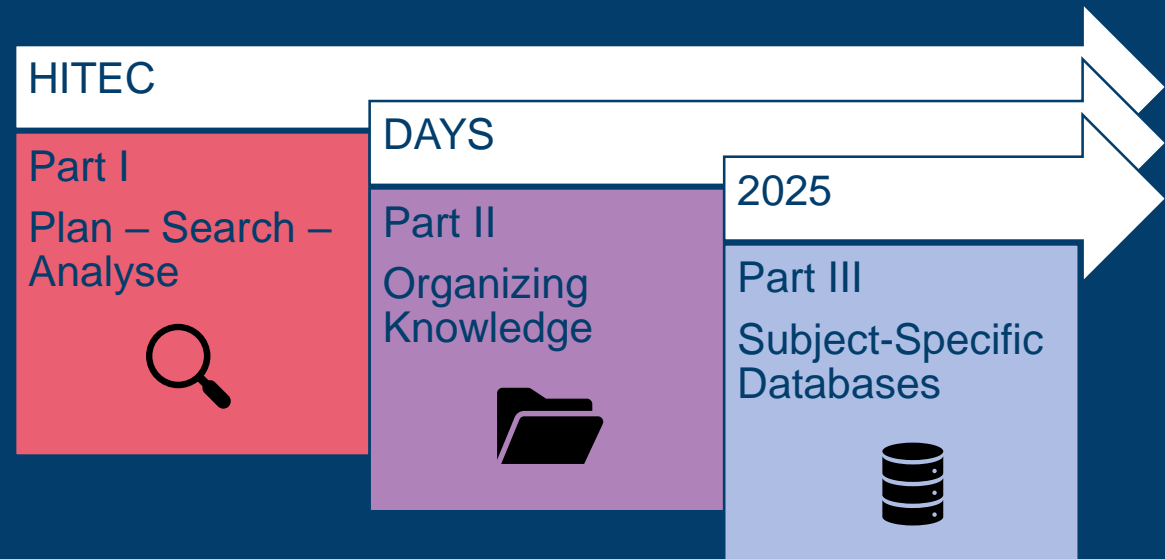


# HOW TO ORGANIZE YOUR LITERATURE PROJECT

## CARRY OUT A SYSTEMATIC LITERATURE SEARCH AND ORGANIZE REFERENCES

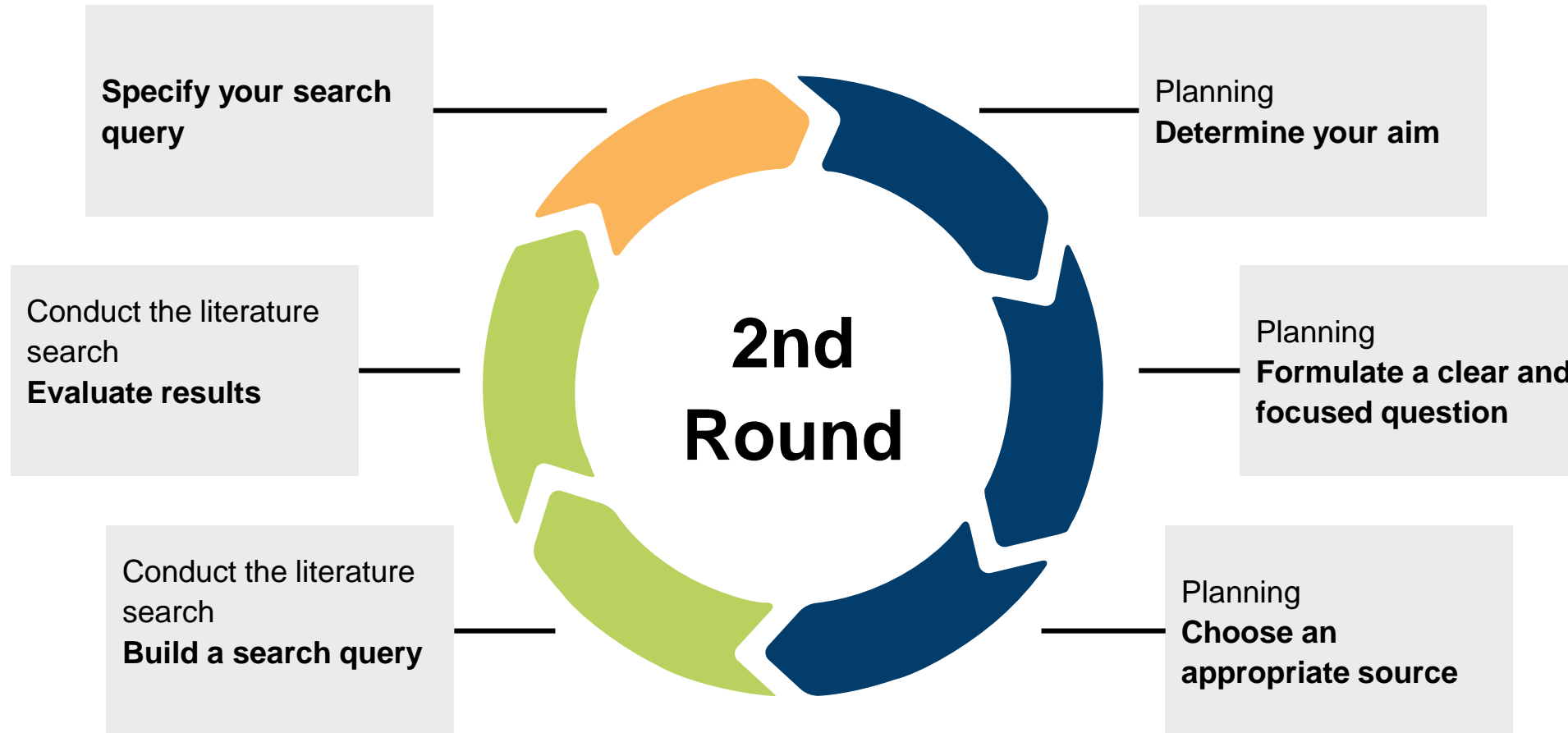
### Part III



14 MAY 2025 | MONIKA HOTZE (ZB), INES SCHMAHL (ZB)

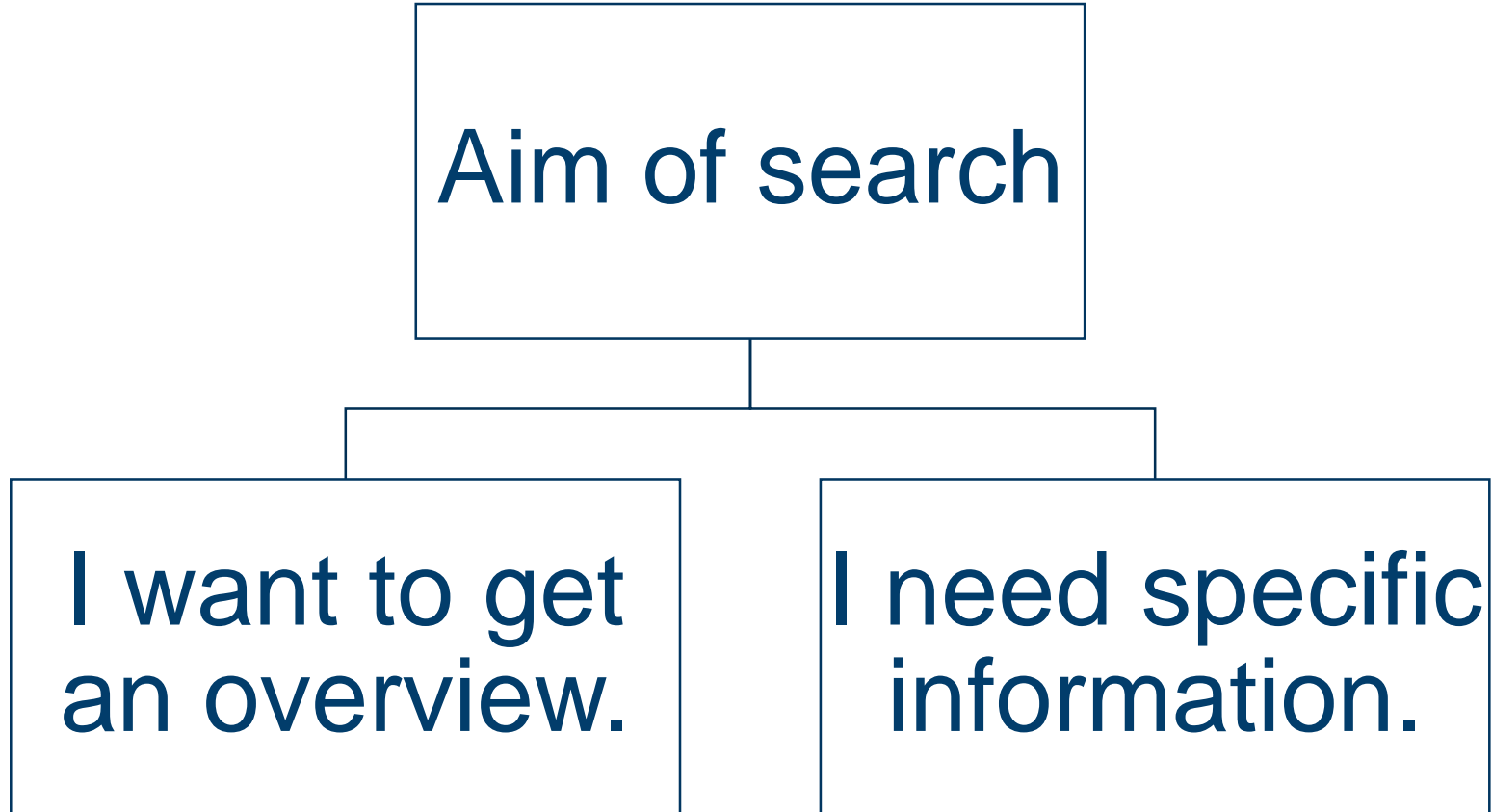
# PLANNING A LITERATURE SEARCH

## How to build a systematic literature search



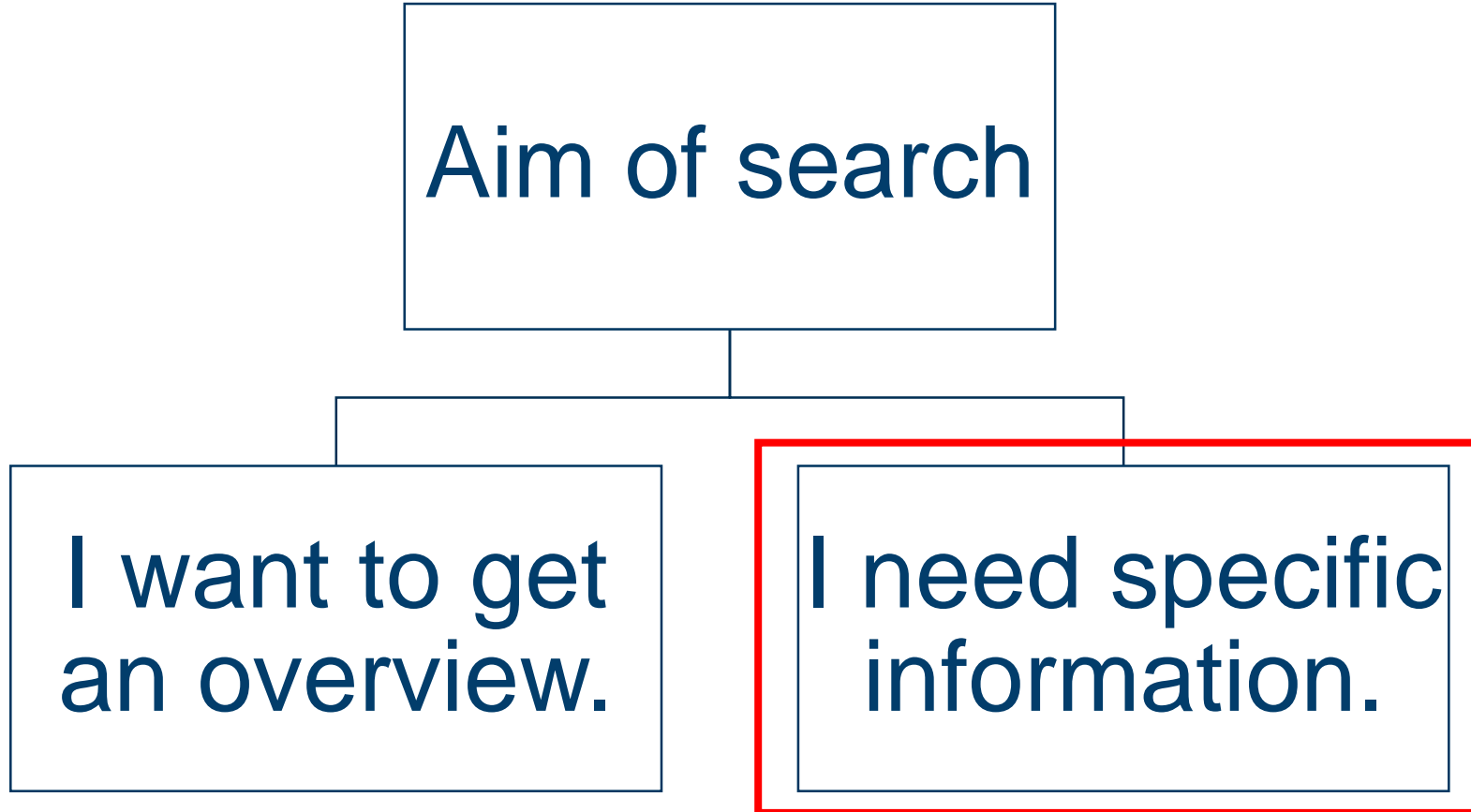
# PLANNING A LITERATURE SEARCH

Determine your aim



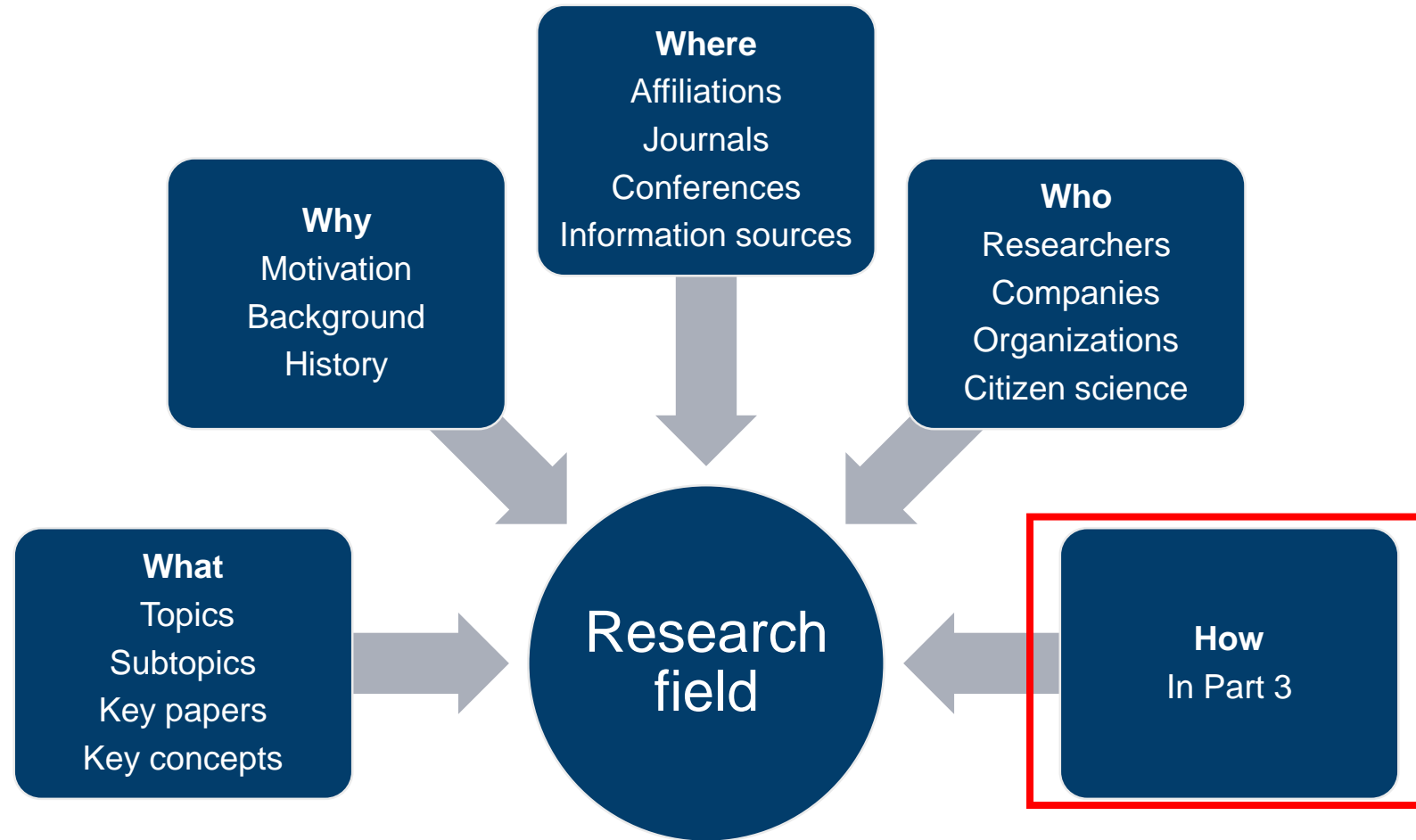
# PLANNING A LITERATURE SEARCH

Determine your aim



# CONDUCT A LITERATURE SEARCH

Evaluate results – Do I have an overview of my research field?



# PLANNING A LITERATURE SEARCH

## Formulate a clear and focused question

Template search terms		
Scientific Concepts	Specific Components	Additional Aspects
Island energy system	Case study	
Related terms: <ul style="list-style-type: none"><li>• District energy system</li><li>• (District) energy supply system</li><li>• Energy system model</li></ul>	Related terms:	Related terms:
Island Microgrid	Mixed Integer Linear Programming	
Related terms: <ul style="list-style-type: none"><li>• Microgrid</li><li>• Decentralized grid</li></ul>	Related terms: MILP	

Source:  
Reducing Computational Load for Mixed  
Integer Linear Programming: An Example for a  
District and an Island Energy System  
[https://julib.fz-juelich.de/vufind/RecordJuSER/juser\\_863978](https://julib.fz-juelich.de/vufind/RecordJuSER/juser_863978)

# PLANNING A LITERATURE SEARCH

Formulate a clear and focused question

## Exercise

Fill in the template:

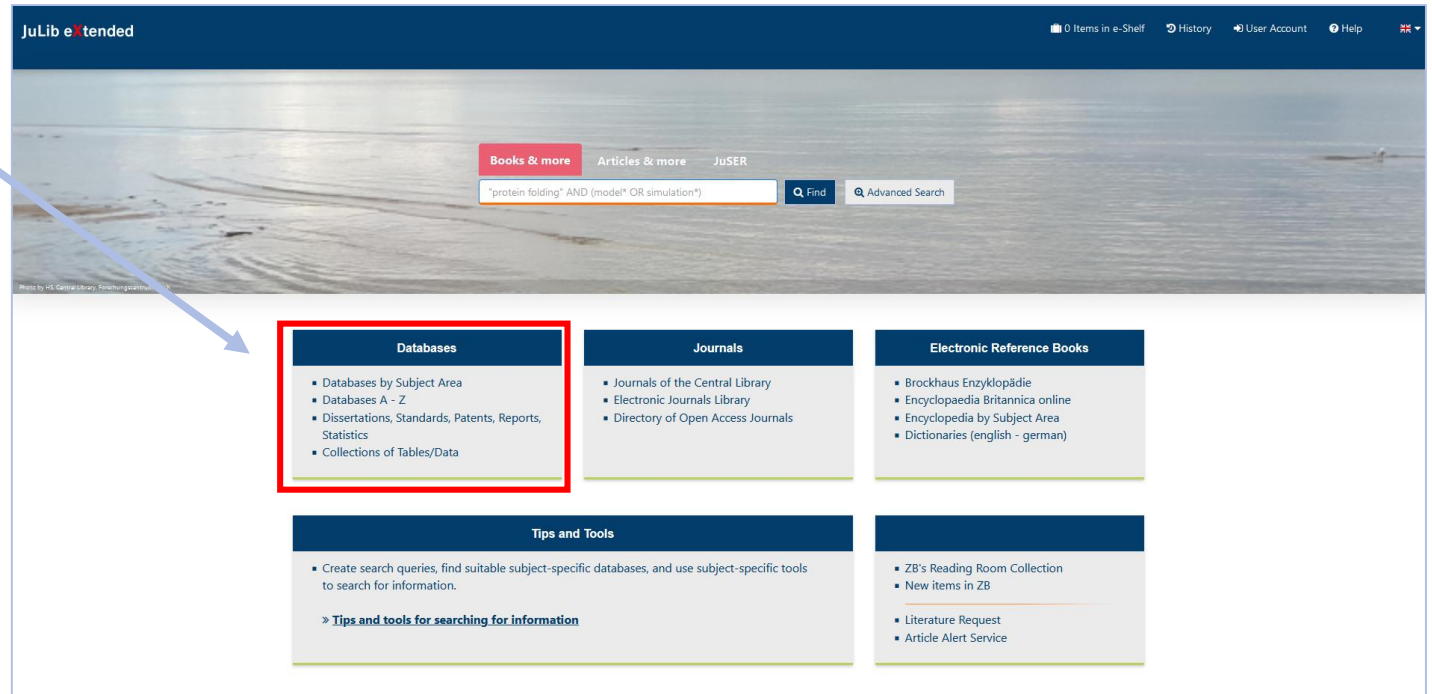
- What are the scientific concepts in my research field? What is the overarching topic/problem of my thesis?
- What are specific components (approaches, methods, materials) in my research project?
- What are the additional/secondary aspects?

# PLANNING A LITERATURE SEARCH

Choose an appropriate source

## Literature databases

- Provide curated content
- 2 types of databases:
  - Interdisciplinary
  - Subject-specific





# PLANNING A LITERATURE SEARCH

Choose an appropriate source

**Use subject-specific databases to search for further literature:**

- Cover (almost all) journals in the subject
- Offer search tools like ontologies (controlled vocabulary) or classifications
- Offer special search filters
- Offer tools for searching materials and substances

# PLANNING A LITERATURE SEARCH

## Choose an appropriate source

- **SciFinder n**: chemistry and materials sciences
- **arXiv**: physics (mainly)
- **IEEE Xplore**: engineering and simulation sciences
- **zbMATH Open**: mathematics
- **Lecture Notes in Computer Science**: computer science

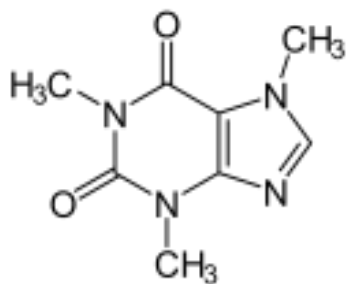
# SUBJECT-SPECIFIC LITERATURE DATABASES

## SciFinder

### About

Tool for searching literature and data in chemistry and material sciences

Search by structure or chemical name



CAS Registry Number  
e.g. 17345-34-7  
Unique ID

### You get

- Other names for the substance
- Chemical, physical, and biological properties
- Reactions
- All publications that mention the substance

# SUBJECT-SPECIFIC LITERATURE DATABASES

## arXiv

### About

arXiv is a free distribution service and an open-access archive for physics, mathematics, computer science, quantitative biology, quantitative finance, statistics, electrical engineering and systems science, and economics.

Provider: Cornell University

### Features

- Browse in the disciplines
- Choose the search fields
- Basic search
- Advanced search with Boolean operators

### Integrated tools like

- Bibliographic Explorer
- Litmaps
- scite Smart Citations

# SUBJECT-SPECIFIC LITERATURE DATABASES

## IEEE Xplore

### About

IEEE Xplore covers the publications of IEEE (Institute of Electrical and Electronics Engineers), VDE VERLAG conferences, and Bell Labs Technical Journal.

### Features

- Browse
- Basic search
- Advanced search with Boolean operators

### Special features

- Search for media, datasets, software, etc.
- Standard dictionary terms

# SUBJECT-SPECIFIC LITERATURE DATABASES

## zbMATH Open

### About

zbMATH Open is the world's most comprehensive and longest-running abstracting and reviewing service in pure and applied mathematics.

[Tutorials on YouTube](#)

**Use the tabs to select what you want to search for.**

- Classification
- Software
- Formulae

**Refine your search.**

Use operators to combine search terms.

# SUBJECT-SPECIFIC LITERATURE DATABASES

## Lecture Notes in Computer Science

### About

Lecture Notes in Computer Science mainly publishes conference proceedings.  
Provider: Springer Nature

### Filter by

- Subjects
- Disciplines
- Subdisciplines

Advanced search allows searches for

- Keywords
- Title
- Authors/editors
- Journals

# CONDUCT A LITERATURE SEARCH

## Exercise

Each group chooses a source(s) and evaluates it:

1. SciFinder
2. arXiv
3. IEEE Xplore
4. zbMATH Open & Lecture Notes in Computer Science

### Key questions

- Did the results match the search query?
- How time-consuming was the search?
- In what sources did you find the results?
- Which features were helpful?
- What did not work?
- Would you recommend the database to your colleagues?

Give a short presentation about the source in the plenum.



# DATA IN SCIENCE

## Data in tables

### Collections of specific scientific data

Chemical data: [Springer Materials](#)

Physical data: [NIST-JANAF Thermochemical Tables](#)

Constants: [CODATA - Fundamental Physical Constants](#)

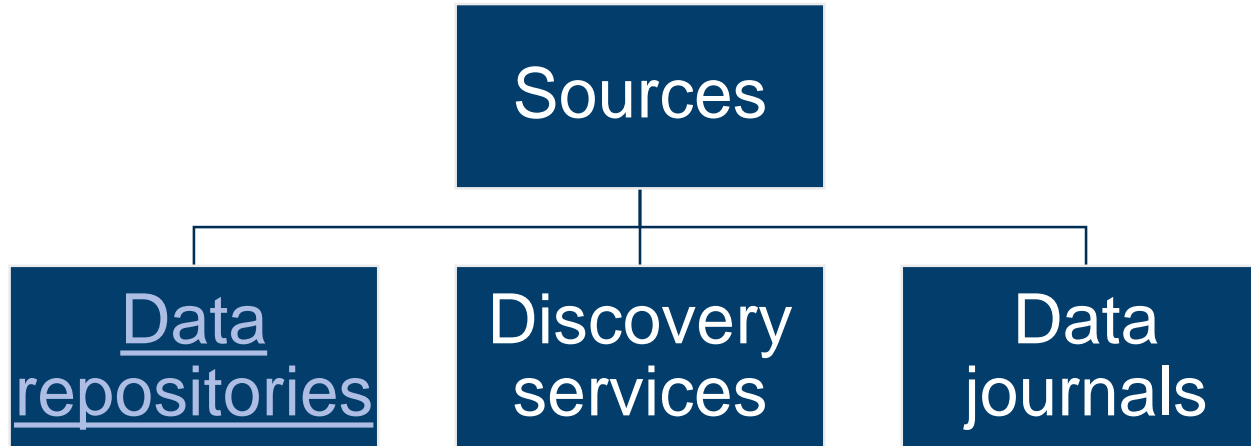
Statistical data: [Statista - das Statistik-Portal](#)

# DATA IN SCIENCE

## Data in data publications

### What is a data publication?

A data publication contains the research data from a research project.



# DATA IN SCIENCE

## Data repositories

### Zenodo (generic)

- Hosted by CERN, Geneva
- Interdisciplinary
- Datasets are labelled with DOI
- Integration with GitHub

### Jülich DATA (institutional)

- Hosted by Central Library
- Service for depositing and publishing data
- Free for all employees of Forschungszentrum Jülich
- Based on the Dataverse Project

### NFDI (subject-specific)

- Non-profit association in Germany
- Goal: to build a national research data infrastructure
- Disciplines are represented by consortia
- Develop and provide subject-specific services, e.g. repositories

# DATA IN SCIENCE

## Discovery service - [DataCite Commons](#)

- Allows searching across all content assigned a DOI (digital object identifier)
- Persistent identifier (PID) graph connects
  - [DOI](#): PID for literature and datasets
  - [ORCID](#): PID for people
  - [ROR](#): PID for organizations

# DATA IN SCIENCE

## Data journals

### Data paper

- Describes a dataset
- Links to the storage location place
- Often published together with the text publication

[List of data journals](#) is published on Zenodo.

# DATA IN SCIENCE

## Software journals

### Software paper

- Describes software
- Links to the storage location place
- Often published together with the text publication

[List of software journals](#) collected by the Software Sustainability Institute

# SUMMARY

## Overview

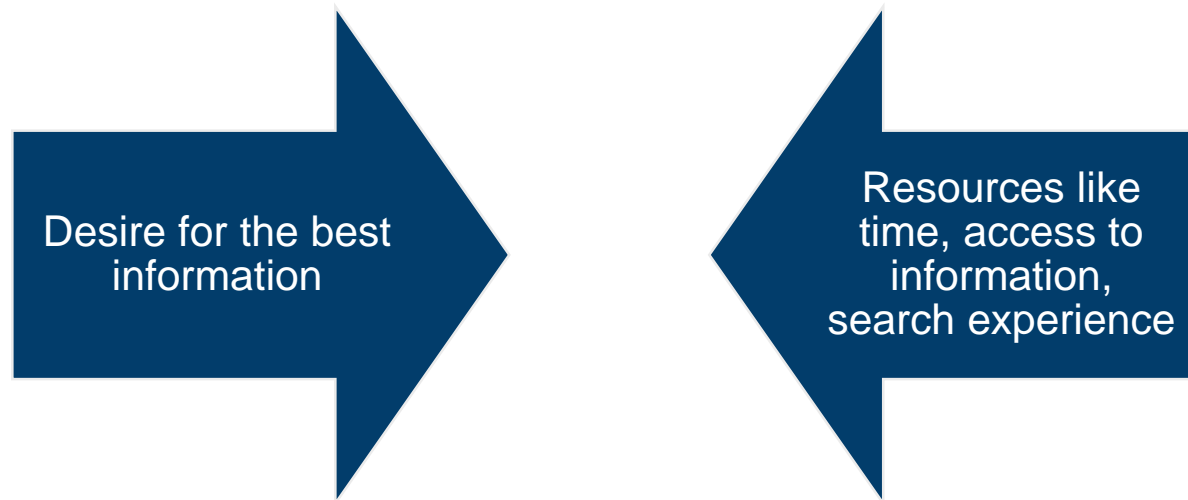
**Scientific information (literature and data) is key to scientific work.**

- A systematic literature search helps you to thoroughly understand your research field.
- Keeping records fosters scientific transparency and eases your everyday work.

# SUMMARY

## Overview

A literature search is always a compromise between



Tip: Use the Central Library's services (e.g. [Alert Service](#)).



# CONTACT

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Ines Schmahl

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[i.schmahl@fz-juelich.de](mailto:i.schmahl@fz-juelich.de)

## Central Library of Forschungszentrums Jülich

Email: [zb-auskunft@fz-juelich.de](mailto:zb-auskunft@fz-juelich.de)

Telefon: +49 2461 61-6110

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Pictograms are from MS Office 2019.