

20 RDM Best-Practice Recommendations

These recommendations for Best Practice in Research Data Management are based on discussions between delegates and speakers at LEARN Project workshops in Europe and Latin America. The Workshops were held over the course of 2016/2017.

Policy & Leadership

Implementing a policy in institutions is key for setting up RDM services. The formulation of a policy is the starting point from which an institution and its researchers can understand assigned roles and responsibilities.

1. Senior management can, and should, lead the way but it is equally important for a multidisciplinary range of stakeholders (e.g. scientific researchers, libraries, research funders, corporations, IT departments), including external experts such as legal advisers to be involved in a policy's formulation.
2. Research Data Management (RDM) offices or teams should be established, and staff identified to collate and co-ordinate activity across the many stakeholders.
3. A successful policy should make it easy, fast, interesting and rewarding for researchers to make data available, leading to lower administrative burdens.
4. According to the LERU Roadmap for Research Data¹, definitions of research data and RDM should be a feature of any RDM policy. Finding the common ground between disciplinary practice and central institutional demands is a key component of this.
5. Clear guidance on access to data (e.g. open, closed, restricted) and on how, and when, data might be destroyed should be included.
6. Clear roles and responsibilities for decision-making around the whole life cycle of the data should be established, perhaps using a flowchart or decision tree.
7. Metadata is a part of research data, and this should be reflected within a RDM policy. Permissions, limits to access and reuse of data and metadata should be clearly stated in the policy, and licences attached to metadata records. For building trust on the reuse of data, the quality of metadata is essential.
8. Efforts should be made to ensure the quality of publicly available data and to provide the tools for easily obtaining and visualizing them. Such efforts could have a significant impact on data reuse beyond academic communities and for the public good.
9. Educational resources (e.g. textbooks, software) should also embrace research outputs (e.g. research articles, research data) which can be used to enrich the student experience. As such, educational resources should be addressed within research data management policies.

Relevant KPIs include: P1, P1.1, P3, P6, P7, I4.

The following **Case Studies** might help:

- Case Study 1: Developing and Implementing the Wellcome Trust's Data Management and Sharing Policy
- Case Study 2: Development of a Model Policy for Research Data Management (RDM) at Austrian Research Institutions
- Case Study 3: Brexit - and its potential impact for Open Access in the UK
- Case Study 4: Research Data Management supporting Research Integrity and Open Science

¹ <https://www.leru.org/publications/leru-roadmap-for-research-data>

Open Data

Open Data can bring many benefits to research communities, enabling high-quality research, encouraging innovation and safeguarding good research practice.

10. Research data should be open by default, so long as the RDM policy provides an opt-out clause. The policy needs to stipulate reasons for an opt-out to be considered (e.g. privacy, confidentiality, legal or commercial reasons). These considerations should be assessed at the beginning of the research project as part of a data management plan. The policy should be 'permissive', allowing any number of different approaches, including educational re-use.
11. Copyright clearance is compulsory for data reuse, thus a well-established and clear licensing framework is needed for the researcher to know the limits and obligations in the reuse of data.

Relevant KPIs include: P1, P3, P4, P7, I2, I4, I5.

The following **Case Studies** might help:

- Case Study 11: Why Open Data?
- Case Study 12: Open Educational Resources: Service setup and Data Management
- Case Study 13: The handing of research data in the social sciences at University of the Andes –Data Centre (CEDE) – Colombia

Advocacy

The benefits of RDM (e.g. acknowledgement, greater visibility and reputation, reward and routes for promotion) need to be promoted and demonstrated to researchers across various departments, career stages and disciplines.

12. Staff should be available across the whole campus to work on raising the researcher's awareness at the earliest possible moment.
13. A 'culture of sharing' should be promoted. For this purpose, data citation policies and mechanisms are required, as well as new metrics adapted to the characteristics of data production and reuse.
14. Libraries are key in the promotional process, given their history of providing access to scientific information, current experience in the field of Open Access and role as a stable player within research institutions. They can proactively give RDM support to their researchers and research-supporting units (e.g. help desk, FAQ, thematic portals, training, infrastructure, budget for acquiring DOIs). Support at the management level is a key factor which enables libraries to fulfil their RDM roles.

Relevant KPIs include: P1, P1.1, P2, P3, P6, P7, I3, I8.

The following **Case Studies** might help:

- Case Study 5: Research Data Management Advocacy – what works well
- Case Study 6: Raising awareness on RDM and engaging stakeholders in Latin America and the Caribbean
- Case Study 7: UWI St Augustine Campus Libraries and RDM efforts at the UWI, St Augustine Campus
- Case Study 8: 4TU.Centre for Research Data / TU Delft

Costs

The issue of costs is complex, especially when it comes to projecting long-term budgets.

15. The main difficulty in planning costs comes from the costs of human resources, both in terms of training and service provision. Other issues which could impact on costs include the context and the tools in which users will access and re-use data, the degrees of security and of trust that should be achieved, and the creation of good metadata sets. Shared services could be a solution for minimising costs.

Relevant KPIs include: P1, P2, P3, P4, P5, P6.

The following **Case Study** might help:

- Case Study 17: Research Data Management at the University of Edinburgh: How is it done, what does it cost?

Roles, Responsibilities & Skills

Skills development is essential in embedding a successful RDM culture within an institution.

16. Institutions should be responsible for research data created by their community over the whole research lifecycle. Research data policies must specify the procedures and measures to be taken in the case of researchers leaving the institution. Services to support and accompany this data lifecycle need to be put in place.
17. RDM services should address subject disciplinary differences and adapt their infrastructure and guidance to their specific needs.
18. Researchers should be aware of what they are expected to do with their data and be fully aware of which services and tools are available to them. HR policies should reflect this aspect, as should contracts of employment. More broadly, training on legal aspects, on the curation and management of research data and metadata, and in data science for the development of technical skills were all mentioned as important.
19. A network of legal experts should be created to support librarians and technical support staff with legal issues.
20. Training solutions in the form of summer courses or other face-to-face training are effective but also labour-intensive and costly. Lighter solutions like webinars and online materials are more feasible but have a lower impact factor.

Relevant KPIs include: P3, P4, P5, P6, P7.

The following **Case Studies** might help:

- Case Study 18: Training early career researchers
- Case Study 19: Training subject librarians in Research Data Management
- Case Study 20: The Emerging Role of the Data Scientist and the experience of Data Science education at the University of Amsterdam

For more Research Data Management resources, including our 185-page Toolkit of Best Practice for Research Data Management, visit the LEARN website: www.learn-rdm.eu.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Grant Agreement No 654139.