

Template for the NSF Data Management Plan – Engineering Directorate

Please consult the solicitation and the guidance from the cognizant NSF [directorate](#) before preparing your data management plan, of no more than two pages in length. Consider including information on the following points when writing your plan.

- I. **Expected Data** - Describe the types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project. Describe the expected types of data to be retained. Describe the sources, products, formats and estimated size or amount.
 1. Archiving of both physical and digital data must be addressed.
 2. Include all data necessary to validate research findings.
 3. Include analyzed data such as digital images, published tables, tables of the numbers used for making published graphs
 4. Include metadata such as descriptions of suitable citations of experiments, apparatuses, raw materials, computational codes and computer calculation input conditions.
 5. If you will be using existing data, state that fact and describe the sources. What is the relationship between the data you are collecting and the existing data?
- II. **Period of Data Retention** – The plan should describe the period of data retention.
 1. Minimum data retention of research data is three years after the conclusion of the award or three years after public release, whichever is later.
 2. Exceptions requiring longer retention periods may occur when data supports patents, when questions arise from inquiries or investigations with respect to research, or when a student is involved, requiring data to be retained a timely period after the degree is awarded. Research data that support patents should be retained for the entire term of the patent.
 3. Longer retention periods may also be necessary when data represents a large collection that is widely useful to the research community.
- III. **Data Formats** - Describe 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)
 1. Describe the file formats will you use for your data and what details (metadata) are necessary for others to understand and use your data.
 2. Describe all standard formats and metadata you are using and why have you chosen them. If you are not, what conventions or schema will be used for your data and how will this be documented? Describe how the metadata will be generated.
 3. Describe any software or other tools that are necessary to read the data.
- IV. **Data Dissemination** - Describe the policies for public access and sharing including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements. Who is likely to be interested in the data?
 1. Describe which data will be shared. The plan should describe the specific data formats, media, and dissemination approaches that will be used to make data available to others, including any metadata and clearly articulate how sharing is to be implemented. Will it be deposited in a publicly available database, available for download from a web site, available upon request? (May include physical and cyber resources needed: equipment, systems, expertise)
 2. Describe when the data will be shared. Public release of data should be at the earliest reasonable time. A reasonable standard of timeliness is to make the data accessible immediately after publication, where

submission for publication is also expected to be timely. Publication delay policies (if applicable) must be clearly stated.

3. Research centers and major partnerships with industry or other user communities must also address how data are to be shared and managed with partners, center members, and other major stakeholders..
4. Discuss any data management issues arising from proprietary information or other obligations that may delay or place restrictions on the sharing of data.
5. Address the distinction between released and restricted data and how they will be managed.
6. Address how privacy and confidentiality will be protected in the case of human subjects' research.
7. Discuss exceptions to the data sharing policy with the program officer before submission.

V. **Data storage and preservation of access** - Describe the plans for archiving data, samples, and other research products, and for preservation of access to them.

1. The DMP should describe physical and cyber resources and facilities that will be used for the effective preservation and storage of research data.
2. How long will/ should data be kept beyond the life of the project? Typical retention time for research data is three years after the final project close-out, with original data retained wherever possible. Some sponsors require a longer period of retention.
3. Will data be archived after the project ends? If so, describe which data and related information, where it will be housed, how it will be preserved and for how long.
4. What metadata/ documentation will be submitted alongside the data or created on deposit/ transformation in order to make the data reusable? Are software or tools needed to access the data and will these be archived?
5. What procedures for preservation, back-up, security and public access does the long-term storage have in place?

VI. **Other considerations**

1. Outline the rights and obligations of all parties as to their roles and responsibilities in the management and retention of research data. Address changes to roles and responsibilities that will occur should a principal investigator or co-PI leave the institution.
2. In collaborative proposals or proposals involving sub-awards, the lead PI is responsible for assuring data storage and access.

VII. Address any additional data management requirements made in the program solicitation or resulting from local institutional policies or best practices.

VIII.