

A Practical Guide for developing policies for Research Funders

Preparing and implementing a policy

The following key points should be addressed by funders in developing and implementing a policy for open access to research data:

- **Knowledge of international policies** to assess position and standing in terms of policies, infrastructures, practices and degree of participation in international fora
- **Participation in dialogue and collaboration** among stakeholders at the national level, and minimally, with research institution administration, researchers and particular disciplinary communities (e.g. scholarly societies), data managers, publishers.
- **Assessment of existing and required infrastructure** to support policy implementation.
- **Assessment of related policy-implementation costs** for research data management during projects, long-term curation and preservation, infrastructure development, funding for innovative, disciplinary, education, training and awareness activities and earmarking of funds.
- **Policy content development** with open access as the default (cf. below on policy content).
- **Data Management Plans (DPMs)** as essential components of grant proposals, where data is generated.

- **Provision for relevant open access clause in grant agreements,** accompanied by the description of sanction mechanisms in cases of non-compliance, as well as clarification of eligible costs.
- **Guidance to researchers** through the development of appropriate tools such as templates for data management and resources on data management and DMPs, and criteria for eligible repositories/data centers for data deposit.
- **Rewards to researchers** through measures that can assist in changing research cultures such as the award of prizes for high-quality data or through events that focus on highlighting and communicating success stories on data sharing and re-use.
- **Policy monitoring mechanisms** to assess and measure compliance and efficiency and revise policy, where necessary.

Policy content

A policy should address the following issues:

- **Open access as default.** The policy should set open access for research data as the default and mandatory requirement and provide appropriate support and funding (e.g. expenses for storage). The possibility for closed data should be accommodated when ethical, copyright, confidentiality, security and similar issues are demonstrably of key concern.
- **Responsibilities.** The policy should assign responsibilities and set out the expectations for the main stakeholders involved, namely: funders, researchers (either under their capacity of grant applicants or grant holders), research institutions, data centers and repositories.
- **Target content.** The policy should be explicit on which data should be open. Open access should be required for research data used to validate scientific claims in publications, while open access to other data produced in the project may be required to be open as well, including associated metadata. While open access to the research data itself may not always be possible, deposit in repositories/data centers with open metadata should be required.
- **Data Management Plan.** The policy should require grant applicants who will generate data to provide a DMP as the main tool through which to address comprehensively data management, including access to data. Templates for DMPs should be provided along with resources.
- **Time of deposit.** The policy should require data supporting publications to be made open ideally at the latest at the same time with the publications and link to it, while other data by the end of the project.
- **Locus of deposit.** The policy should require deposit in certified and trusted repositories and/or data centers that are of relevance to the scientific communities. Funders recommend or require deposit with specific data centers or repositories.
- **Technical specifications to allow reuse.** To enable research data reuse and citation funders should require information on metadata, DOI, interoperability of systems, machine readability and mineability

and software in the policy.

- **Licensing research data.** The policy should require that research data is accompanied by licensing describing the terms of use, such as Creative Commons licenses. Preferably licensing information should be machine-actionable.
- **Provisions for long-term availability.** Policies should include provisions for the long-term availability of data, since re-use and availability are primary reasons for open access to research data.
- **Compliance with policy.** The policy should make statements regarding compliance to it by the researchers and clarify measures for non-compliance (e.g. funder may refrain from delivering the full amount of funding in cases of non-compliance)

Practical checklist for funders

- Have you mapped relevant international policies for open access to research data?
- Have you involved stakeholders and the research community in developing the policy?
- Have you assessed the available infrastructures that are necessary for the implementation of your policy?
- Have you estimated the costs for data management and preservation?
- Does your policy include statements on:
 - Open access as the default and mandatory position and possibility for closed access is offered when necessary
 - Distribution of responsibilities to involved parties
 - Target data for open access
 - Time of deposit
 - Locus of deposit
 - Technical specifications
 - Licensing

- Requirement of Data Management Plan
- Compliance and monitoring statement

- Do you require grant applicants to offer information regarding data management at the application stage?
- Do you include open access to research data as a clause in your grant agreements?
- Do you offer guidance to researchers in your website and otherwise to enable them to comply with your policy?
- Have you made provisions to provide incentives to researchers for making their research data open?
- Have you established a monitoring and compliance mechanism?
- Have you decided how and when to evaluate the efficacy of your policy?