

Data Acquisition, Management, Sharing and Ownership

Introduction

Research data management is essential to protect research integrity and intellectual property, ensure confidentiality, and comply with sponsor requirements. To conduct research responsibly, researchers must understand how to treat data correctly. Research integrity leaders will help guide the researcher in seeking and applying appropriate procedures regarding research data.

Government and institutional rights in research extend to the acquiring and maintaining of research data, and the recording and storing of electronic data containing the results of scientific research. Accepted practices for protecting Government and institutional rights regarding research data are not always or specifically guided by research integrity standards alone. To ensure that Government and institutional rights regarding data are properly protected, the researcher must seek specific direction and guidance from relevant leaders and sources, including applicable DoD directives and instructions on all levels. In addition, it is critically important that researchers review requirements from relevant Offices of Counsel and or Offices of the Staff Judge Advocate.

Definitions

The following definitions, from a variety of studied resources, are useful.

- Data is a representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automatic means. Any representations such as characters or analog quantities to which meaning is, or might be, assigned
- The term *data* means groups of qualitative or quantitative information or variable sets compiled from measurements.
- Experimental data arises from observation and recording in a scientific investigation.
- Factual information often in the form of facts or figures is obtained from experiments or surveys, used as a basis for making calculations or drawing conclusions.
- Field data is raw data collected in an unrestrained *in situ* setting.
- Raw data is unprocessed numbers, characters, images or device outputs collected as information. Raw data is processed in phases. Processed data from one phase may be raw data for a subsequent phase.
- Data may be in the form of electronic and paper records. Information from computer processing (e.g. numbers, text, images, and sounds) may be processed and archived in forms suitable for storage in or used by various information technologies.

Core Points

1. Information and knowledge are often overlapping ideas. The key point is the level of abstraction. Data is the lowest level of abstraction, followed by information, with knowledge as the highest level.
2. Meticulous data management practices support the validity of findings. Responsible availability of data maintains and promotes research integrity. Data containing protected personal identifiable information (PPI) must be safeguarded to ensure against improper disclosure. This protection applies to all DoD activities that collect, maintain, or disseminate PPI and to all Government personnel as well as activities by contractors, vendors, and other entities that develop, procure, or use Information Technology (IT) systems under contract to DoD, to collect, maintain, or disseminate Information in Identifiable Form (IIF) from or about members of the public. For more detailed information on this matter, one should consult the Privacy Act (5 USC § 552a) and SECNAVINST 5211.5E. These are listed in the final section of this chapter with other important and useful resources.
3. Laboratory books are of vital importance in safeguarding intellectual property and the integrity of Government research. The original laboratory books are the property of the Government, not the property of individual researchers. As such, these records must be properly stored and catalogued. Furthermore, they need to be accessible after the researcher leaves a duty station or laboratory.
4. Record management through safeguarding of records is important to protect Government interest in inventions (i.e., patenting) and in protecting the individual property rights. For more detailed information on this matter, one can consult the Privacy Act.
5. Regarding electronic files: Government files should not be stored in personally owned computers. Electronic files should be stored in CD's or in a Government approved computers/data-bases.
6. Regarding the protection of intellectual property: It is the responsibility of Government employees to ensure that Government intellectual property rights are protected. For those assisting government efforts under contract, a careful review of the provisions of the Bayh-Dole Act are important. These are summarized generally at the end of this section.
7. The Federal Government can obtain patents to inventions of Government employees or to inventions funded through Government funds. There are multiple reasons to obtain patents to these inventions, including preventing the Government later paying royalties for inventions it funded. Additionally, through license agreements with commercial sector entities, the Government can help further technologies for which it does not have adequate funding and to obtain royalties, which can be used to provide for further research. Additionally, trademarks can be obtained in order to protect Government trade names. In deciding whether to obtain a patent or trademark, researchers must consult with their respective Government patent attorney.

8. Regarding government ownership of inventions made by Government employees: This is an intense and critically important area requiring due diligence and careful compliance. The Government can retain the title to an invention made by a Government employee under diverse conditions. This includes if the invention was conceived or first reduced to practice during working hours. It can also include cases where Government resources were used for the invention, or if the invention was a direct result of an employee's official duties. However, depending on circumstances and evaluation, the Government may leave title with the employee but retain a royalty-free, irrevocable, nonexclusive license in the invention with power to grant licenses for all governmental purposes. Due to the complexity of these factors in various circumstances, researchers are to consult with their local Offices of Counsel or Office of the Staff Judge Advocate for direction.
9. Regarding Copyrights: The works of the U.S. Government are not copyrightable. Therefore, works by Government employees will not be protected under a copyright. However, aspects of a joint work by Government and non-Government personnel may be copyrightable if the elements of the work are able to be separated. These and other circumstances regarding copyrights are very complex. For example, there is a need to receive direction regarding works done by non-government personnel on grants and contracts etc. Due to all of the diverse factors and circumstances surrounding this topic, it is not possible to have one facile summary. Therefore, regarding copyrights, continued direction from Offices of Counsel or Offices of the Staff Judge Advocate is essential.
10. Regarding Bayh-Dole rights (i.e., contractors): Contractors have certain intellectual property rights to inventions conceived by contractor employees made during the course of the respective contract. This was established under the Bayh-Dole Act of 1980; can be found at 35 USC § 200 – 212; and is implemented in 37 CFR § 401. Briefly, contractors can take title of their employee inventor within two years after disclosure of the invention to the Government. If they do elect title, the contractor is to ensure patent applications are filed prior to any statutory bar. The Government still retains a title interest afforded by any Government inventors associated with the invention. Furthermore, the Government retains a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States any subject invention throughout the world. Researchers and institutions should carefully review with their respective Government patent attorney the provisions of the Bayh-Dole Act and be mindful of its impact and avenues upon the mission and results of research efforts.

Summary:

To conduct research responsibly, researchers must understand how to treat data correctly. Good data management requires a thoughtful data management plan.

This plan should address the following elements:

- Determining what data will be collected,
- How it will be recorded,
- Who will perform the collection;

- What analysis methodologies will be used;
- What criteria will be established to accept or reject data;
- What results will be published;
- When and where results will be submitted for publication;
- How, where and for how long the records will be retained;
- Who will have record-keeping responsibility;
- What results might be shared;
- When and how results could be shared; and,
- Who has decisional authority for the sharing of data/results.

It is incumbent upon Government employees to protect the privacy of individuals and the interests of the Government. Personnel should have an understanding of procedures to protect Government interests. Institutions must implement procedures and methods to ensure these interests are, in fact, protected.

Points for Reflection:

1. Prior to publication, if preliminary results may have bearing on other research, what are the implications for sharing the preliminary data?
2. What are possible strategies to use during research proceedings to protect individual privacy and Government interests?
3. What would be the key elements to promote clear research team communications?

Resources:

15 U.S.C. 290e

28 USC 1498

5 USC § 552a

SECNAVINST 5211.5E

35 USC § 200 – 212

37 CFR § 401

17 U.S.C. 105

Kulakowski, Elliot C. and Chronister, Lynne, U. (2006) Research Administration and Management. Jones and Bartlett Publishers

Wikipedia <http://en.wikipedia.org/wiki/Data> retrieved 29 June 2010