Public Access to Federally Funded Research in the United States.

Increasing access to unclassified scientific data (primary or derived) and research findings generated by U.S. Federal agencies or resulting from federally funded research has been a long-standing U.S. policy priority. On its website Data.Gov, the U.S. Government aggregates access to all U.S. government open data resources (not only science-related) in one location, and provides tools and resources to conduct research, develop web and mobile applications, design data visualizations, and track metrics about data usage. As of February 2019, Data.gov listed more than 300,000 data sets. Nevertheless, mission requirements and the variety of services that government agencies provide to the country can impact the type and detail of scientific results that can be openly shared between governments and with the public.

The U.S. Government recognizes that openly-accessible data contribute to scientific progress, catalyze innovation, and further international cooperation in science and technology to address global challenges. U.S. government agencies believe that the public interest is best served when unclassified science data and research findings are properly stewarded and shared broadly with the public and scientific communities. The broad availability of scientific information and underlying data allow for the critical review, replication, and verification of findings that are central to the scientific method. Additionally, facilitating the free flow of information that underpins federal agency decision-making and advances in regulatory science—to the extent permitted by law—enables the public, U.S. Congress, media, and industry to better understand the scientific basis for U.S. federal regulatory decision-making.

As part of this, the United States is developing a Federal Data Strategy to provide a coordinated and integrated approach to using data to deliver on mission, serve the public, and steward resources while respecting privacy and confidentiality. The strategy incorporates four areas of exploration:

- **Enterprise Data Governance.** This area refers to setting priorities for managing government data as a strategic asset, including establishing data policies, specifying roles and responsibilities for data privacy, security, and confidentiality protection, and monitoring compliance with standards and policies throughout the information lifecycle.

- **Access, Use, and Augmentation.** This section is concerned with developing policies and procedures that enable stakeholders to effectively and efficiently access and use data assets. The Strategy aims to increase these features by: (1) making data available more quickly and in more useful formats; (2) maximizing the amount of non-sensitive data shared with the public; and (3) leveraging new technologies and best practices to increase access to sensitive or restricted data while protecting privacy, security, and confidentiality, as well as the interests of data providers.

- **Decision Making & Accountability.** This refers to improving the use of data assets for decision-making and accountability for the Federal Government, including both internal and external uses. This includes: (1) providing high quality and timely information to inform evidence-based decision-making and learning; (2) facilitating external research on the effectiveness of government programs and policies which will inform future policymaking; and (3) fostering public accountability and transparency by providing accurate and timely spending information, performance metrics, and other administrative data.
Commercialization, Innovation, and Public Use. The final section relates to facilitating the use of Federal Government data assets by external stakeholders at the forefront of making government data accessible and useful through commercial ventures, innovation, or for other public uses. This includes use by the private sector and scientific and research communities, by state and local governments for public policy purposes, for education, and in enabling civic engagement. Enabling external users to access and use government data for commercial and other public purposes spurs innovative technological solutions and fills gaps in government capacity and knowledge. Supporting the production and dissemination of comprehensive, accurate, and objective statistics on the state of the nation helps businesses and markets operate more efficiently.

Aside from the development of the Federal Data Strategy, the U.S. government has also previously issued a number of open data and public access policies and directives to promote access to government-supported science data and scholarly communication, including:

- White House Office of Management and Budget “Open Government Directive” (2009);
- Executive Order 13642, “Making Open and Machine Readable the New Default for Government Information” (2013);
- White House Office of Management and Budget, Memorandum for the Heads of Executive Departments and Agencies, “Open Data Policy—Managing Information as an Asset” (2013);
- White House Office of Science and Technology Policy (OSTP), Memorandum for the Heads of Executive Departments and Agencies, "Increasing Access to the Results of Federally Funded Scientific Research" (2013); and the

Of primary significance to the United States’ public access initiatives is the 2013 OSTP Memorandum listed above. Through that Memorandum, the OSTP Director instructed each U.S. Government agency funder with over $100 million in annual conduct of research and development expenditures to develop a plan to increase public access to peer-reviewed scholarly publications and the associated digital scientific data necessary to validate the published research findings. Generally, each agency plan was required to provide strategies for maximizing access to, and increasing the findability and reusability of, research results funded by that U.S. Government agency. In providing such access, agencies were required to address concerns by protecting data 1) relating to personal privacy, 2) subject to intellectual property rights, or 3) that could harm U.S. national, homeland, and economic security. In addition, agencies had to balance benefits associated with long-term preservation and access with the costs and administrative burden of the data’s curation and storage.

Since the Memorandum’s issuance, all of the more than twenty applicable U.S. agencies have developed, through active engagement with relevant U.S. scientific communities and other stakeholders, public access policies. These agencies accounted for than $110 billion in R&D spending in Fiscal Year 2017. These uniquely tailored public access policies vary across agencies, but share common elements regarding digital scientific data. Specifically, U.S. agency policies generally require that government-supported research activities develop, submit and comply with data management plans (DMPs) to outline how data (collected or generated)
will be managed, shared and preserved over the full data lifecycle. The U.S. Government acknowledges the diversity of research community practices regarding data and Federal agencies accordingly provide flexibility in the types of DMPs they accept and in their assessment of their merits. Agencies also generally have evaluation procedures that accommodate variability in DMPs and allow for the inclusion of appropriate costs of data management and access in proposals for federal funding.

In addition to each Federal agency’s adoption of public access policies, the U.S. Government established the Subcommittee on Open Science within the National Science and Technology Council. This policy coordination group, formed in 2018 and growing out of an earlier interagency public access working group, oversees implementation of agency open access policies and coordinates the incorporation of open science principles across the U.S. Government agencies. The Subcommittee also works to improve and synchronize the preservation, discoverability, accessibility, and usability of U.S. Government funded scientific research and its supporting data. To carry out these functions, the group meets monthly to collaborate on open science policies and initiatives and to serve as a sounding board for agencies as they implement their public access plans. Importantly, it provides a location for policy coordination for the multitude of scientific research funders across the Federal government and acts as a forum for the exchange of information about agency policies with the end of broadening open science principles.

Overall, the aforementioned policy activities provide directed guidance and oversight to U.S. Government funders to maximize the public availability and utility of government-generated and government-funded scientific research data. While they establish broad public access mandates, they also provide each U.S. agency funder with flexibility to tailor those requirements to address its specific research mission and to obtain and incorporate the perspectives of the scientific communities it serves.

The U.S. policies reinforce those adopted by the broader international community including, but not limited to, the G8 Open Data Charter, and the OECD Principles and Guidelines for Access to Research Data from Public Funding.