

Workshop: Research Data Strategy: Lifecycle, Roles, Prototypical Experiment

Data and Software Management Days, October, 2024



Outline of the Research Data Strategy Workshop

01

Experiment Lifecycle

Generalised sequence of steps in a typical experiment at HZDR from the idea, the proposal to the (data) publication.

02

Roles and Tasks

In an experiment, only individual scientists interact with an idea, but in large collaborations, several collaborators interact with each other.

03

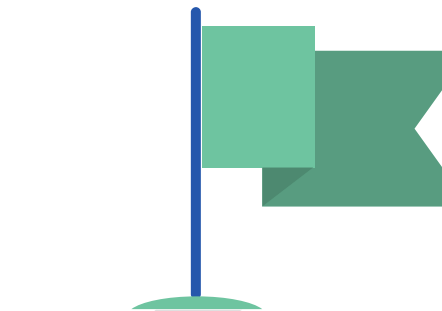
Prototypical Experiment

The processes are to be modelled on the basis of dataflow, tools and systems used, with a focus on the lifecycle.

03

Required Computing Tools and Services

Each experiment requires different software, computing and storage resources.

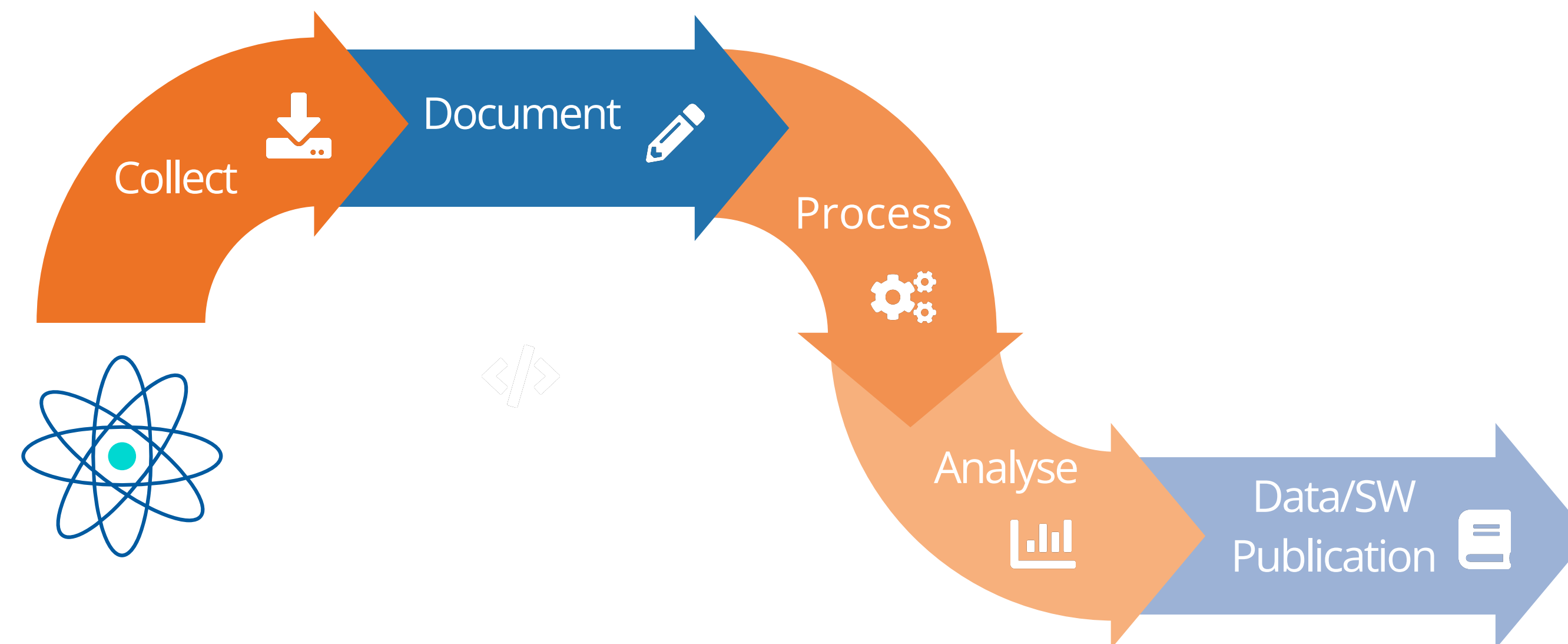


Lifecycle

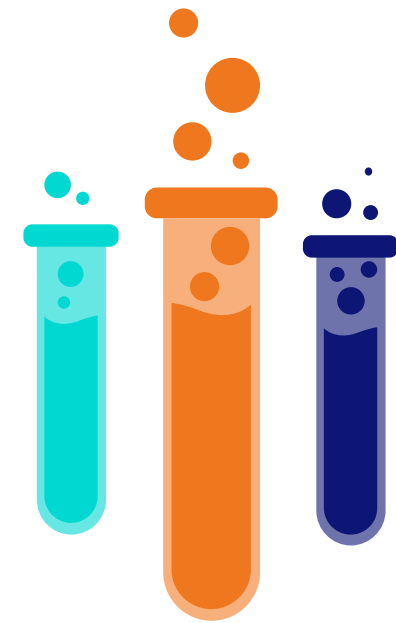
- Generalised sequence of steps in a typical experiment at HZDR from the idea, the proposal to the (data) publication.
- Typically, the end of one experiment is the beginning of a new experiment at some point within your own group or beyond, thus forming a cycle.

Task for the next 20 minutes:

- I. Based on your own experiments, the generalised steps are first defined similarly to the image below within the working group.
- II. From this, a life cycle is to be determined that can be broadly applied to a wide range of experiments at HZDR.

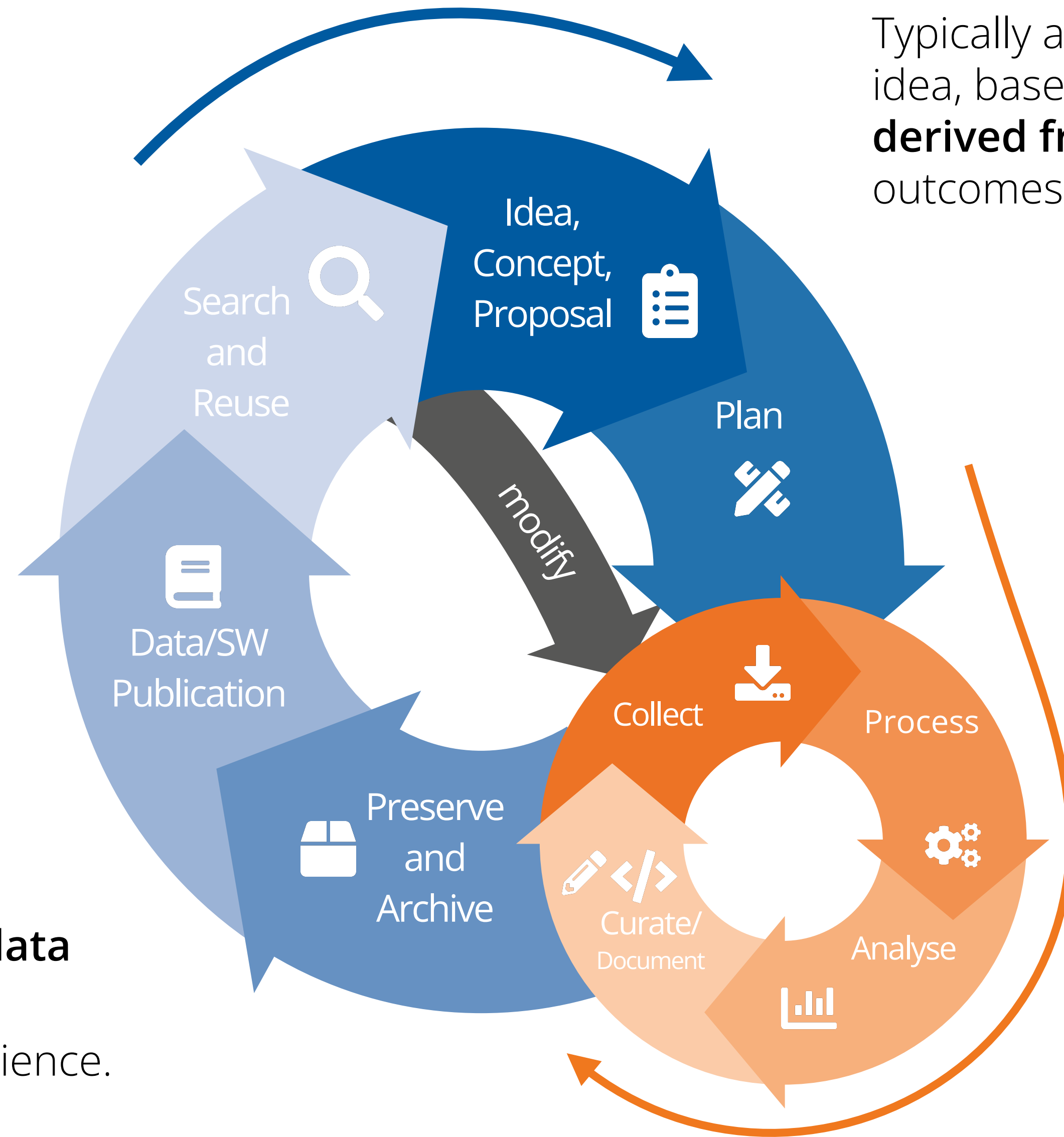


Our View of the Data Management Lifecycle



Publication of **data** and **metadata** is at the end of a typical research lifecycle and can be the starting point for new iteration cycles ...

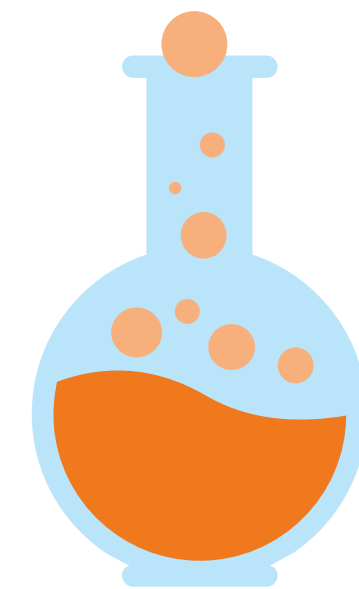
Archive or (additional) **data publication** to provide sustainable and open science.



Typically an experiment starts with an idea, based on a research question, **derived from available research** outcomes.

→ Valuable metadata in our proposal systems

During experiment **documentation** and **metadata** curation are essential for a **comprehensible** experiment.



Roles, Additional Stakeholders and Tasks

- In an experiment, roles are necessary to define tasks with different views including access rights and responsibilities.

Task for the next 15 minutes:

- I. Based on your own experiments, typical roles and their responsibilities are to be defined.
- II. In groups, discuss which roles can occur and what needs to be considered in terms of responsibilities in an experiment.

Lab assistant



**Documentation
and data
manager**

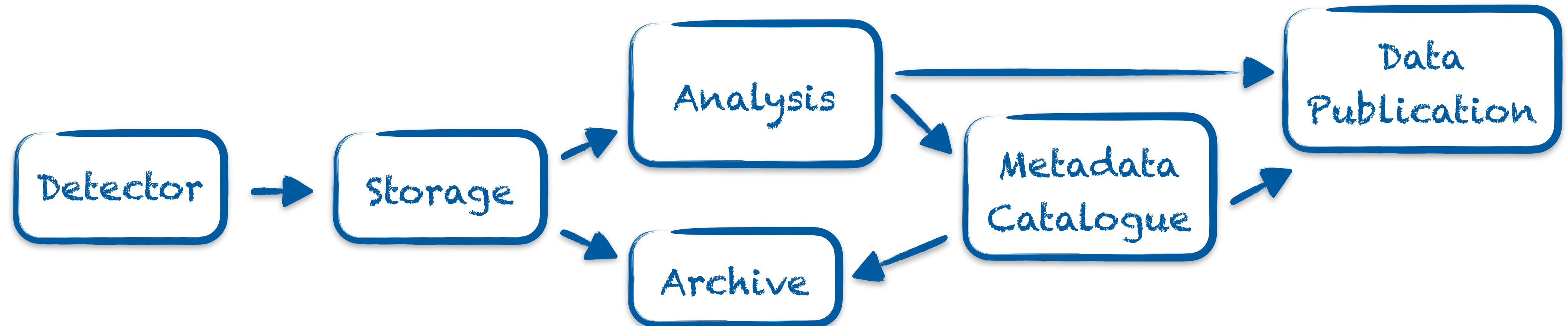
**Principle
Investigator**

Prototypical Experiment (and the Required Stages)

- A typical experiment consists of processes, links between modules, systems, services which are based on functional descriptions of the data flows.
- On this basis, we can provide generalised resources that can be used to map the data flows and required resources of many experiments to our infrastructure.

Task for the next 10 + 20 minutes:

- I. Outline the data flows of an experiment as a simple, abstract draft, either alone or in a very small group (**10 min**).
- II. Collect the different drafts and try to work out similarities and outline a universal data flow, where modules can also be optional (**20 min**).

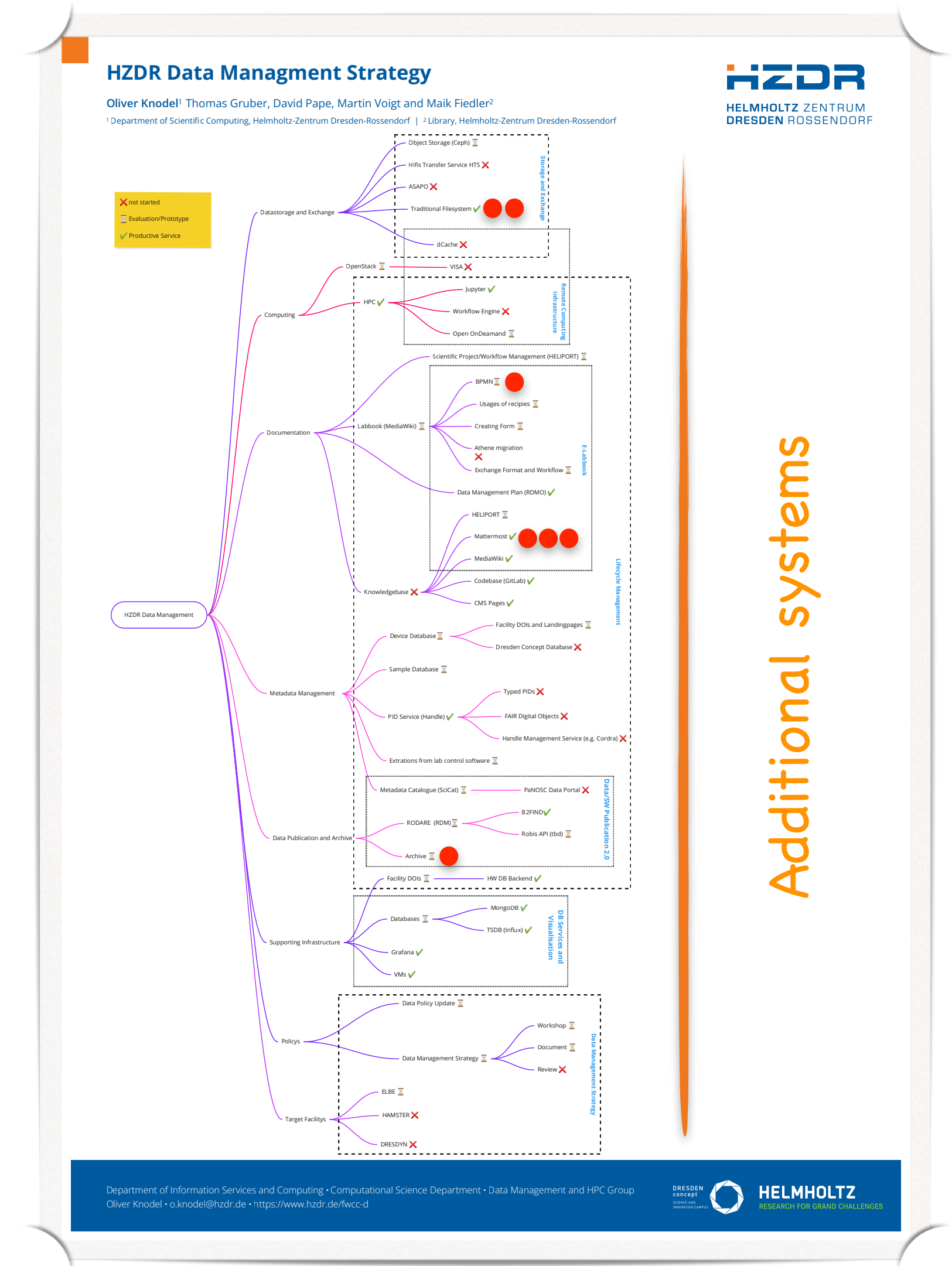


Service Ecosystem, Project Definition and What We Forgot

- We provide a wide range of computing resources tools and services.
- We have tried to list our current and planned offerings in a mind map as a basis for our data management strategy.
- On the basis of the mind map, we have defined seven sub-projects.

Task for the next 15 minutes:

- I. Add further systems, services or resources that we have forgotten.
- II. Rating of systems and services using sticky dots (10 per person).



Conclusions

- With the workshops today and tomorrow we want to initially discuss the requirements for data management.
- We would like to have a first draft ready by the end of the year and send it to all interested participants.
- We will create an Indico to invite interested participants to review the draft of our Data Management Strategy.
- After that, we will contact everyone who has expressed an interest to work with us on the draft...
- ...to convert the draft finally into a comprehensive document.

