

Introduction to Research Data Management



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Please, sign the attendance list below.

Vysielanie aktuálne nie je spustené



▀ Vedecká komunikácia a otvorená veda pre doktorandov / Scholarly communication and open science for doctoral students

Prednášky pre doktorandov STU. 17. 2. 2026: Vývoj vedeckej komunikácie, Open Access a Open Science / The development of scholarly communication, Open Access and Open Science – Zuzana Stožická, 3. 3. 2026: Archivácia a manažment výskumných dát / Archiving and management of research data – Silvia Sofianos a Gabriela Fišová, 28. 4. 2026: Hodnotenie vedy a výskumu, viditeľnosť vedy / Evaluation and visibility of science – Alena Uhnáková, 12. 5. 2026: Hodnotenie vedy – požiadavky na publikovanie v kvalitnom vedeckom časopise / Research evaluation – requirements for publication in a high-quality scientific journal – Alena Uhnáková.

What we are going to talk about today:

- Introduction to management of research data
- FAIR data
- Data archiving and repositories
- Data management plans

Introduction to Research Data Management



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Data explosion

- 90% of the world's data was produced in the last 2 years
- 80% of these data is unstructured
- Data that we want to share must be:
 - High quality data
 - Well described and structured
 - Well stored and accessible

Why to take care of data?

- Because research funders and institutions, publishers and other scientists are interested in them

What your research supposedly looks like:

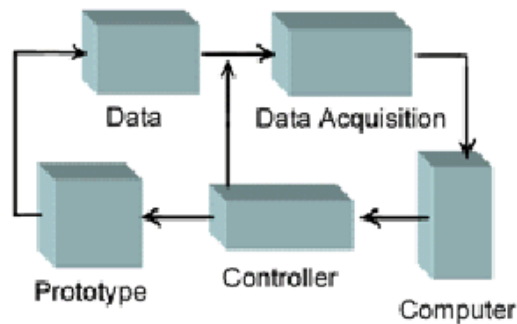


Figure 1. Experimental Diagram

What your research *actually* looks like:

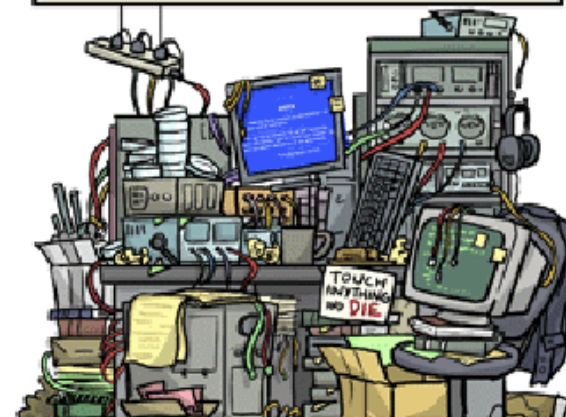
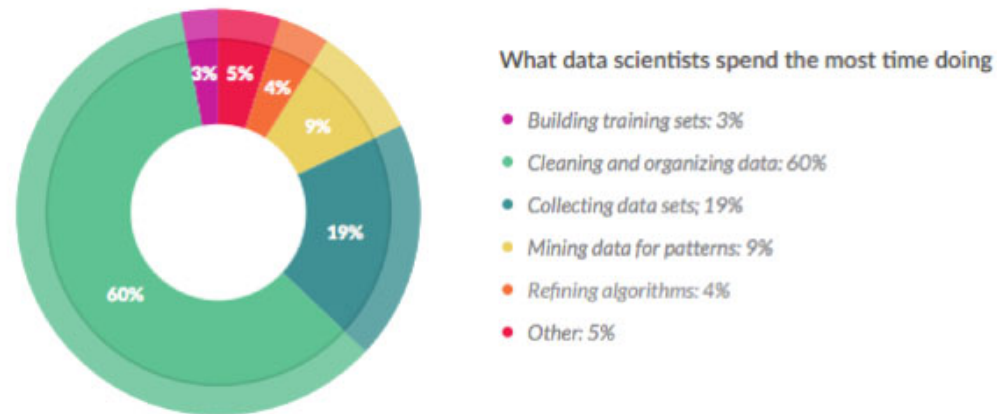


Figure 2. Experimental Mess

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Management of research data – good practice

- Continuity in labs
- Hidden knowledge
- More time to study the topic
- I lost my USB stick – 2 years of work are lost!



Research Data Lifecycle



Types and forms of research data

Types of reserach data

- Observational data
- Experimental data
- Simulation data
- Compiled data
- So-called reference data

Forms of research data

- Text, tables
- Laboratory protocols,
- Archaeological reports,
- Questionnaires,
- Transcripts,
- Audio/video tapes,
- Database content,
- Models, algorithms, programs,
- Methodologies and workflows,
- Artifacts

Metadata

- Different scientific disciplines have their own metadata standards:
 - Darwin Core (geographical distribution of species)
 - Ecological Metadata Language (for ecology)
 - Visual Resources Associations Core (visual arts)
 - Institute of Electrical and Electronics Engineers (IEEE) Learning Object Metadata (LOM) standard
 - Metadata for the OASIS Security Assertion Markup Language

Data steward

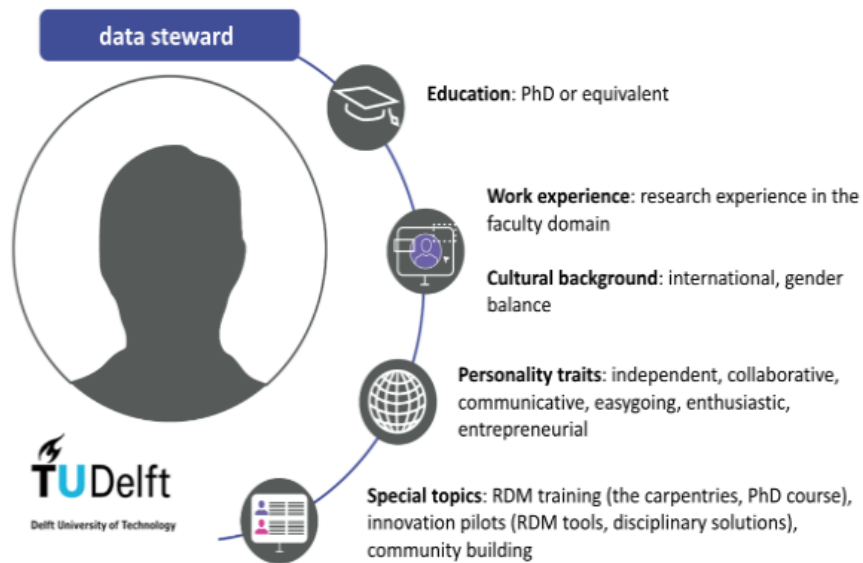
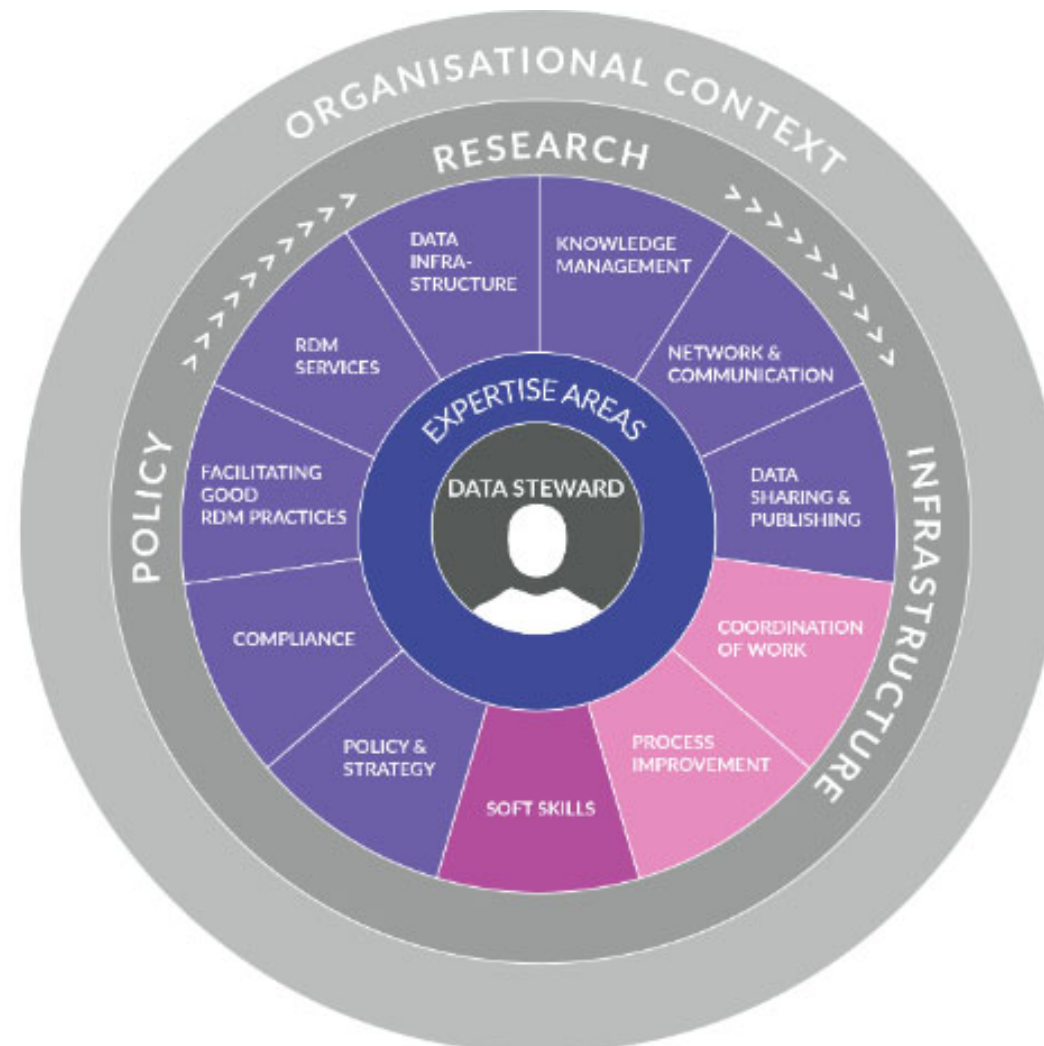


Figure 3.1 Delft University of Technology data steward

Data steward in the organisation	Training for data stewards
 <ol style="list-style-type: none"> 1. Appointment explicit part of RDM policy 2. Positioned at the research institute 3. Additional RDM support for centralised tasks at library 4. No formal central coordination, library is informal linking pin 	 <ol style="list-style-type: none"> 1. Training organised by the coordinator 2. Formal RDM training 3. Training on TUD research support
Learning on the job	Strengths and challenges
 <ol style="list-style-type: none"> 1. Structured mentoring 2. Internal peer support (data stewards team) 3. External peer networks 4. Soft skills development: training and on the job 5. Gaining relevant research expertise 	 <ol style="list-style-type: none"> 1. Strength: well-organised (coordination) 2. Strength: institutional buy-in 3. Strength: sustainable 4. Strength: team-feeling among the data stewards 5. Challenge: expensive (9 FTE)

Source: <https://zenodo.org/record/4623713#.Yhda5JY1U2x>

Data steward



Benefits of publishing data openly

- Benefits for researchers (increased research credibility, increased visibility of their work, career growth, better understanding of the field)
- Benefits for research (accelerated pace of research, increased public trust in research)
- Benefits for society (improved real-world impact of academic research, public engagement in research)

What are the possible barriers to publishing data openly?

