UiO : University of Oslo Library

Data Discovery

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Materials developed as part of the *Skills development for research data* project:
https://www.ub.uio.no/english/about/projects/rdm-skills/

Source: RDMKit, Elixir Europe https://rdmkit.elixir-europe.org/

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Data discovery is finding, accessing, and reusing data collected for a different purpose or by a different researcher or institution.

In the process of data discovery and reuse you are working with **secondary data**, as opposed to **primary data** that you would collect yourself.

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Open science means transparency and **knowledge-sharing** in research processes to make knowledge **accessible** across academic groups, sectors and national boundaries. The concept of open science encompasses the entire research process […].

- The Research Council of Norway. Policy for open science

2020

"**Open Science** is becoming the modus operandi for carrying out research and innovation by **sharing knowledge, data and tools** as early as possible, in open collaboration with all relevant knowledge actors and society."

ec_rtd_horizon-europe-strategic-plan-2021-24.pdf (europa.eu)

More data sharing – more data to discover!

Global Data Creation is About to Explode

Actual and forecast amount of data created worldwide 2010-2035 (in zettabytes)

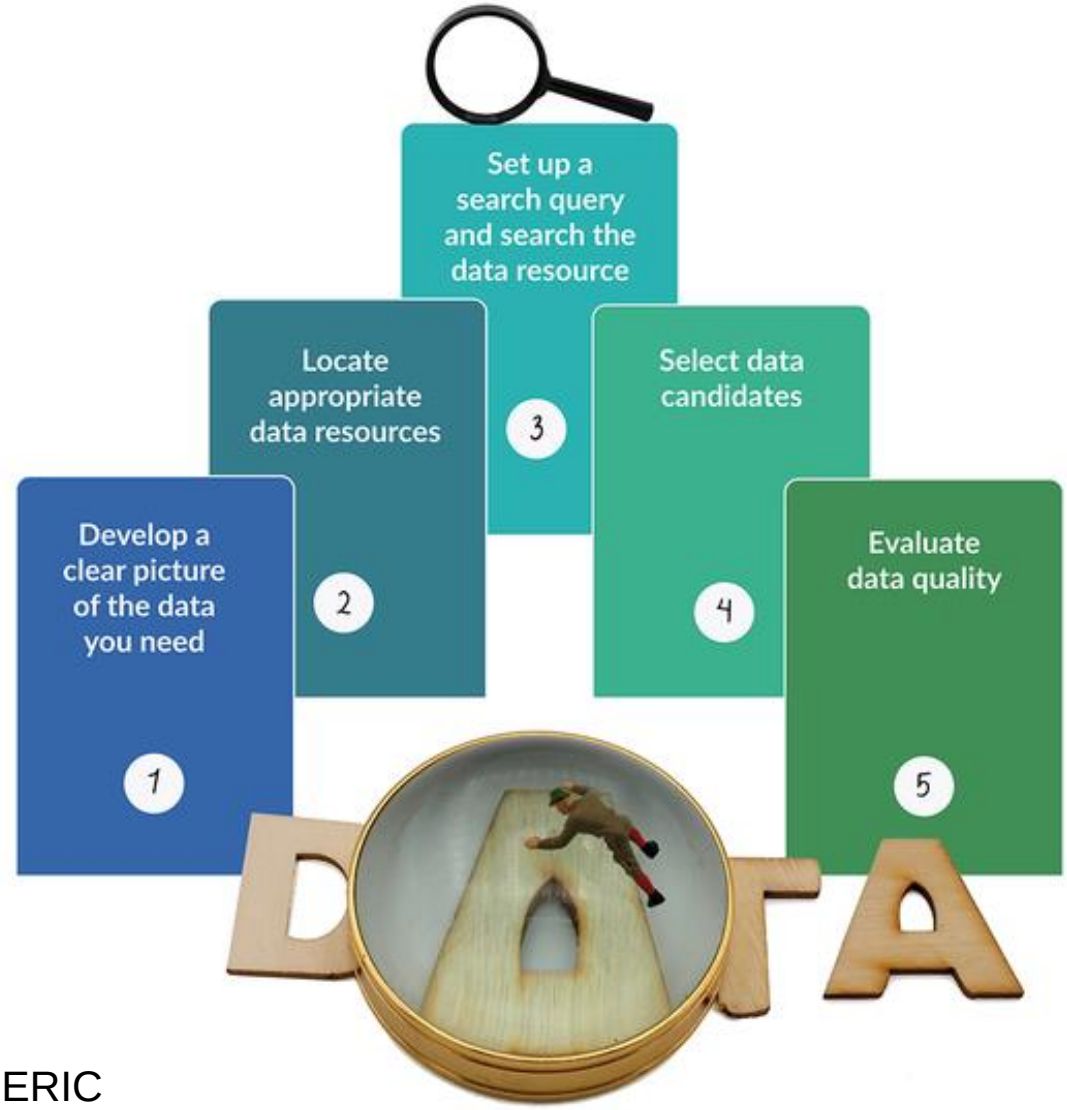
1 zettabyte is equal to
1 billion terabytes.

Source: Statista Digital Economy Compass 2019

Increasing need for data reuse

- High costs of primary data collection
- Redundancy or similarity in different sets of primary data
- High demands for storage space by increasing amount of data
- Promoting transparency, reproducibility and replication in research

Data discovery: how-to


Develop a clear picture of the data you need
1
Locate appropriate data resources
2
Set up a search query and search the data resource
3
Select data candidates
4
Evaluate data quality
5
DATA

Develop a clear picture of the data you need

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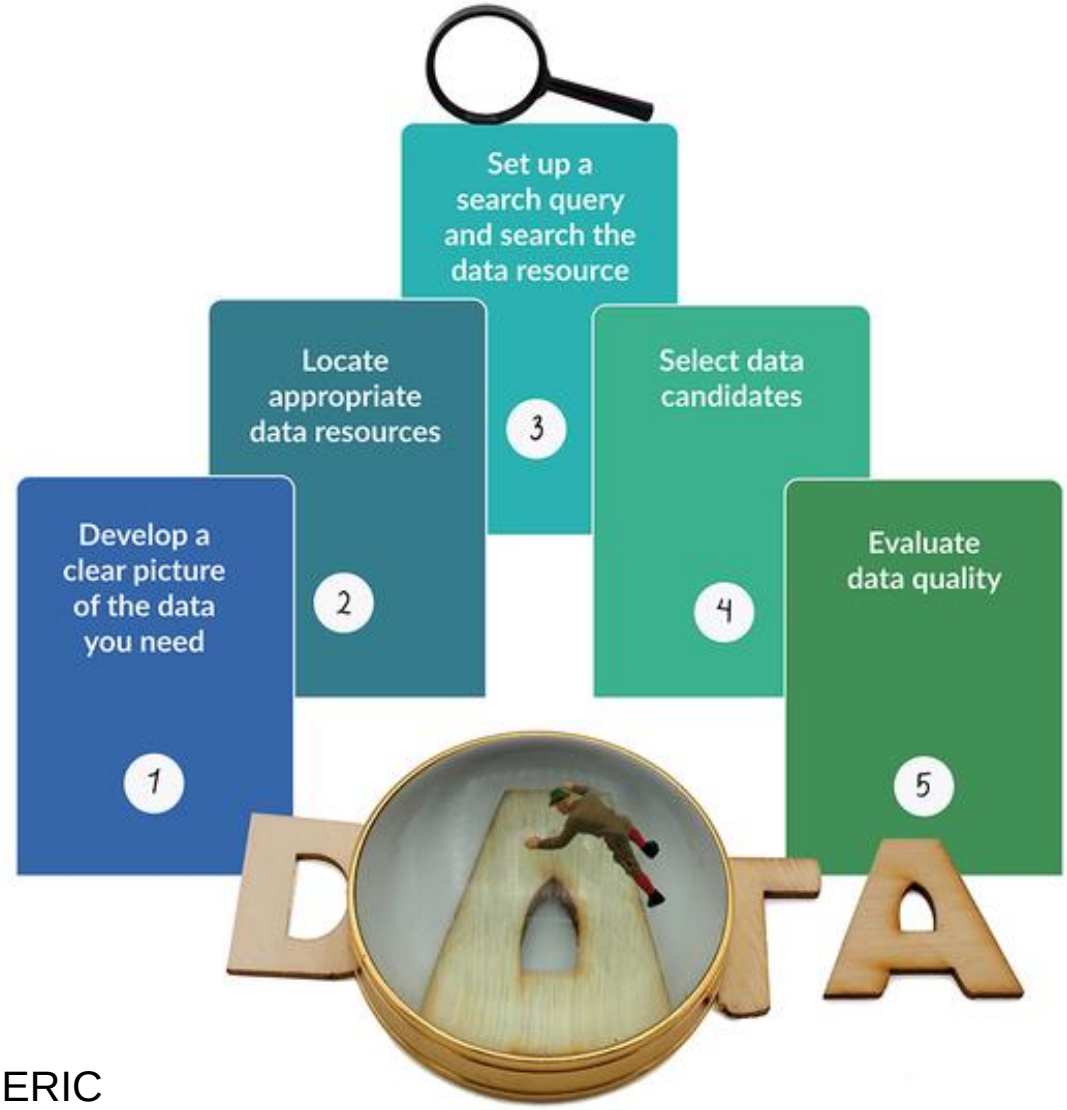
Deciding on what kind of data you need

- What is the theme/domain you study?
- What is your research question?
- What are the constructs you want to work with?
- How will you operationalize the constructs?
- What is your theory?
- What study will you perform?
- What specific characteristics should the data have?
- Do you have other preconditions?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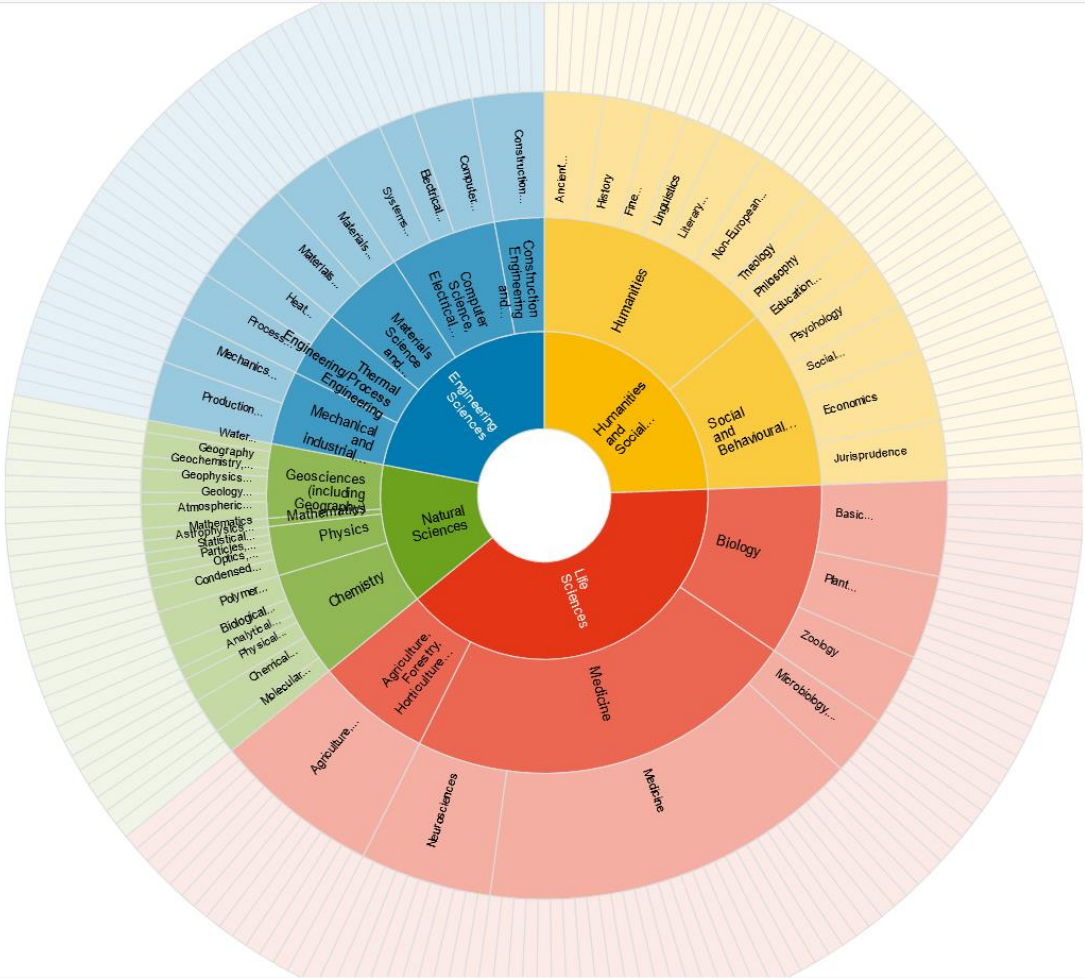
Locate appropriate data resources

Where do I look for the data?

- A registry of data repositories
- A search engine or (meta)data aggregator
- A data catalogue
- A data journal

Discipline-specific repositories

https://www.re3data.org/



Browse by subject

Filter

Reset all

Subjects

- Humanities and Social Sciences (3)
  - Humanities (1)
    - Ancient Cultures (1)
      - Classical Archaeology (1)
      - Egyptology and Ancient Near Eastern Studies (1)
    - History (1)
    - Fine Arts, Music, Theatre and Media Studies (1)
  - Social and Behavioural Sciences (1)
- Life Sciences (85)
  - Biology (85)
    - Basic Biological and Medical Research (85)
      - Biochemistry (7)
      - Biophysics (2)
      - **Cell Biology (85)**
      - Structural Biology (13)
      - General Genetics (33)
      - Bioinformatics and Theoretical Biology (26)
      - Anatomy (1)
    - Plant Sciences (10)
      - Plant Ecology and Ecosystem Analysis (1)
      - Plant Biochemistry and Biophysics (3)
      - Plant Cell and Developmental Biology (1)
      - Plant Genetics (7)
    - Zoology (13)
      - Animal Ecology, Biodiversity and Ecosystem Research (1)
      - Animal Genetics, Cell and Developmental Biology (12)
  - Medicine (45)
    - Microbiology, Virology and Immunology (21)
      - Metabolism, Biochemistry and Genetics of Microorganisms (5)

Search... Search

Toogle short help

← Previous 1 2 3 4 Next →

Sort by

Found 85 result(s)

STRING

Known and Predicted Protein-Protein Interactions

Subject(s)	Life Sciences · Biology · Cell Biology · General Genetics · Bioinformatics and Theoretical Biology · Basic Biological and Medical Research
Content type(s)	Raw data · Structured graphics · Plain text · Archived data · Networkbased data · other
Country	Germany · European Union · Switzerland · Denmark

STRING is a database of known and predicted protein interactions. The interactions include direct (physical) and indirect (functional) associations; they are derived from four sources: - Genomic Context - High-throughput Experiments - (Conserved) Coexpression - Previous Knowledge STRING quantitatively integrates interaction data from these sources for a large number of organisms, and transfers information between these organisms where applicable.

IMEx

The International Molecular Exchange Consortium

Subject(s)	Cell Biology · Microbiology, Virology and Immunology · Basic Biological and Medical Research · Biology · Life Sciences · Medicine
Content type(s)	Scientific and statistical data formats · Networkbased data · Structured text · Structured graphics · other
Country	United Kingdom · European Union · United States · Italy · India · Canada · France · Singapore · International

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MODEL OUTPUT
OCEANOGRAPHY
ATMOSPHERE
DATA PRODUCTS

NEWS

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DATA PUBLICATION HIGHLIGHTS

12 November 2018

High-Resolution Benthic Mg/Ca Temperature Record of the Intermediate Water in the Denmark Strait Across Dansgaard-Oeschger Stadial-Interstadial Cycles

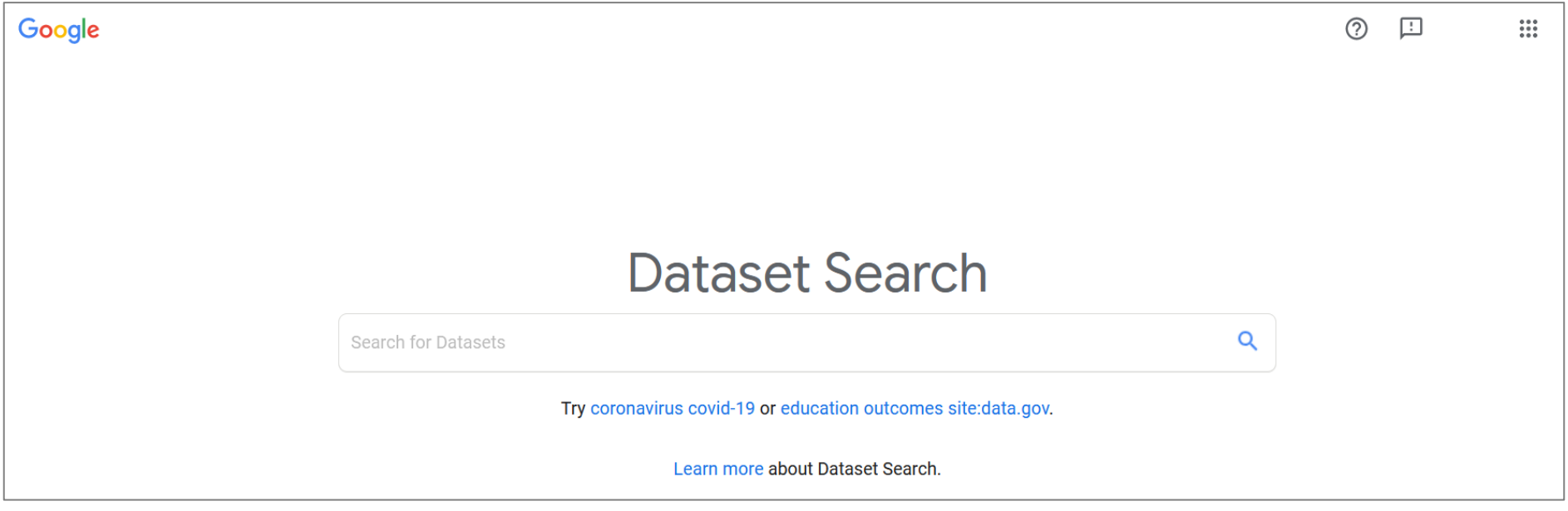
Sessford et al. have performed a high-resolution, multi-proxy analysis of the sediment core GS15-198-36CC and recently published their results.

The core was retrieved from the northern bank of the Greenland-Iceland Ridge, and exhibits a 30-year temporal resolution during the Dansgaard-Oeschger events 8-5 (40-30 ka). Multiple proxy records were measured for this time period: magnetic susceptibility, oxygen and carbon isotopes for *N. pachyderma* and *C. neoteretis*, absolute abundance of benthic species *C. neoteretis* and *E. excavatum*, and trace element ratios of benthic species *C. neoteretis*.

Discipline-general repositories

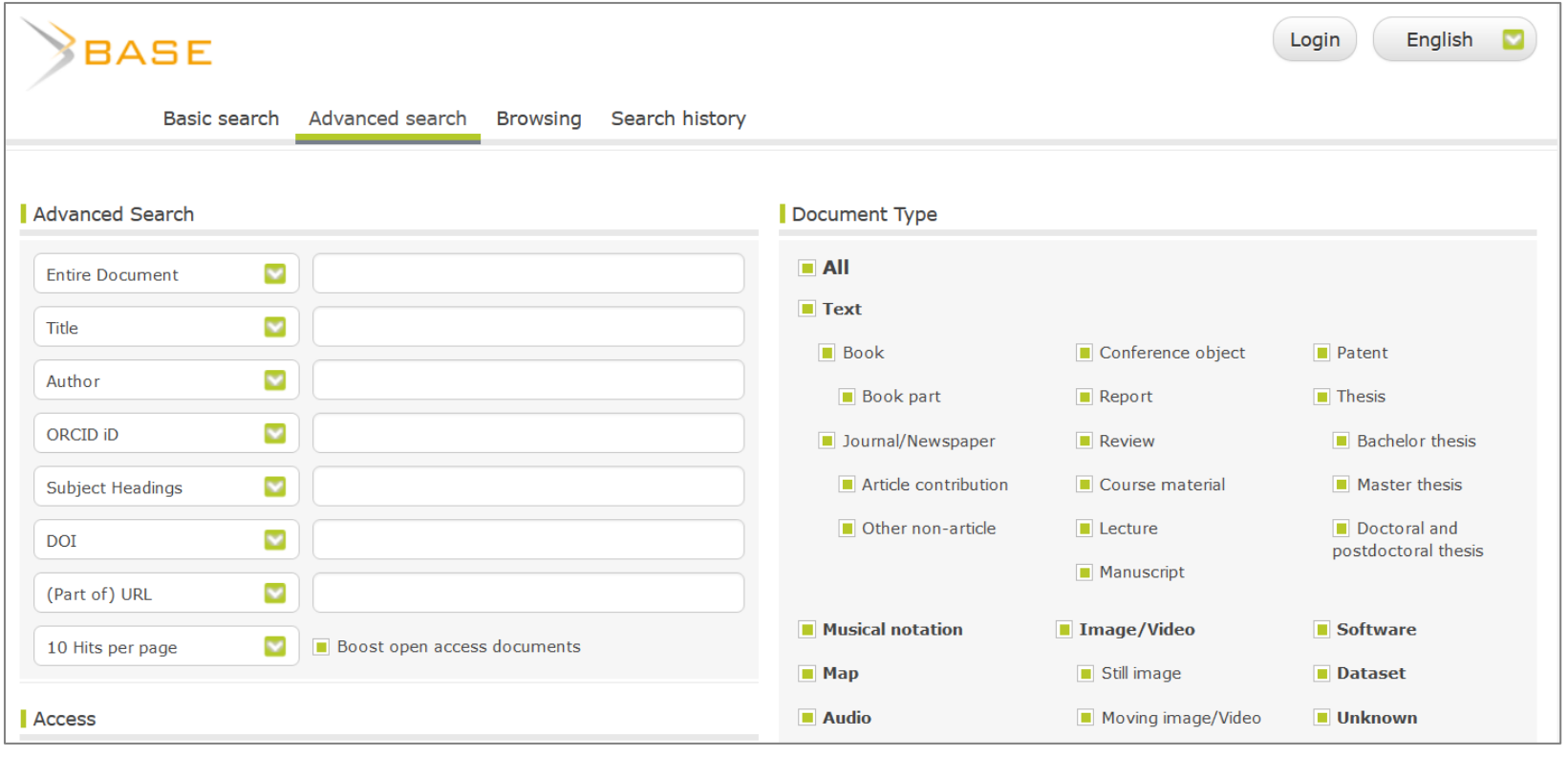
UiT Open Research Data

Search engines



https://datasetsearch.research.google.com/

Search engines



https://www.base-search.net/Search/Advanced

Data journals

Geoscience Data Journal
Open Access
RMetS

Co-Editors-in-Chief: Katherine Royse & Jian Peng

Impact factor: 2.714

2019 Journal Citation Reports (Clarivate Analytics): 74/200 (Geosciences, Multidisciplinary) 42/93 (Meteorology & Atmospheric Sciences)

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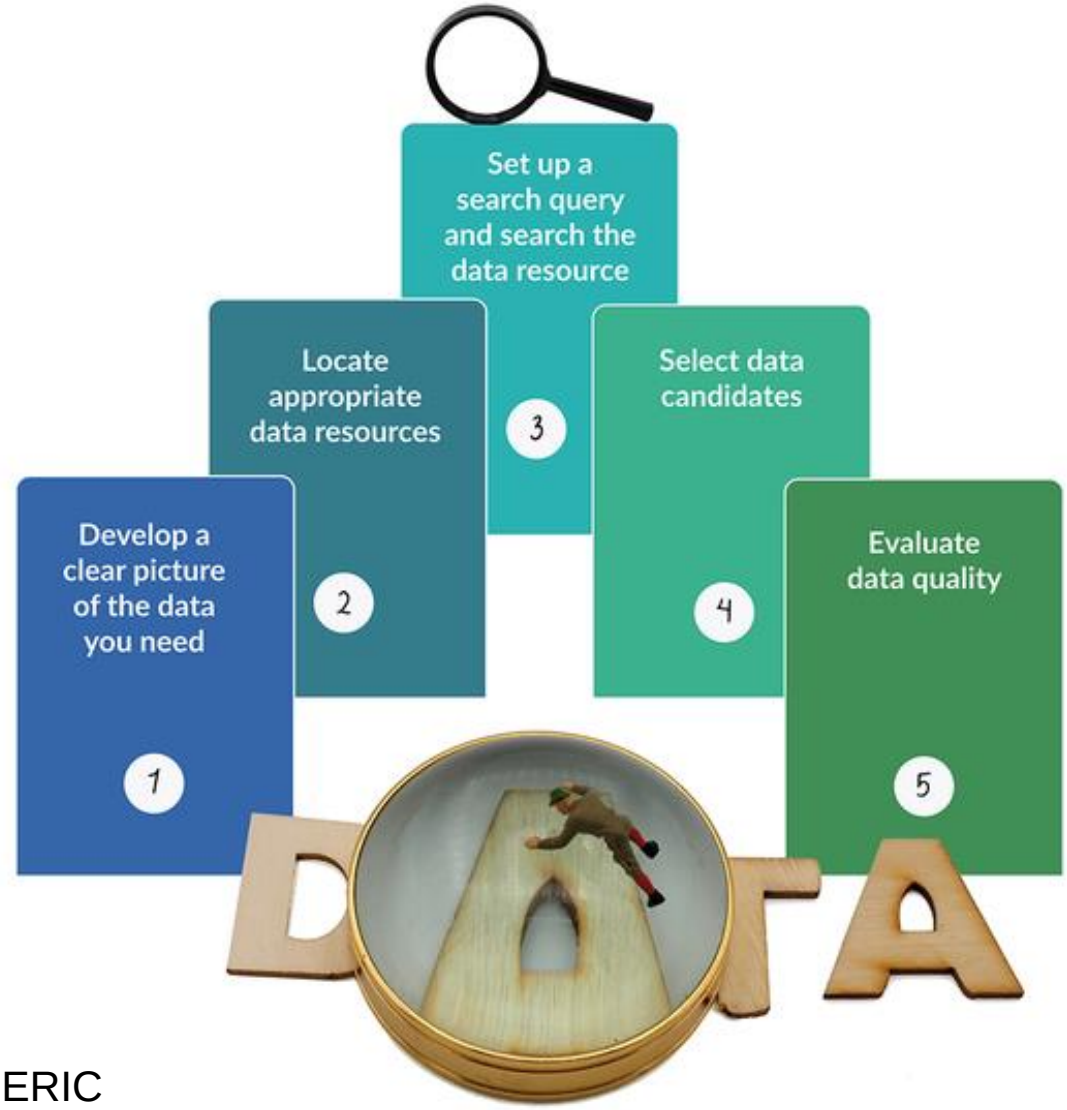
Read our key principles ▸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Set up a search query and search the data resource

How to search the data resource?

- Familiarize yourself with the structure of the data resource
- Register yourself as a user
- Learn how the data repository advanced search functions work
- Ask for help!

  - Ask your subject librarian

  https://www.ub.uio.no/english/using/guidance/index.html

  - Consult information pages

  https://sokogskriv.no/en/searching/

How to set up search queries?

Choose **keywords**

- Use the terms from your discipline
- Focus on main concepts
- Think of possible synonyms

Use **boolean operators** (if allowed)

- Terms such as AND, OR

In general search engines (e.g. Web of Science) add «data» or «dataset» to the search query or choose the type of document in the filters.

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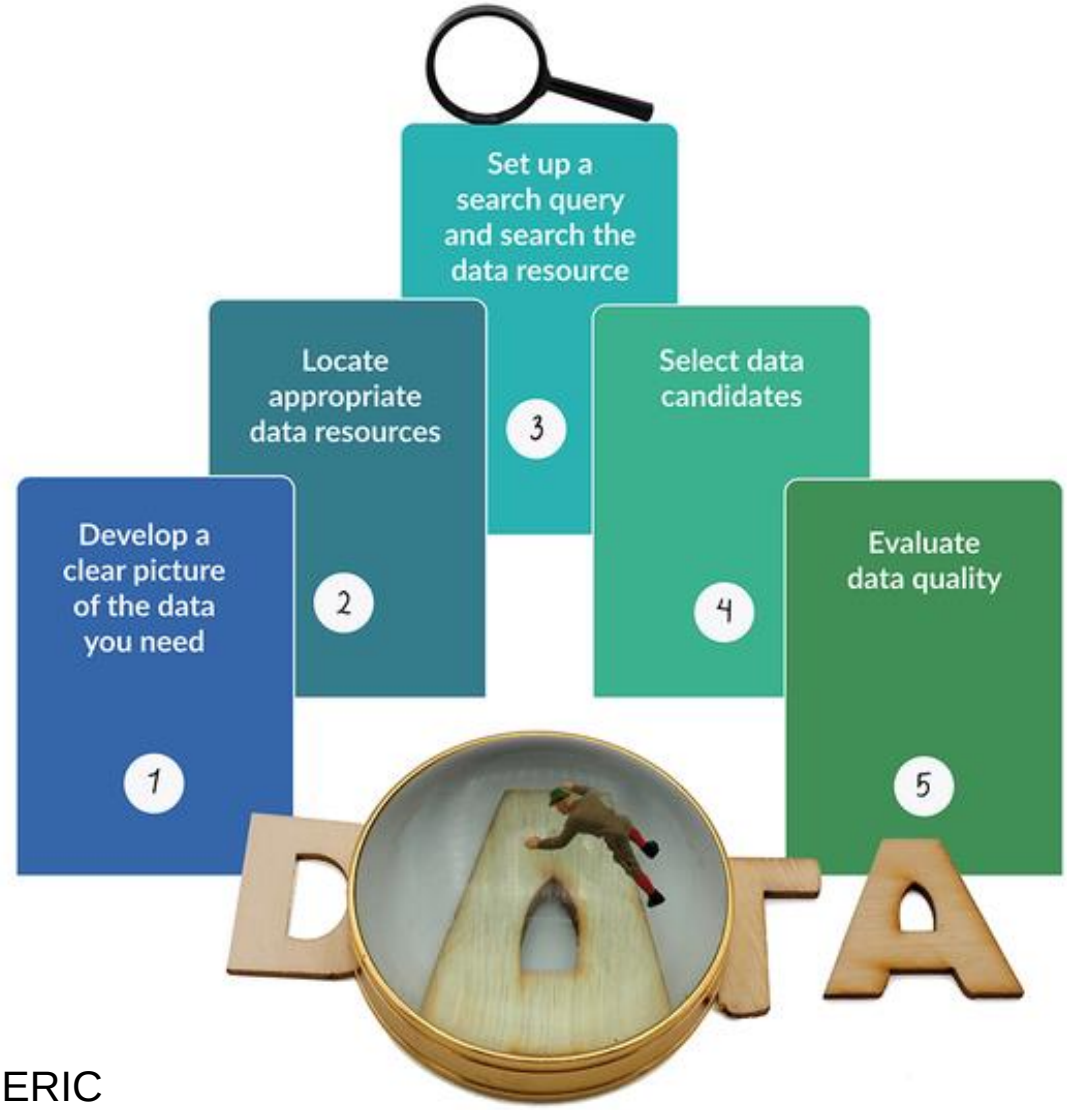
Adjusting your search: you might have to broaden or narrow down your scope

If your search is too narrow:

- Check your spelling
- Use more general search terms
- Turn off some of the filters you applied
- Use more synonyms

If your search is too broad:

- Use more specific search terms
- Use more search terms
- Use more filters
- Check the use of boolean logic (is it applied correctly?)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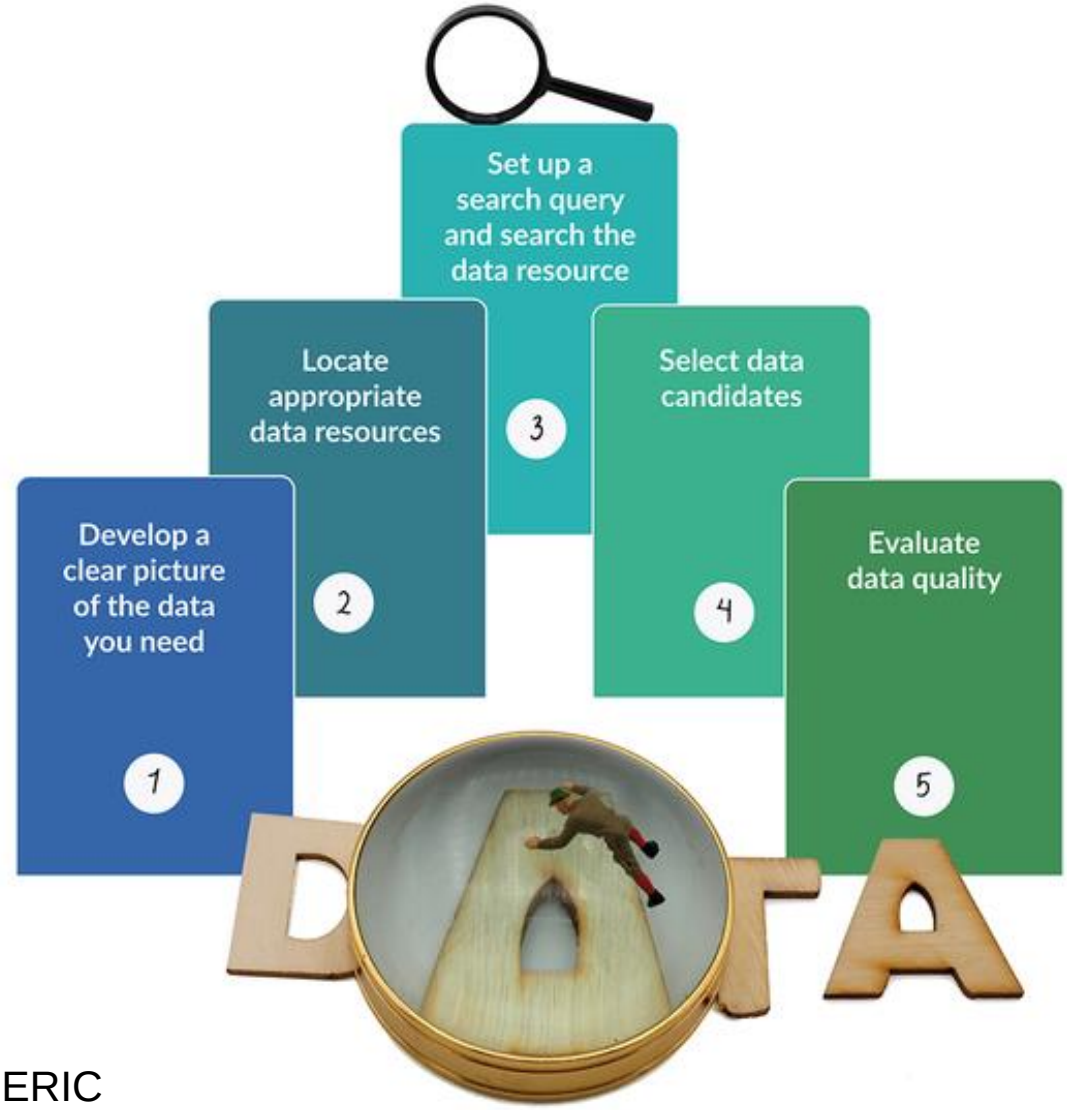
Can I use these data?

- Are the data relevant to your research questions?
- Are the concepts appropriate?
- Are the variables and the indicators appropriate?

*Check dataset documentation very carefully!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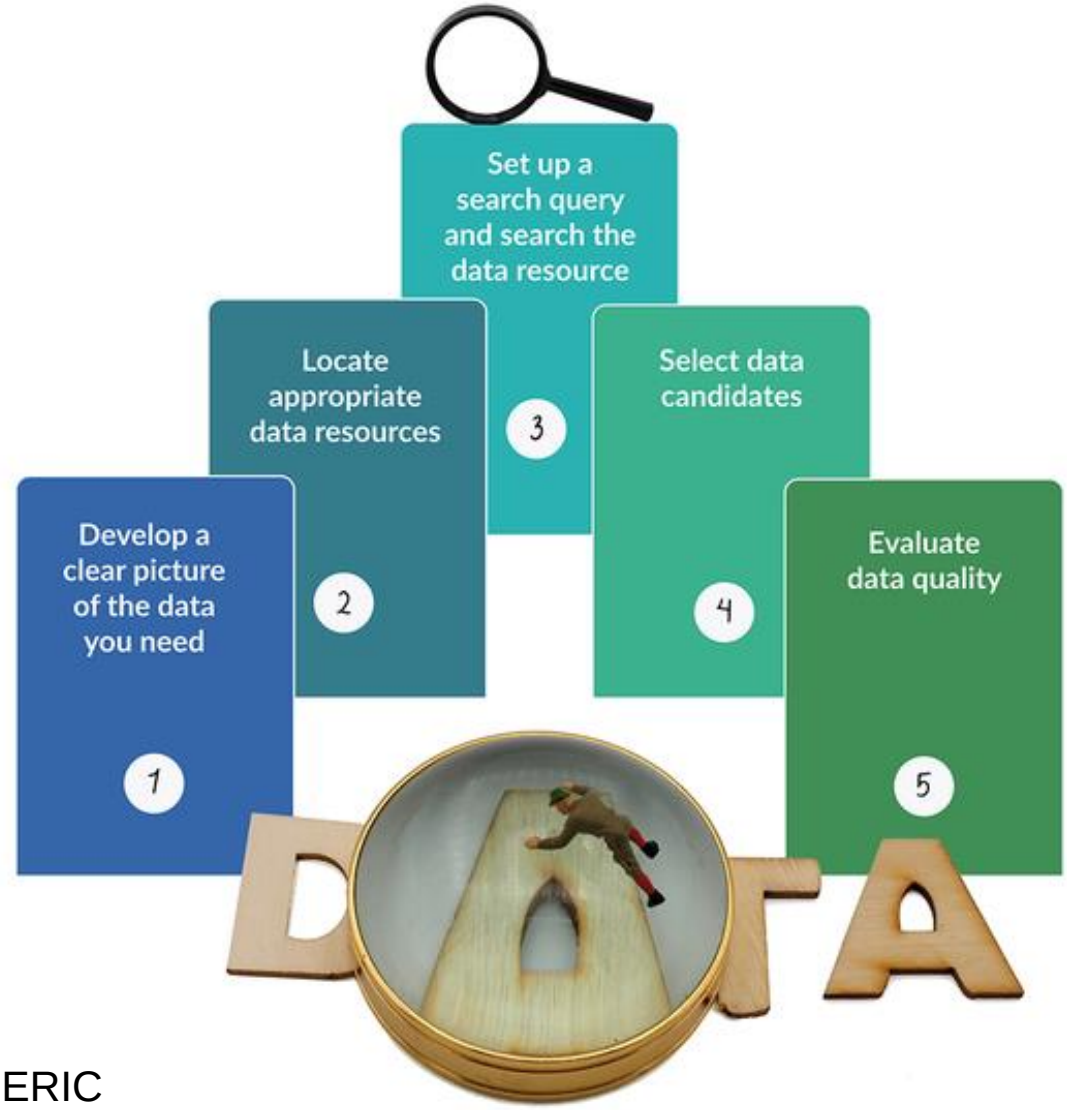
Evaluate data quality

What is the quality of the data?

- What information was collected, from whom, when and where?
- Who collected the data and when?
- Why was the data created? (research, social policy, marketing?)
- How was the data collected? (methodology)
- How was the data processed? Were there any changes in data?
- Is the data “clean” (were nonlogical and erroneous values deleted?)
- What quality assurance procedures were used? Did researchers use verified measurement tools?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Other considerations

Access the data: is it free? Do I need to register? Is the access restricted? Do I need to apply to get access?

Data format: is the format of the files correct for your analyses? Do you need to transform the files or the dataset?

Missing data: are there any missing data in the dataset? How are you going to handle missing data?

Document what you find and what you do!

Cite the data

Harvard citation style:
Author names. Year. Title of resource. [medium type]. Host institution name, Physical location. Date of access. Identifier

Vancouver citation style
Author names. Title of resource [medium type]. Host institution name: Physical location; Year of publication. [Date accessed]. Available from: Identifier

Cite the data

Harvard citation style example:
Scarrow, S., Webb, P., Poguntke, T., 2017, Political Party Database, 2011-2014, [data collection], UK Data Service, Accessed 17 October 2018. SN: 8265, http://doi.org/10.5255/UKDA-SN-8265-1

https://search.nsd.no/

Case 1

Dataset: Human Bodily Micromotion in Music Perception and Interaction

NORSK SENTER FOR FORSKNINGSDATA

Case 2

Replication data for: What makes a word easy to acquire?

https://doi.org/10.1098/rstb.2015.0219

Case 3

Discover and reuse the data from literature!

PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B

BIOLOGICAL SCIENCES

Open Access

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Research article

How many dinosaur species were there? Fossil bias and true richness estimated using a Poisson sampling model

Jostein Starrfelt and Lee Hsiang Liow

Published: 05 April 2016 https://doi.org/10.1098/rstb.2015.0219

Case 4

Discover qualitative data: NorFisk Dataset

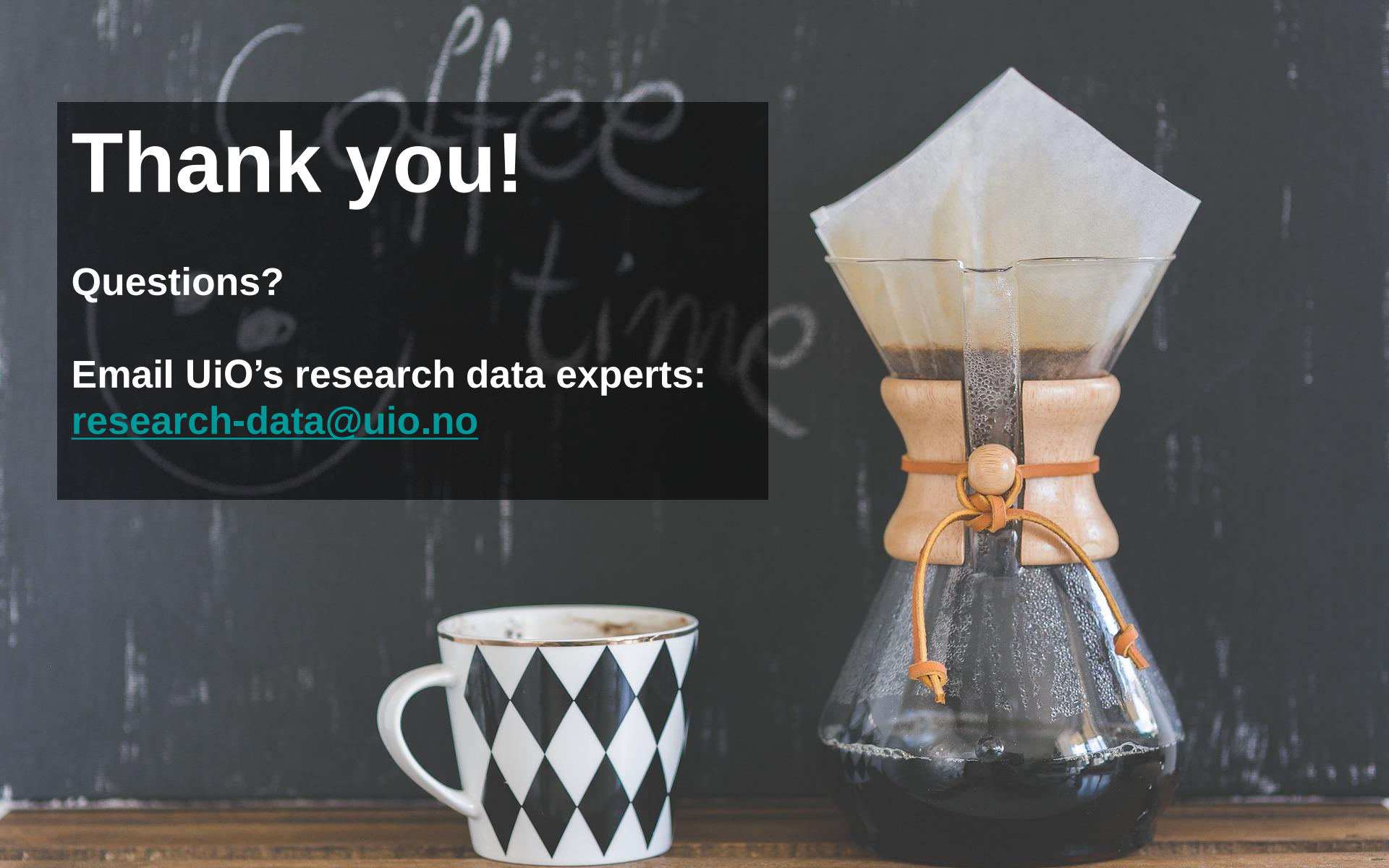
DataverseNO
Dataverse Network Norway

NTNU Open Research Data
NTNU

Thank you!

Questions?

Email UiO's research data experts:
research-data@uio.no



Sources

CESSDA. The process of data discovery. https://www.cessda.eu/Training/Training-Resources/Library/Data-Management-Expert-Guide/7.-Discover

UCL Data discovery & re-use: https://www.ucl.ac.uk/library/research-support/research-data-management/best-practices/how-guides/data-discovery-re-use

Gould Library: Data, Datasets and Statistical Resources https://gouldguides.carleton.edu/c.php?g=146834&p=964067

MacInnes, J. (2020). Secondary Analysis of Quantitative Data. In P. Atkinson, S. Delamont, A. Cernat, J.W. Sakshaug, & R.A. Williams (Eds.), *SAGE Research Methods Foundations.* https://www.doi.org/10.4135/9781526421036870195

Learn how to use the boolean operators in search queries: https://www.youtube.com/watch?v=lEo96kOKGmA