

1. How can we define research data and what types of research data should be open?

At the very minimum, all data required to reproduce or verify a published research result should be made open as defined by the Open Knowledge Definition (see <http://opendefinition.org/licenses/> for Conformant Recommended Licenses for "open data"). In cases where such data are a part of a bigger data set, the entire data set should be made open. When data are collected using public monies, all data should be made open limited only by considerations listed below in #2. Grantees of public funding should be required to describe how they will make their data openly available within data management plans, and should be expected to be evaluated on the openness of their data when being considered for future public grant funding.

2. When and how does openness need to be limited?

We believe open should be the default for research data. Starting from that default, there may be a very few reasons requiring that openness be limited. Such reasons might include:

- Privacy and confidentiality of human subjects
- Cultural sensitivity
- National security

3. How should the issue of data reuse be addressed?

Data reuse depends on discovery, access and clear and proper terms of use. Discovery and access are complicated enough topics requiring separate considerations. But terms of use can be unambiguously conveyed by properly applying to the work a universally recognized public domain dedication mark such as [CCo](#) or [PDM](#), or a public license such as [CC BY](#), [CC BY-SA](#) or [ODbL](#).

4. Where should research data be stored and made accessible?

Data should be stored in a publicly accessible data repository such as [Dryad](#), [Zenodo](#), or [figshare](#). Data could also be stored in institutional or disciplinary repositories, as well as project-specific repositories. It is important that the repositories be discoverable, accessible, and have clear terms of use, both generally for the repository itself as well as for each of the data sets that may be downloaded from the repository.

5. How can we enhance data awareness and a culture of sharing?

We have to approach the problem from several directions -- from the top, we can encourage funding agencies to require that all research products including data resulting from projects funded with their monies are made available openly and freely. Also from

the top, we can encourage universities and research institutions to start considering data products in their calculus for determining promotions, recognition, and reward. Part of the calculus can be alternative metrics indicating awareness, dissemination and use of research products. By showcasing research made possible because of open data, we can further incentivize researchers. Open licensing is a part of this process as it ensures legal clarity for both the provider as well as the user regarding what can or cannot be done with the data.