Data Structure</td>
<td>1..n</td>
<td></td>
</tr>
</tbody>
</table>

NOT a questionnaire! NOT a template!

Most fields are optional!

Machine-actionable DMP

Example: https://doi.org/10.5281/zenodo.6467730

"contributor" : [ {
    "contributor_id" : {
        "identifier" : "0000-0002-5164-2690",
        "type" : "orcid"
    },
    "mbox" : "moritz.staudinger@tuwien.ac.at",
    "name" : "Moritz Staudinger",
    "role" : [ "Data Manager" ]
}

maDMPs use PIDs and controlled vocabularies.

Example shows that Moritz is the one responsible for data management.
Machine-actionable DMP

Each dataset has a title and a human readable description. It is also clear what the format, size and the location of the dataset are. License and mode of access, including any exact embargo periods, are specified as well.
maDMPs are the ‘glue’ between different systems

Automate getting information in and out
Adoptions (selected)
Slides from all our sessions are in the repository

Today’s presentations will also be there

https://www.rd-alliance.org/node/56938/file-repository
Read more in...

- Describes the full story of developing the recommendation
- Example of a minimal maDMP
- Presents adoptions
  - Haplo
  - Open Research Publishing Platforms
  - DMP Tool
  - DMPonline
  - DMP OPIDoR
  - Data Stewardship Wizard
  - NSD DMP
  - Argos
  - Research infrastructure at TU Wien
  - Easy DMP

http://doi.org/10.5334/dsj-2021-032
Read more in...

**Automating Research Data Management Using Machine-actionable Data Management Plans**

TONIANN MISSA, TU Wien & SK Research, Austria
SIMON OBRAHNER; TU Wien, Austria
ANDREAS RAUSCH, TU Wien, Austria

Many research funders mandate researchers to create and maintain Data Management Plans (DMPs) for research projects that show how research data is managed to ensure its reusability. A DMP being a static textual document is difficult to access and can quickly become obsolete and unmanageable. In a generation of machine-actionable DMPs was therefore proposed by the Research Data Alliance to enable automated extraction of information and rules. Machine-actionable DMPs are open to a variety of use cases and automate the DMPs execution.

In this paper, we describe a system for machine-actionable data management planning in an institutional context. We identified several use cases where such DMPs can be automated to benefit from machine-actionability of DMPs. We propose a reference architecture of a machine-actionable DMP support system that can be embedded into institutional research data management infrastructures. The system semi-automates creation and maintenance of DMPs, and thus serves the bodies for the stakeholders responsible for various DMP elements. We evaluate the proposed system in case studies conducted at the Austrian technical university in Austria and qualify for what extent the DMP templates provided by the European Commission and a national funding body can be pre-filled. The proof of concept implementation shows that machine-actionable DMP workfloes can be semi-automated; however, the involved parties can be instructed and qualified of automation opportunities. The results are especially important for decision making and automation opportunities who can design information systems in systematic ways that can either fulfill the full potential of machine-actionable DMPs.

**Summary of results from hackathon**

**Enterprise Architecture that uses maDMPs**

**Examples of tasks automation at institutions using maDMPs**

**Contains:**
- Enterprise Architecture that uses maDMPs
- Examples of tasks automation at institutions using maDMPs

**Practice Paper**

**Interconnecting systems using machine-actionable Data Management Plans - hackathon**

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This paper presents outputs of the Research Data Alliance Hackathon on Machine-actionable Data-Management Plans, where participants proposed a series of outputs toward improving and expanding outputs related to the subject. The hackathon structure aims to foster innovation, improving the core supporting machine-actionable plans and exposing a growing audience to the adoption of the RDA-DMP Core/Standard application profile to reach a wide range of settings to enable exchange of DMP specific information in a machine-actionable way.

**Keywords:** Data management plans, machine-actionable data management plans, semantic web, community practice, open services.

**1. Introduction**

The Data Management Plan (DMP) was introduced to document and publish both data management practices and policies that are applied to data throughout its lifecycle. This paper describes the techniques, methods and policies on how to be created, collected, documented, processed, accessed, preserved, disseminated as well as the role and responsibilities of associated actors (Mishin, 2020).

**Additional key Words:** Data management plans, machine-actionable, business processes, enterprise architecture, standard templates, requirements engineering, automation, HEA, HEA, DMP

**Data Science Journal**

**https://doi.org/10.5334/dsj-2021-035**

**Contains:**
- Summary of results from hackathon

**ACM Transactions on Management Information Systems**

https://doi.org/10.1145/3490396
Reports on the adoption of the maDMP recommendation
Part 3
Adoptions and new use cases for maDMPs

▶ Rules
  ▶ 10 minutes per presentation
  ▶ 5 minutes for questions directly after each presentation
    ▶ Ask questions in the zoom chat during the presentation or speak up after the presentation

▶ Talks
  ▶ DAMAP – a new tool for machine-actionable DMPs
    ▶ by Zeno Casellato
  
  ▶ GC-DSW Proof-of-Concept (POC): maDMPs in a government context
    ▶ by Claire Austin

▶ Any other spontaneous presenters?
Open Discussion

Part 4
How can we go forward together?

▷ What are the relevant topics for you?

▷ What is the role of DMPs and maDMPs within the European Open Science Cloud (EOSC)?

▷ What can we do to support adoption of maDMPs?
  ▶ To whom should we reach out?
  ▶ What other innovations are needed?
  ▶ What are the lessons learned from the existing adoptions?
  ▶ “maDMP commons”

▷ Are there any unexplored connections to other groups and topics?
  ▶ FAIR Digital Objects?
  ▶ Research graphs?
  ▶ ...

▷ Anything you would like to say
Maintenance of the recommendation

Part 5
List of pending adoptions

Please add yours to the list

Maintenance of the recommendation

› Anything you would like to report?

› Any improvements needed?
Elections of new chairs

Part 6
Elections

▷ Active DMPs IG
  ▷ David Giaretta, Kevin Ashley, Sarah Jones, Tomasz Miksa, John Chodacki
  ▷ Stepping down: Sarah Jones, John Chodacki

▷ DMP Common Standards WG
  ▷ Chairs (as-is): Paul Walk, Peter Neish, Tomasz Miksa
  ▷ Stepping down: Paul Walk

Paul Walk  John Chodacki  Sarah Jones
Elections

▷ Do we have any candidates?
  ▷ 2 spots for the Active DMPs IG
  ▷ 1 spot for the DMP Common Standards WG

▷ Tell us few words about you and your connection to the groups

▷ Voting
Wrap up

Part 7
Summary

- Bring topics that we could tackle together
- Use the recommendation on maDMPs
- You can always
  - Contact group chairs
  - Write directly to the mailing list
- Further activities can be organised based on the needs
- We hope to see you all in person in Salzburg!
Please cite the recommendation

Publications about maDMPs


- Simon Oblasser, Tomasz Miksa, Asanobu Kitamoto: Finding a Repository with the Help of Machine-Actionable DMPs: Opportunities and Challenges. IDCC 2020


- Tomasz Miksa, Peter Neish, Paul Walk, Andreas Rauber: Defining requirements for machine-actionable Data Management Plans. iPres 2018

- Tomasz Miksa, João Cardoso, José Luis Borbinha: Framing the scope of the common data model for machine-actionable Data Management Plans. BigData 2018: 2733-2742