Belmont Forum Data Management Plan template (to be addressed in the **Project Description**)

1. What types of data, samples, physical collections, software, curriculum materials, and other materials will be collected, processed and/or generated in the course of the project?

2. Which standards will be used for data and metadata format and content? Where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies.

3. Describe plans and protocols for broad access and sharing, including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements.

4. Describe plans and provisions for re-use, re-distribution, and the production of derivatives.

5. Describe plans for archiving data, samples, and other research products, and for preservation of access to them via an institutionally-supported repository.

6. What costs are required to implement the data management plan? Please provide a total along with a line item breakdown and brief justification. These costs should be included in the total budget request for your project.

Please **briefly address these questions in the project description of the outline proposal**. For the full proposal, the suggested limit is 1-2 pages.

Why the Belmont Forum requires Data Management Plans

The Belmont Forum wishes to promote open, transparent and robust global change research by encouraging more open sharing of research data, leading to wider data analysis, more data re-use, and the combination of datasets from multiple sources. The Belmont Forum believes that an increased emphasis on the open sharing of research data has the potential to stimulate new approaches to the collection, analysis, validation and management of data, and to the transparency of the research process. However, the Belmont Forum also recognizes that not all research data can be shared openly, and that there will be legitimate reasons to constrain access, for example the risks to the privacy of individuals must always be considered where data arise from, or are derived from, personally identifiable data.

The Belmont Forum considers that the production and implementation of project specific data management plans is an essential requirement to enable the sharing of research data. Research data includes:

● digital information created directly from research activities such as experiments, analysis, surveys, measurements, instrumentation and observations;
● data resulting from automated or manual data reduction and analysis including the inputs and outputs of simulations and models.

Project specific data management plans should be in accordance with relevant standards and community best practice, and which may vary by subject and disciplinary area. Research data should normally be open by default, unless there are legitimate reasons to constrain access, and the data must be made available with minimum time delay, including being discoverable through catalogues and search engines. Data with acknowledged long-term value should be preserved, protected from loss and remain accessible and usable for future research in sustainable and trustworthy repositories.

To enable research data to be discoverable and effectively re-used by others, including those outside the discipline of origin, sufficient metadata should be recorded and made openly available to enable other researchers to understand the research and re-use potential of the data. Published results should always include information on how to access the supporting data and other research materials. Researchers should ensure that metadata created to support research datasets retained for the long-term is sufficient to allow other researchers a reasonable understanding of those datasets and thereby minimise unintentional misuse, misinterpretation or confusion.

Data Management Plan Requirements

A Data Management Plan (DMP) describes the data management life cycle for the data to be collected, processed and/or generated by a Belmont Forum-funded research project. As part of making research data findable, accessible, interoperable and re-usable (FAIR), a DMP should include information on:

- the types of data, samples, physical collections, software, curriculum materials, and other materials to be collected, processed and/or generated in the course of the project;
- the standards to be used for data and metadata format and content (where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies);
- the handling of research data during and after the end of the project
- policies for broad access and sharing including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements;
- policies and provisions for re-use, re-distribution, and the production of derivatives; and
- plans for archiving data, samples, and other research products, and for preservation of access to them via an institutionally-supported repository.

The full costs of implementing the data management plan should be included in the proposed project budget.

Frequently Asked Questions about Data Management Plans

Procedural

- Do I have to submit a data management plan?

Answer: Yes, all proposed projects will require a data management plan. At the pre-proposal stage, only a brief summary is required. If your submission is invited to the full proposal stage, a more complete plan must be submitted as part of the full proposal packet.

The plan should include information about the types of data, information, products, model code, or other products being generated by the project. It should outline the accessible archives, data journals, or other open repository where these products and accompanying metadata will be housed. If the information type will require development of new metadata standards, protocols, or archiving procedures, a brief description of these would improve the quality of the plan.

For human or community data collected by a project, a description should be included that details the type of approaches or ethical considerations the project will employ to protect those providing personal information. In specific situations where open access would cause harm or other detrimental effects, it is the responsibility of the proposing team to explain these reasons and indicate how this information will be protected.

- Will Belmont Forum projects be expected to share their data management plans?

Answer: Data management plans will be expected to be made openly available unless there are valid reasons to restrict wider access to data management plans, in the same way that there may be legitimate reasons for not making data sets open. It is expected that the need to limit access to data management plans would only be rarely used.

- Are data management plans fixed, or can they be updated as the research progresses?

Answer: Data management plans should be seen as 'living' documents. They will need to be updated as the research activity progresses, to ensure they reflect the reality of the data that are actually collected and document the data management activities undertaken.

- Can data be kept closed until the research is completed and published?

Answer: The length of the period that researchers have exclusive access to the data that they generate (the so called 'right of first use') varies by funder and discipline area. This is to allow researchers to publish their initial research findings. Please consult with the relevant funding contacts as outlined in the national annexes for each CRA to determine whether open access is considered to be immediate or if there is an allowable delay from the supporting organization. The date when data would be expected to be made openly available would normally be detailed within the data management plan.

Funding agency specific

- What data management and data publishing costs should be included in my proposal?

ANSWER: As different research funders have different rules regarding the support of data management costs, the inclusion of costs in a proposal will depend on the primary funder of your research. Please refer to the contact person for the agency in question.

- What if a collaborating institution/country has closed data policies?

ANSWER: There are legitimate reasons for keeping some research data closed, and these should be detailed in the data management plan. However, the requirement for making data open is core to the expectations of Belmont Forum funding agencies. Therefore, any concerns that collaborating partners may have regarding open data need to be resolved before submitting a proposal to a Belmont Forum call.

- Who can I contact for further information and guidance?

ANSWER: Please refer the contact information for the relevant funding agencies at the end of the call. You should **email the contact(s) listed for the funder(s)** and copy Carrie Seltzer (cseltzer@nsf.gov).

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