

National Data Service (NDS) A Shared Vision of Success

Vision: A successful National Data Services (NDS) operates as a consortium, advancing the frontiers of discovery and innovation by enabling open sharing of data and increase collaboration within and across fields and disciplines. Success will be achieved through coordinated and concentrated efforts, developing an open environment of *federated, interoperable, and integrated* national-scale services. Researchers, scholars, and policy makers, as well as teams and large collaborations will provide guidance to NDS; in turn, NDS will help these stakeholders to efficiently, conveniently, securely, and sustainably store, curate, share, publish, access, discover, verify, attribute, visualize, and operate on all forms of scholarly, research, and policy data.

Services: Toward this vision, the National Data Service commits to identify or adapt existing data services and develop needed new services, focusing on these four core services:

- 1) *discovering* – data created or stored by scholars and researchers
- 2) *storing* – persistent copies of curated data and associated metadata for archiving, sharing, publication, or other purposes
- 3) *accessing* – data through repositories and other locations
- 4) *linking* – data with other data, with publications, and credit for reuse

Data: The term data is used broadly to encompass any digital information deemed important for research, including experimental and observational data, data collections, simulation results, computer software, analytics, visualizations, and other tools that enable the use or interpretation of data.

Approach: Central to this environment are well-defined interfaces that allow for the development of modular, interoperable, and extensible services and tools – which NDS is committed to help assemble, coordinate or pioneer in collaboration with others. Discipline- and community-specific data services are essential components of the NDS ecosystem, operating along with general, multi-disciplinary services. Simplifying and codifying services is a related aim.

Multi-Stakeholder Partnership: The National Data Service Consortium (NDSC) is the umbrella for governance and engagement with the actual services, connecting diverse stakeholders, including data and service providers, open data consortia, large science social science, humanities and arts initiatives, data repositories, libraries, museums, publishers, funders (public and private), computation infrastructure providers, and distributed end users.

Credit for Reuse: Through the efforts of NDS, NDSC, and complementary initiatives, individual scientists, science teams, disciplinary and multi-disciplinary projects and, large-scale research initiatives can track reuse and receive appropriate credit for sharing data and models. Funders can demonstrate compliance with open data directives and better enable broader impacts in science and society.

Impact: Short-term measures of success include the establishment and operation of pilot projects, the development of a formal and informal systems of communication and coordination, the engagement of initial charter members, growth of new members, partnership agreements with related consortia, and documentation of lessons learned from pilot service offerings. Longer-term measures of success include an increase in absolute numbers and relative proportions of research data that is shared and reused across fields and disciplines, new collaborations that are enabled by reuse, adoption and use of common methods for citing data and providing credit for use, and documented progress on scientific and societal challenges that would not otherwise have occurred.