

Data Management Plan

Recommendations to the French National Agency for
Research (ANR)

June 2019

Research Data College
Data Management Plan Working Group

Data Management Plan - Recommendations to the ANR

Committee for Open Science (CoSO) / Research Data College / DMP Working Group

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The ANR requested the Committee for Open Science (CoSO) to provide recommendations for the implementation of a data management plan for projects funded from 2019 onwards, particularly for the "evaluation" aspects. As a result of this request, the DMP Working Group of the Research Data College has set out the proposals put forward in this document.¹

Special attention was paid to taking into account the different levels of maturity of the scientific communities with respect to data management and their possible concerns about open science.

1. Research Data Management - General considerations

The ANR made its open science policy available in one of its website pages. For increased readability, a dedicated document could include the key principles of the ANR's open science policy on research data, such as:

- Fostering research best practices, in particular through:
 - Drafting a data management plan;
 - Step-by-step implementation of the FAIR principles;²
 - Complying with the principles of scientific integrity (citation of re-used data, etc.);
 - Depositing research data in "trusted" repositories (in disciplinary or institutional repositories, or otherwise on zenodo.org);
 - Optional embargo on the exploitation of data at the end of the project;
 - Publishing of data papers;
 - Reusing pre-existing data.
- A reminder of the legal framework: "As open as possible, as closed as necessary" (sensitive data, personal data, protection of economic development opportunities, etc.);
- The role of the consortium agreement in specifying how the data produced during the project are to be used, especially when involving a partnership with companies.

Recommendation No.1

Specify in a dedicated document the general elements supported by the ANR about research data.

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² Acronym for Findable, Accessible, Interoperable, Reusable. Complying with the FAIR principles does not generate open data, but results in good management practice.

Data Management Plans (DMPs) are critical tools for good data management. Evolving as research projects unfold, they make it possible to clarify how data collection and organisation fit in, but also how data can be accessed, shared and reused in the future, and thus to anticipate potential technical or legal problems. They are tools to support and encourage good management practices, which can generate open data if the requirements are met.

Recommendation No.2

The Data Management Plan template provided by Science Europe should be preferred because it puts emphasis on best management and sharing practices.

2. Phasing and implementation steps

A step-by-step approach would encourage community adoption and better adaptation to changing practices, while allowing for the development of services for data storage and FAIR compliance.

Recommendation No. 3

Implement a stepwise policy for the adoption of management plans to gradually move towards openness:

- Step 1: Stimulate good data management practices
- Step 2: Consider data management in project evaluation
- Step 3: Encourage and monitor openness

Step 1: Stimulate good data stewardship

Recommendation No.4

Make a lightweight evaluation of submitted DMPs after 6 months for counselling purposes to project leaders, and foster subsequent updating (interim report, end of project).

Step 2: Integrate open science and data management into the selection process of research projects

Propose that data management principles be taken into account from the project selection phase. This part of the evaluation of process could cover aspects like the inclusion of data management in the work programme, risk management, the consistency between objectives and resources, the dissemination strategy (link between publications and data, archiving and data dissemination strategy), etc.

Recommendation No. 5

Mention data management in the detailed proposal framework for calls for projects and append an ad hoc evaluation sub-criterion to the evaluators' grid.

Step 3: Encourage and monitor data openness

Promote openness and the availability of data in accordance with the "as open as possible as closed as necessary" principle. The data management plan should be written based on FAIR principles. In addition, in order to increase the visibility and availability of datasets resulting from projects supported by the ANR, they should be referenced (use of permanent identifiers, etc.). Consequently, when a dataset is deposited in a repository, an acknowledgement of ANR funding should always be mentioned,

as should the project identifier, in line with publication practices. As with bibliometric indicators, the scientific impact of the project could also be measured based on dataset indicators.

Recommendation No. 6

Encourage the publication of data papers (data articles) that describe the published datasets, promote their reuse and citation in conventional scientific papers.

Recommendation No. 7

The final version of the data management plan should include the tangible actions planned by the project leaders to open their data and facilitate their access, development and reuse after the end of the project.

Recommendation No. 8

Require the inclusion of the project and funding identification in the metadata describing the data, in a similar way to publications (funding section of an article).

3. Support mechanisms

As the maturity of the scientific communities regarding data management and openness is different, we recommend setting up a support system inspired by existing national and international mechanisms.

Recommendation No. 9

Design an instructional web page that links to the main resources available (guides, DMP-building tools, sample DMPs, tutorials, etc.), refer to success stories (reuse) or sad stories (data loss).

4. Monitoring

1: set up a monitoring system

Set up a monitoring system, making a distinction between issues related to research data management and those related to their opening. This monitoring mechanism could start after the receipt of the DMPs by conducting an observatory-like survey among project leaders to:

- Identify the scientific communities that require stronger support in the management and opening up of research data;
- Identify the difficulties of project leaders, in particular associated budgetary impact and necessary HR resources;
- Assess trends in practices among the different scientific communities;
- Pave the way for the construction of indicators associated with the funded datasets (use of non-project data, citations, etc.) and the construction of project impact measuring tools.

Recommendation No. 10

Set up an observatory-like survey among the leaders of funded projects to capture the practices of the communities and their difficulties. This survey could be conducted by a third party.

Recommendation No. 11

Train people in the evaluation of data management plans.

2: identify the costs associated with good research data management

Good management of research data requires financial (infrastructure) and human-resource (working time) investment. The sustainability of the projects selected by the ANR will therefore require a good estimate of these costs by the project leader.

Recommendation No. 12

Identify and list the types of research data management costs eligible for ANR funding.

Recommendation No. 13

Ask the project leads to identify the costs earmarked for project data management (including storage and availability).

The monitoring system should make it possible to build quantitative indicators for internal use by the ANR to set up funded project impact measurement tools. Analysis of the final financial reports could provide good insight into the budgets required to produce and manage the datasets for each disciplinary field.

Recommendation No. 14

Define quantitative indicators and impact measurement tools associated with open data from funded projects.

5. DMP evaluation

In the experimentation phase, the European Commission evaluated the project data management plans by using experts and organising training for project officers. The evaluation is based on the Commission's DMP template. It consists in showing whether the information is correctly, partially or poorly described and making recommendations for each criterion. With this approach, examination can take up to 4 hours/DMP.

Recommendation No.15

We suggest to:

- Implement a pilot project;
- Conduct advisory evaluations along the framework of Science Europe's data management plan;
- Follow adjusted expectations about the level of description according to the DMP version (a 6-month DMP may not be as definite on the terms of distribution at the end of the project);
- Draw up overall recommendations or alerts for project managers (for example, projects involving personal data or sensitive data management precluding the implementation of open data management best practices).

Criteria scoring	0	1	2
Data description and collection or reuse of existing data			
Data documentation and quality			
Storage and backup during the research process			
Legal and ethical requirements, codes of conduct			
Data sharing and long-term storage			

Scoring key:

0: item contains little or poor information

1: item partially addressed

2: well described item

DMP Bibliography³

Templates

References

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About Machine-actionable DMPs:

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5. Existing templates (listed) – Funders
DMPTool website: https://dmptool.org/public_templates
DMPonline website: https://dmponline.dcc.ac.uk/public_templates

³ A bibliography incepted by the Inra Research Data unit: <https://www6.inra.fr/datapartage/Gerer/Rediger-un-plan-de-gestion>

Recommendations

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4. **INRA** Plan de gestion des données <https://www6.inra.fr/datapartage/Gerer/Plan-de-gestion>
5. **IRSTEA** DMP Plan de gestion de données <https://donnees-recherche.irstea.fr/dmppgd-plan-de-gestion-de-donnees/>
6. **RIO** Section=[Data Management Plans] [https://riojournal.com/browse_journal_articles.php?form_name=filter_articles&sortby=0&journal_id=17&search_in_0§ion_type\[\]=231](https://riojournal.com/browse_journal_articles.php?form_name=filter_articles&sortby=0&journal_id=17&search_in_0§ion_type[]=231)
7. **Sciences Po** Libguides - Données de la recherche <https://sciencespo.libguides.com/donnees-de-la-recherche/dmp>

Evaluation

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https://zenodo.org/record/257650/files/Wellcome_Rubric_v2.1.pdf, **EPSRC**
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5. **LIBER** - DMP Cat (project of DMP listing with published assessment - only 7 online to date)
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