

RESEARCH DATA AND MANAGEMENT

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RESEARCH DATA AND MANAGEMENT

Research data management

- Encompasses creating, finding, organizing, storing, sharing, preserving and dissemination data within any research process;
- Describes the process of organizing, storing, preserving, and sharing of data collected and/or used in research projects;
- A broad range of activities and strategies related to the storage, organization, and description of data and related research materials.

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Why research data management?

- Have potential monetary value;
- Reduce cost of data duplication;
- Open science initiatives;
- Advance human knowledge;
- Helps with quality control and prevents data from being lost or made inaccessible;
- Evidence based for rational decision making;
- Drive competitive advantages and regulatory compliance;
- Ensure the usability of data sets—both for the original research team and for others and
 - Increases the efficiency of the research process and collaborative work

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Challenges of research data management

- Shortage of expertise to effectively manage data;
- Low motivation on data deposit;
- Lack of regulatory frameworks in some institutions and countries;
- Lack of consistency in the conceptualization and implementation of RDM;
- Legal and ethical constraints;
- Poor infrastructure and data loss.

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Research data

- Quantitative information or qualitative statements collected by researchers in the course of their work by experimentation, observation, modeling, interview, surveys and other methods or information derived from existing evidence;
- Factual records or information used as sources of scientific research;
- Are facts, observations, or experiences on which an argument or theory is constructed or tested;
- Data may be raw, abstracted, analysed, experimental or observational;
- An evidence that underpins the answer to the research questions, and can be used to validate findings regardless of its form.

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Types of research data

- Experimental results;
- Questionnaire survey results;
- Measurements collected in the field;
- Images and sound recordings;
- Historical documents;
- Physical objects;
- Government surveys;
- Transcripts from interviews and focus group discussions;
- Social media data;
- Logs of web server traffic;
- Software outputs and others.

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Formats of data

- Documents (e.g. text, PDF, Ms Word);
- Spreadsheets (e.g., Ms Excel);
- Questionnaires, transcripts, and codebooks;
- Notebooks and diaries;
- Images;
- Audiotapes and video tapes;
- Film and photographs;
- Artifacts, slides, specimens, and samples;
- Databases (e.g., Access, MySQL, Oracle);
- Log files;
- Models, scripts and algorithms;
- Collection of digital objects and others

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Role of research data in open science

- Research data is the foundation and integral of open science;
- Enhance access, usage and re-use of research data;
- Basis for research reproducibility, verification, collaboration and knowledge sharing;
- Foster transparency and accountability in the scientific process;
- Provide an entry point for promoting open science practices like data sharing;
- Accelerate scientific discovery and improving the integrity of the scientific record.

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References

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