

**(b) Data management plans****(1) In general**

The Director shall require that every proposal for funding for research include a machine-readable data management plan that includes a description of how the awardee will archive and preserve public access to data, software, and code developed as part of the proposed project.

**(2) Requirements**

In carrying out the requirement in paragraph (1), the Director shall—

(A) provide necessary resources, including trainings and workshops, to educate researchers and students on how to develop and review high quality data management plans;

(B) ensure program officers and merit review panels are equipped with the resources and training necessary to review the quality of data management plans; and

(C) ensure program officers and merit review panels treat data management plans as essential elements of award proposals, where appropriate.

**(c) Open repositories**

The Director shall—

(1) consult with the heads of other Federal research agencies, as appropriate, and solicit input from the scientific community, to develop and widely disseminate a set of criteria for trusted open repositories to be used by Foundation-funded researchers, accounting for discipline-specific needs and necessary protections for sensitive information;

(2) work with stakeholders to identify significant gaps in available repositories meeting the criteria developed under paragraph (1) and options for supporting the development of additional or enhanced repositories;

(3) make awards on a competitive basis to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) for the development, upgrades, and maintenance of open data repositories that meet the criteria developed under paragraph (1);

(4) work with stakeholders and build on existing models, where appropriate, to establish a single, public, web-based point of access to help users locate repositories storing data, software, and code resulting from or used in Foundation-supported projects;

(5) work with stakeholders to establish the necessary policies and procedures and allocate the necessary resources to ensure, as practicable, data underlying published findings resulting from Foundation-supported projects are deposited in repositories meeting the criteria developed under paragraph (1) at the time of publication;

(6) incentivize the deposition of data, software, and code into repositories that meet the criteria developed under paragraph (1); and

(7) coordinate with the scientific publishing community and the heads of other relevant Federal departments and agencies to support the development of voluntary consensus standards around data archiving and sharing.

**(d) Research, development, and education**

The Director shall make awards, on a competitive basis to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to—

(1) support research and development of open source, sustainable, usable tools and infrastructure that support reproducibility for a broad range of studies across different disciplines;

(2) support research on computational reproducibility, including the limits of reproducibility and the consistency of computational results in the development of new computational hardware, tools, and methods; and

(3) support the education and training of students, faculty, and researchers on computational methods, tools, and techniques to improve the quality and sharing of data, code, and supporting metadata to produce reproducible research.

(Pub. L. 117-167, div. B, title III, §10344, Aug. 9, 2022, 136 Stat. 1558.)

**§ 19054. Climate change research**

The Director shall make awards, on a competitive basis, to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to support research to improve our understanding of the climate system and related human and environmental systems.

(Pub. L. 117-167, div. B, title III, §10345, Aug. 9, 2022, 136 Stat. 1560.)

**§ 19055. Social, behavioral, and economic sciences**

The Director shall—

(1) actively communicate opportunities and solicit proposals for social, behavioral, and economic science researchers to participate in cross-cutting and interdisciplinary programs, including the Convergence Accelerator and agency priority activities, and the Mid-Scale Research Infrastructure program; and

(2) ensure social, behavioral, and economic science researchers are represented on relevant merit review panels for such activities.

(Pub. L. 117-167, div. B, title III, §10346, Aug. 9, 2022, 136 Stat. 1560.)

**§ 19056. Measuring impacts of Federally funded research and development**

The Director shall make awards on a competitive, merit-reviewed basis to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to support research and development of data, models, indicators, and associated analytical tools to improve our understanding of the impacts of Federally funded research on society, the economy, and the workforce, including domestic job creation.

(Pub. L. 117-167, div. B, title III, §10347, Aug. 9, 2022, 136 Stat. 1560.)

**§ 19057. Food-energy-water research**

The Director shall make awards on a competitive basis to institutions of higher education or