University of Zimbabwe Library

Understanding the basic concepts of Research Data Management

The University of Zimbabwe Library is introducing research data management (RDM) services as a way of providing holistic research support services. The purpose of this information sheet is to explain the basic concepts of RDM and to raise awareness on the importance of RDM for all researchers at the institution.

What is research data?

It is recorded factual material commonly retained by and accepted in the scientific community as necessary to validate research findings. Although usually digital, research data also includes non-digital formats such as laboratory notebooks, sketchbooks and diaries.

Types of research data

Research data may take a variety of formats depending on the type of research. It may include:

- audiotapes, videotapes
- collections of digital outputs
- contents of an application (input, output, log files for analysis software, simulation software, schemas)
- data files
- database contents (video, audio, text, images)
- documents, spreadsheets
- laboratory notebooks, field notebooks, diaries
- methodologies and workflows
- models, algorithms, scripts
- photographs, films
- questionnaires, transcripts, codebooks

- slides, artefacts, specimens, samples, gene
- Software applications-source code
- standard operating procedures and protocols
- test responses

Adapted from (University of Leeds, 2020)

Sources of research data

Research data can be generated for different purposes and through different processes. These may include:

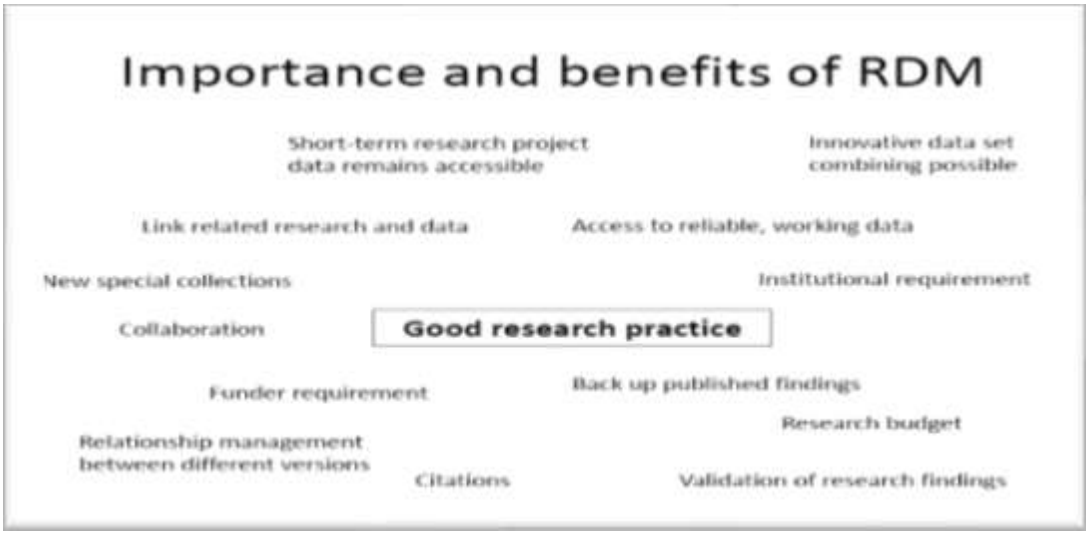
- **Derived or compiled data** has been transformed from pre-existing data points. It is reproducible if lost, but this would be expensive. Examples are data mining, compiled databases, and 3D models.
- **Experimental data** is captured from laboratory equipment. Examples of experimental data are gene sequences, chromatograms, and toroid magnetic field data.
- **Observational data** is captured in real-time, and is usually irreplaceable, for example sensory data, survey data, sample data, and neuro-images.
- **Reference or canonical data** is a static or organic conglomeration or collection of smaller (peer-reviewed) datasets, most probably published and curated. For example, gene sequence databanks, chemical structures, or spatial data portals.
- **Simulation data** is generated from test models where model and metadata are more important than output data. For example, climate models and economic models.
  Adapted from (University of Leeds, 2020)

What is research data management?

Research data management can be defined as the active collection and organisation of research data produced in particular investigations or research projects from its entry to the research cycle taking into account processes and activities involving the design and creation of data, storage, security, preservation, retrieval, sharing, and reuse; bearing in mind technical capabilities, ethical considerations, legal issues and governance frameworks (Chiware & Mathe, 2015; Pinfield, Cox & Smith, 2014; Tenopir et al, 2017).

Why research data management?

The following are some of the benefits that can be accrued from research data management:



Source (Khan, 2016)

For contributions to the research data management project, contact the Library on email: library@uzlib.uz.ac.zw

References

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