TECHNISCHE UNIVERSITÄT DRESDEN

Denise Dörfel
Service Center Research Data (Kontaktstelle Forschungsdaten)

Writing Data Management Plans for Grant Proposals

How to best meet the Requirements of EU, DFG, BMBF and Co.

The Service Center Research Data

Cooperation between

SLUB
Wir führen Wissen.

Department 4.3 Research-related Services

CIDS ZIH

Center for Interdisciplinary Digital Sciences (CIDS)
Department Information Services and High Performance Computing (ZIH)

Website:
https://tu-dresden.de/kontaktstelle-forschungsdaten

E-Mail:
kontaktstelle-forschungsdaten@tu-dresden.de

Team

4 consultants

2 IT specialists

➢ Certified in ITIL and Requirements Engineering

Services:

- PLAN – Data management planning (DMP)
- INFORM – Information, consultation and training in RDM
- ASSIST – Support with RDM implementation

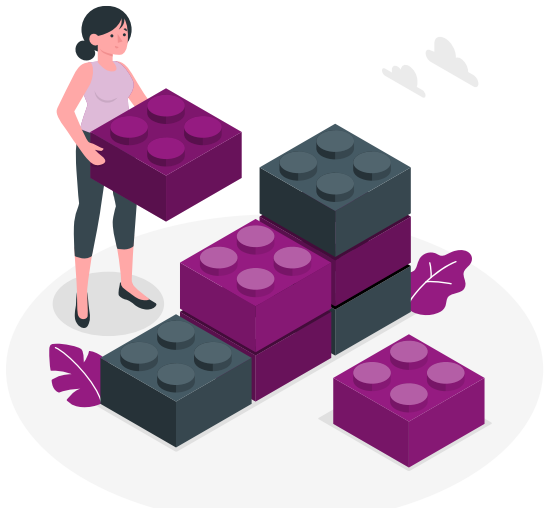
The Service Center Research Data

Plan – Data management plan (DMP)

- Text modules for individual project proposals
- DMP concept for collaborative project proposals
- Review of DMP drafts

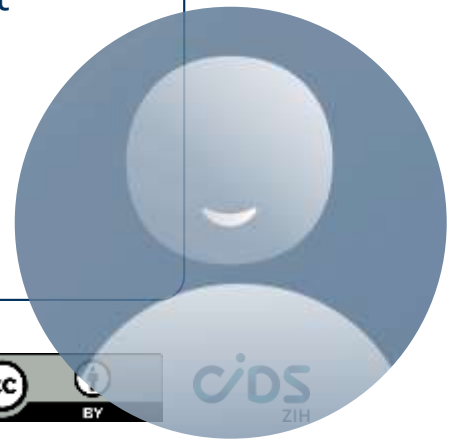
Inform – Consultation and information on RDM

- Inquiries and information
- Consultation meetings
- Talks and lectures



Assist – Support with RDM

- Conceptual support
- Technical support
- Research data offboarding

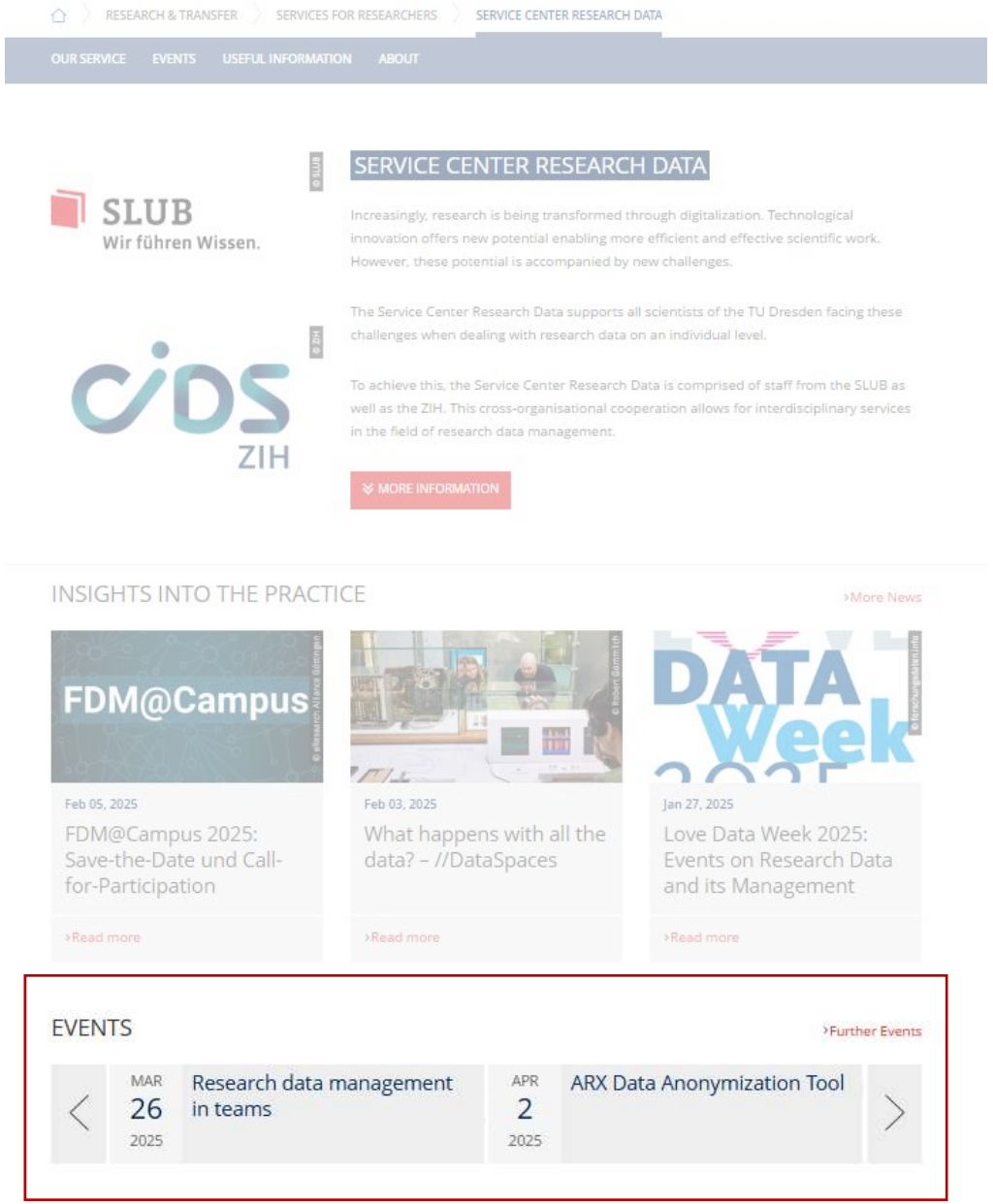


https://storyset.com/event; Event illustrations by Storyset
https://storyset.com/people; People illustrations by Storyset
https://storyset.com/imagination; Imagination illustrations by Storyset

Information on further training events

Please consult the website of the Service Center Research Data

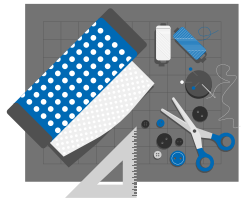
https://tud.link/a4up



At the end of this talk

You will have an overview of the requirements of the most important funding bodies.

You will know what aspects should be discussed before writing a data management chapter for your research proposal.



You will consider data management planning also during the implementation of your project.

What are the Requirements?

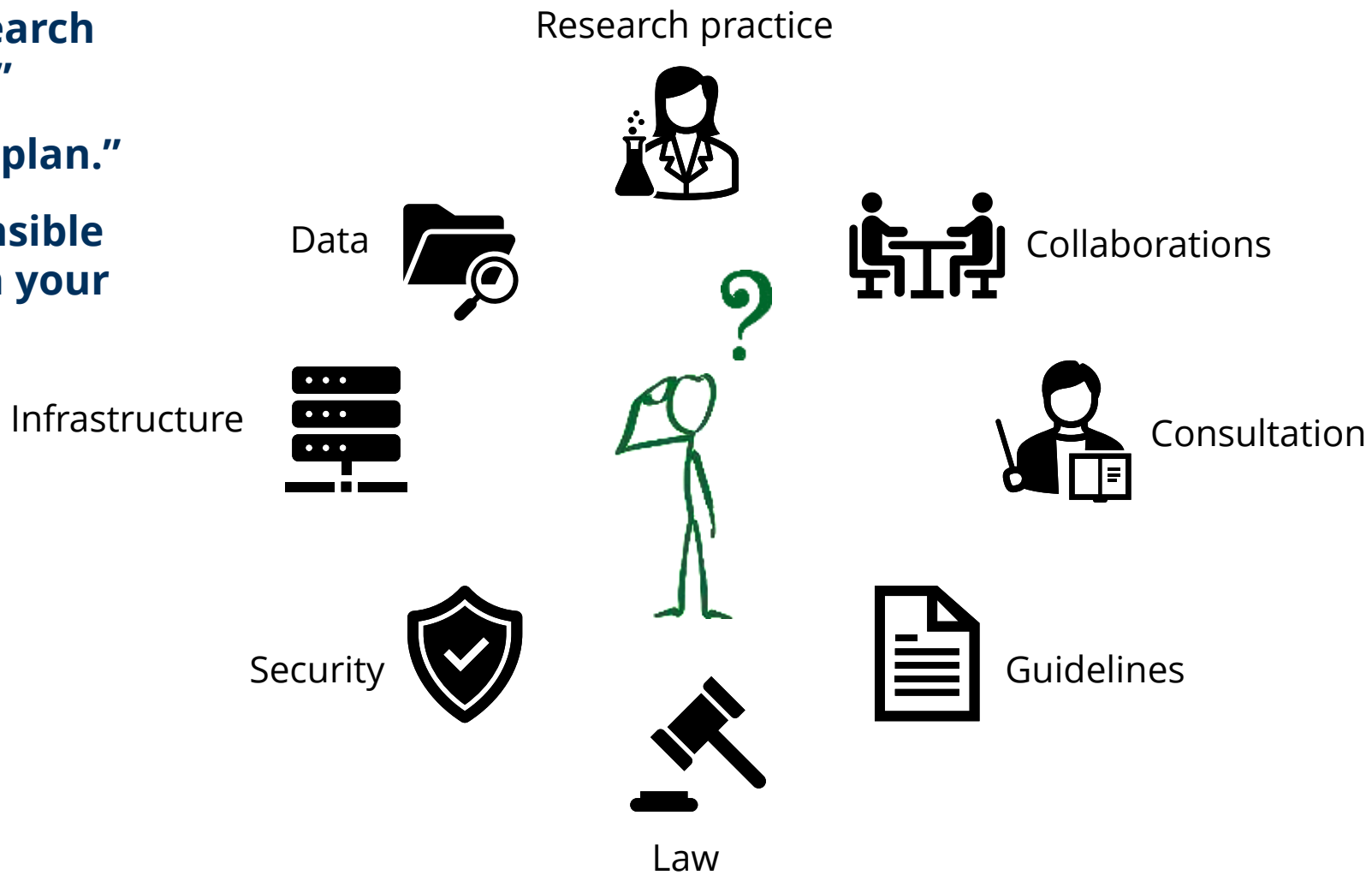
The current situation

“Describe the handling of research data in your project proposal.”

“Hand in a data management plan.”

“Describe the plans for responsible research data management in your project.”

…



What are research data?

“All data that is collected, observed, derived, simulated or otherwise generated in connection with research. Research data occurs in different forms and formats in each scientific discipline.“

“Research data includes measurement data, laboratory values, audiovisual information, texts, survey or observation data, methodological test procedures and questionnaires.”

“Compilations, software and simulations can equally represent a central result of scientific research and are therefore also included under the term research data.”

“Research data in some subject areas is based on the analysis of objects (such as tissue, material, rock, water and soil samples, test specimens, installations, artefacts and art objects), [...] then please also elaborate on this by providing all relevant information.”

What is research data management (RDM)?

Management	=	**Planning *and* organization**	***of***	**actions**	***in compliance with***	**goal-oriented principles**
Management of research data	=	**Planning *and* organization**	***of***	**research practices**	***in compliance with***	**good scientific practice**

What is a data management plan (DMP)?

Systematic description of the handling of research data during the project and beyond

- Data collection and processing
- Data storage and structure
- Data documentation
- Data sharing
- Data archiving and publication

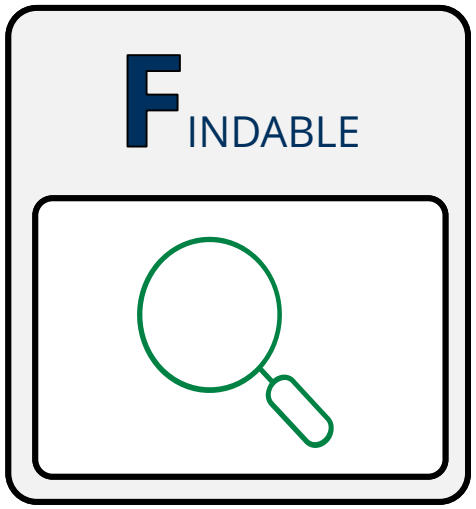
Formal document for funders

Living document to be updated throughout a project

What are the funders' requirements?

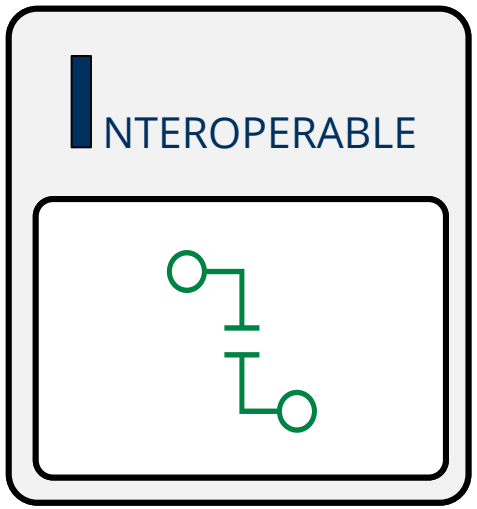
Funding Institution	Requirement	DMP within proposal?	Content	Updates
EC Horizon Europe 	Yes	Yes, short paragraph. DMP-Deliverable within the first 6 project months	Horizon Europe Template	Update, if significant changes occur and at the end of the project
DFG DFG	Yes	Yes	Handling of research data Checklist Template CRC/TRR (including INF Project)	No, but relevant in reports
BMBF 	Depends on the program	Yes	Depends on the program	Depends on the program
VWStiftung 	Yes	Yes	Checklist – Basic Data Management Plan	No

What points need to be addressed in the DMP?
How do you plan to make your data FAIR?

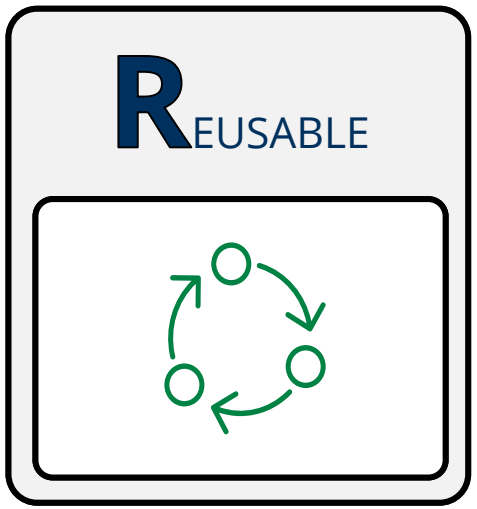


Can I find the data?

Can I access the data?



Can I understand the data?



Can I use the data?

What points need to be addressed in the DMP?

DFG Checklist:

- ❑ **Data description**
- ❑ **Legal obligations and conditions**
- ❑ **Storage and technical archiving the project**
- ❑ **Documentation and data quality**
- ❑ **Data exchange and long-term data accessibility**
- ❑ **Responsibilities and resources**

What points need to be addressed in the DMP?

DFG Checklist:

- ❑ **Data description**
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- ❑ **Documentation and dat**
- ❑ **Data exchange and long**
- ❑ **Responsibilities and res**

Checklist Regarding the Handling of Research Data

1. Data description

How does your project generate new data? Is existing data reused? Which data types (in terms of data formats like image data, text data or measurement data) arise in your project and in what way are they further processed? To what extent do these arise or what is the anticipated data volume?

2. Documentation and data quality

What approaches are being taken to describe the data in a comprehensible manner (such as the use of available metadata, documentation standards or ontologies)? What measures are being adopted to ensure high data quality? Are quality controls in place and if so, how do they operate? Which digital methods and tools (e.g. software) are required to use the data?

3. Storage and technical archiving the project

How is the data to be stored and archived throughout the project duration? What is in place to secure sensitive data throughout the project duration (access and usage rights)?

What points need to be addressed in the DMP?

DFG Checklist:

- ❑ **Data description**
- ❑ **Legal obligations and**
- ❑ **Storage and technical**
- ❑ **Documentation and d**
- ❑ **Data exchange and lo**
- ❑ **Responsibilities and re**

4. Legal obligations and conditions

What are the legal specifics associated with the handling of research data in your project? Do you anticipate any implications or restrictions regarding subsequent publication or accessibility? What is in place to consider aspects of use and copyright law as well as ownership issues? Are there any significant research codes or professional standards to be taken into account?

5. Data exchange and long-term data accessibility

Which data sets are especially suitable for use in other contexts? Which criteria are used to select research data to make it available for subsequent use by others? Are you planning to archive your data in a suitable infrastructure? If so, how and where? Are there any retention periods? When is the research data available for use by third parties?

6. Responsibilities and resources

Who is responsible for adequate handling of the research data (description of roles and responsibilities within the project)? Which resources (costs; time or other) are required to implement adequate handling of research data within the project? Who is responsible for curating the data once the project has ended?

What points need to be addressed in the DMP?

Horizon Europe Programme Guide (Chapter 16 – Open Science)

- In Horizon Europe, Open science practices are evaluated under the '**Excellence**' criterion (in particular under methodology) and under the '**Quality and efficiency of implementation**' award criterion. Proposers should address open science practices in the relevant section on open science under methodology.
- Additionally, proposers generating or reusing data should outline in a maximum of one (additional) page **their plans for data management**.
- Mandatory open science practices
  - open access to scientific publications under the conditions required by the grant agreement;
  - **responsible management of research data in line with the FAIR principles of 'Findability', 'Accessibility', 'Interoperability' and 'Reusability', notably through the generalised use of data management plans, and open access to research data under the principle 'as open as possible, as closed as necessary', under the conditions required by the grant agreement;**
  - information about the research outputs/tools/instruments needed to validate the conclusions of scientific publications or to validate/re-use research data;
  - digital or physical access to the results needed to validate the conclusions of scientific publications, unless exceptions apply

What points need to be addressed in the DMP?

In the Proposal: see Horizon Europe Guidance reference document

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/reference-documents?programmePeriod=2021-2027&frameworkProgramme=43108390

Types of data/research outputs (e.g. experimental, observational, images, text, numerical) and their estimated size; if applicable, combination with, and provenance of, existing data.

Findability of data/research outputs: Types of persistent and unique identifiers (e.g. digital object identifiers) and trusted repositories that will be used.

Accessibility of data/research outputs: IPR considerations and timeline for open access (if open access not provided, explain why); provisions for access to restricted data for verification purposes.

Interoperability of data/research outputs: Standards, formats and vocabularies for data and metadata.

Reusability of data/research outputs: Licenses for data sharing and re-use (e.g. Creative Commons, Open Data Commons); availability of tools/software/models for data generation and validation/interpretation /re-use.

Curation and storage/preservation costs; person/team responsible for data management and quality assurance.

What points need to be addressed in the DMP?

During the project: see Horizon Europe Programme Guide

- https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf
- Chapter 16 (Open Science): Research data management and management of other research outputs

> **Data management plans** (DMPs) are a cornerstone for responsible management of research outputs, notably data and are mandatory in Horizon Europe for projects generating and/or reusing data (on requirements and the frequency of DMPs as deliverables consult the AGA article 17). A template for a DMP is provided under the reporting templates available on the Funding & Tenders Portal Reference documents page. Its use is recommended but not mandatory. DMPs are formal documents that outline from the start of the project all aspects of the research data lifecycle, which includes its organisation and curation, and adequate provisions for its access, preservation, sharing, and eventual deletion, both during and after a project. Writing a DMP is part of the methodology of the project, since good data management makes the work more efficient, saves time, contributes to safeguarding information and to

What points need to be addressed in the DMP? Depends on the program and the respective call – Example

Bundesministerium für Bildung und Forschung

„Richtlinie zur Förderung eines Forschungsverbunds für die wissenschaftliche Begleitung des Startchancen-Programms, “ LINK

Project outline:

Part C. Presentation of the project
V. Exploitation
– *“Planning for a research data management that describes the life cycle of the data collected”*
Evaluation of the proposal:
“… The project outline will be evaluated according to … Submission of a research data management plan.”

Full Proposal:

Part IV. Detailed description of the exploitation
– “… detailed research data management plan, …”
Evaluation of the proposal:
“Quality and appropriateness of the further elaborated work plan (including measures for research data management as well as for science communication and participation of the interested and general public), …”

What points need to be addressed in the DMP?
Depends on the program and the respective call – Example

Bundesministerium für Bildung und Forschung

„Richtlinie zur Förderung eines Forschungsverbunds für die wissenschaftliche Begleitung des Startchancen-Programms, “ LINK

Project outline:

Part C
V. E
–
Eva
“…

Full Pro

Part IV
– “…
Evalua
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manag

Mit dem Antrag auf Zuwendung ist das Vorhandensein eines Forschungsdatenmanagementplans zu bestätigen, der den Lebenszyklus der im Projekt erhobenen Daten beschreibt. Zuwendungsempfänger sollen, wann immer möglich, die im Rahmen des Projekts gewonnenen Daten, einschließlich Angaben zu den verwendeten Instrumenten, Methoden, zu Datenanonymisierungen sowie zu Dokumentationen nach erfolgter Erstverwertung, beispielsweise in Form einer wissenschaftlichen Publikation, in nachnutzbarer Form einer geeigneten Einrichtung, zum Beispiel einem einschlägigen Forschungsdatenrepositorium oder Forschungsdatenzentrum, zur Verfügung stellen, um im Sinne der guten wissenschaftlichen Praxis eine langfristige Datensicherung für Replikationen und gegebenenfalls Sekundärauswertungen durch andere Forschende zu ermöglichen. Repositorien sollten aktuelle Standards für Datenveröffentlichungen (FAIR Data-Prinzipien) erfüllen und die Beschreibung der Daten durch Metadaten und Vokabulare unterstützen und persistente Identifikatoren (beispielsweise DOI, EPIC-Handle, ARK, URN) vergeben. In den Repositorien oder Forschungsdatenzentren werden die Daten archiviert, dokumentiert und gegebenenfalls auf Anfrage der wissenschaftlichen Community zur Verfügung gestellt.

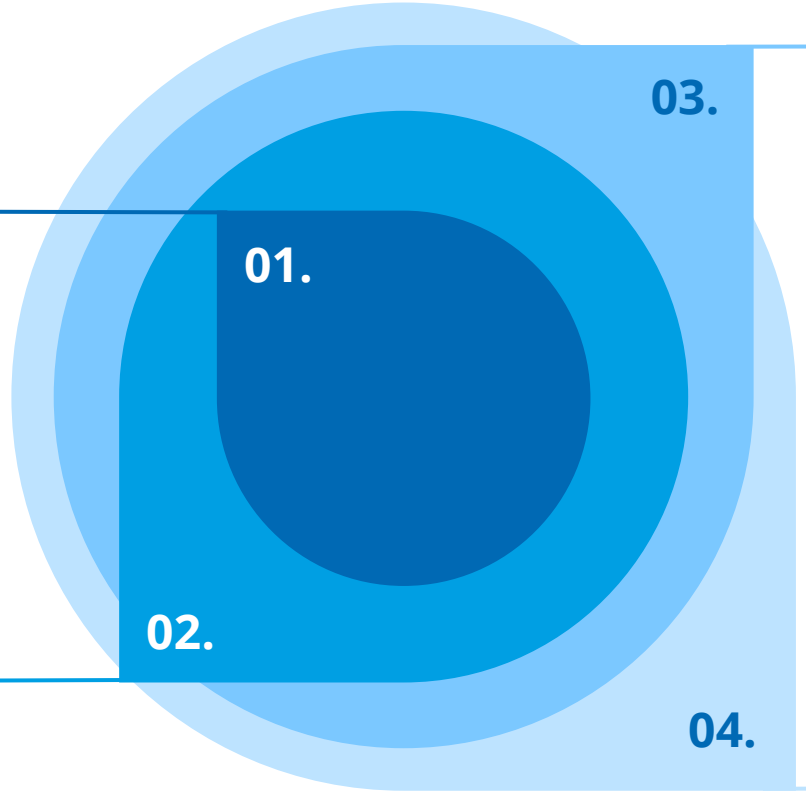
What points need to be addressed in the DMP? Requirements at different levels

INDIVIDUAL

Daily practice of each researcher

LOCAL

Requirements, policies, infrastructure, practices etc. of the research groups, the chairs



CENTRAL

Requirements, policies, infrastructure, practices etc. of the research groups, the chairs

GLOBAL

Requirements due to interfaces with the (discipline) community

Image based on templates from Slidesgo

What to Write in a Data Management Statement?

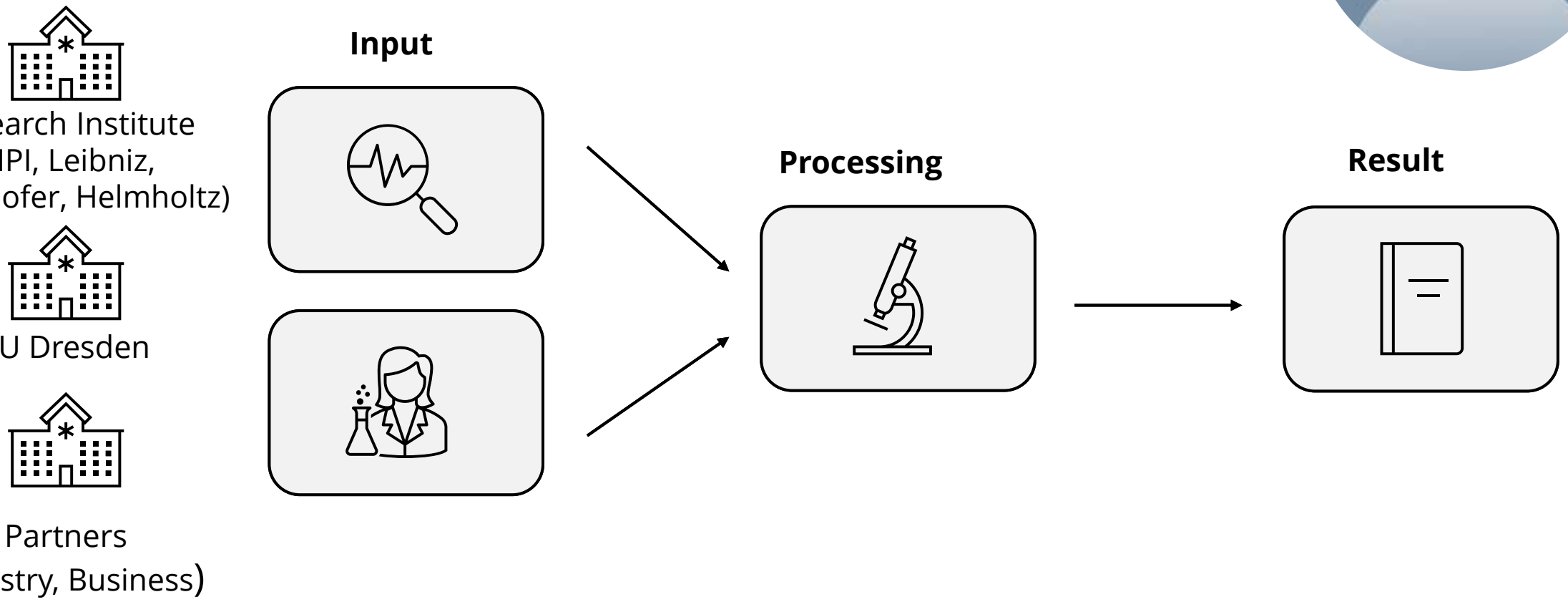
Structure of a data management statement / description / chapter

"Story" and Group	"Who are we and what are our plans?"
Collaboration	"How do we work together and how does that affect the data management processes?"
Data Collection and Processing	"What data will be generated and to what extent? Where will the data be stored and how will it be processed?"
Making data reusable (FAIR)	"What measures will we take to ensure that the data can be reused? By whom?"
Resources and Responsibilities	"Who will take on tasks to implement the RDM*? Are further financial resources needed?"

*Research Data Management

"Story" and group

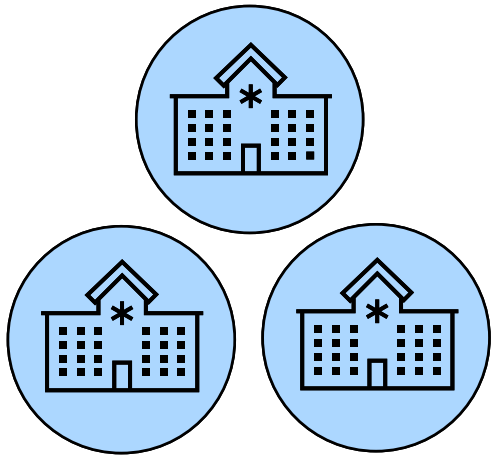
"Who are we and what are our plans?"



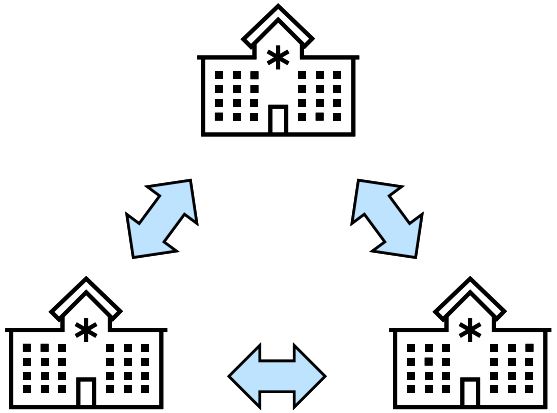
Collaboration

“How do we work together and how does that affect the data management processes?”

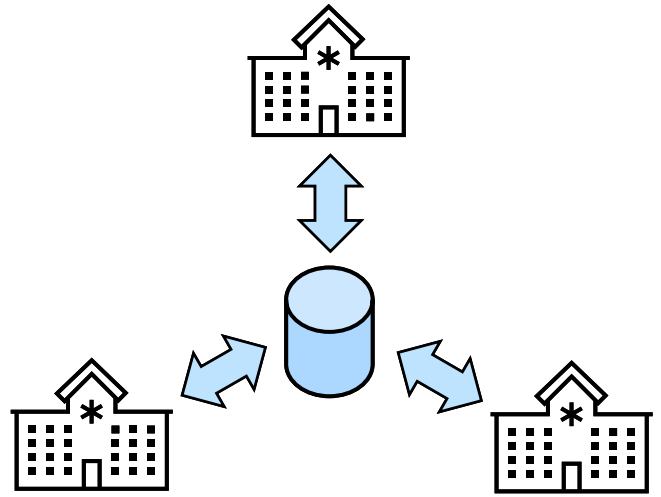
Category 1:
Exchange of Knowledge



Category 2:
Interfaces



Category 3:
Research and Data Pool



Intensity of cooperation poses increasing demands on RDM

Data collection and processing

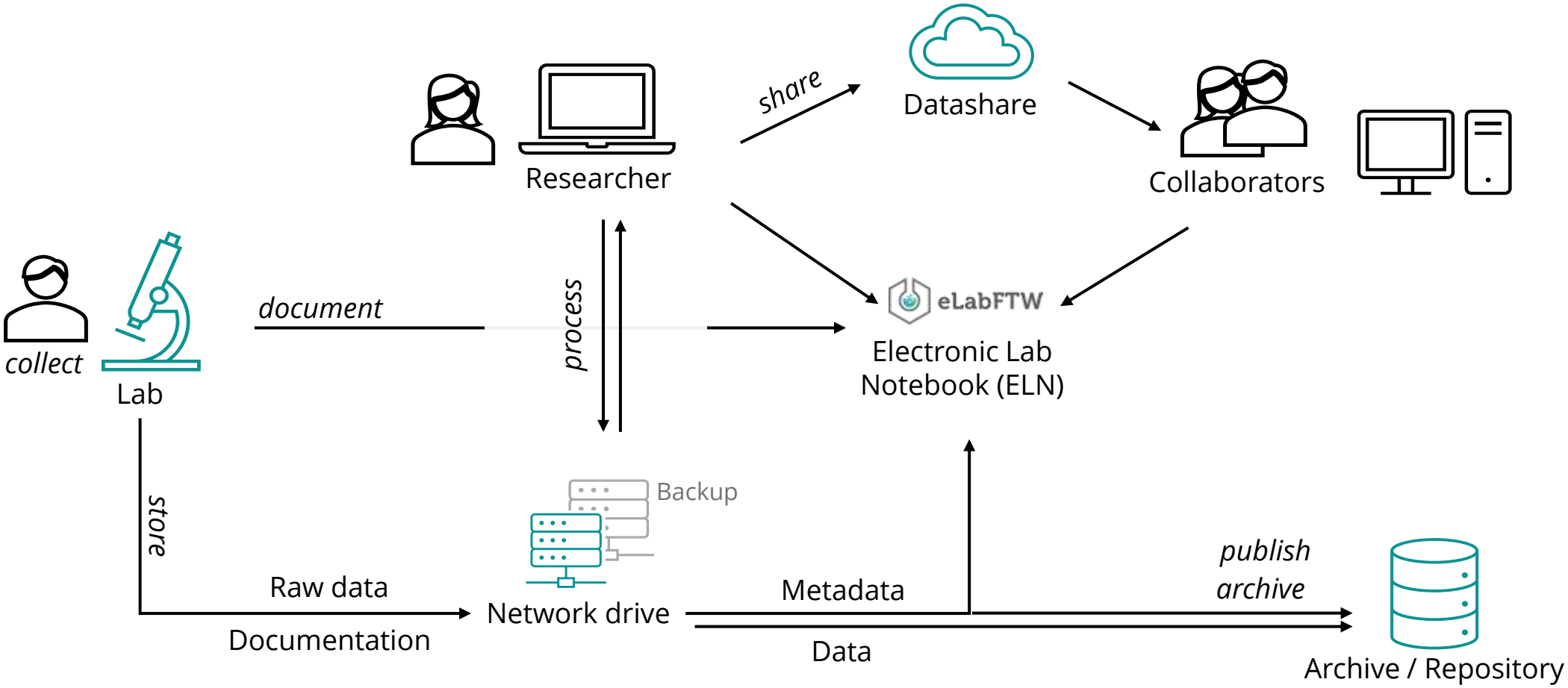
“What data will be generated and to what extent?”

“Where will the data be stored and how will it be processed?”

“Will all subprojects/collaborators use the same infrastructure or are there differences?”

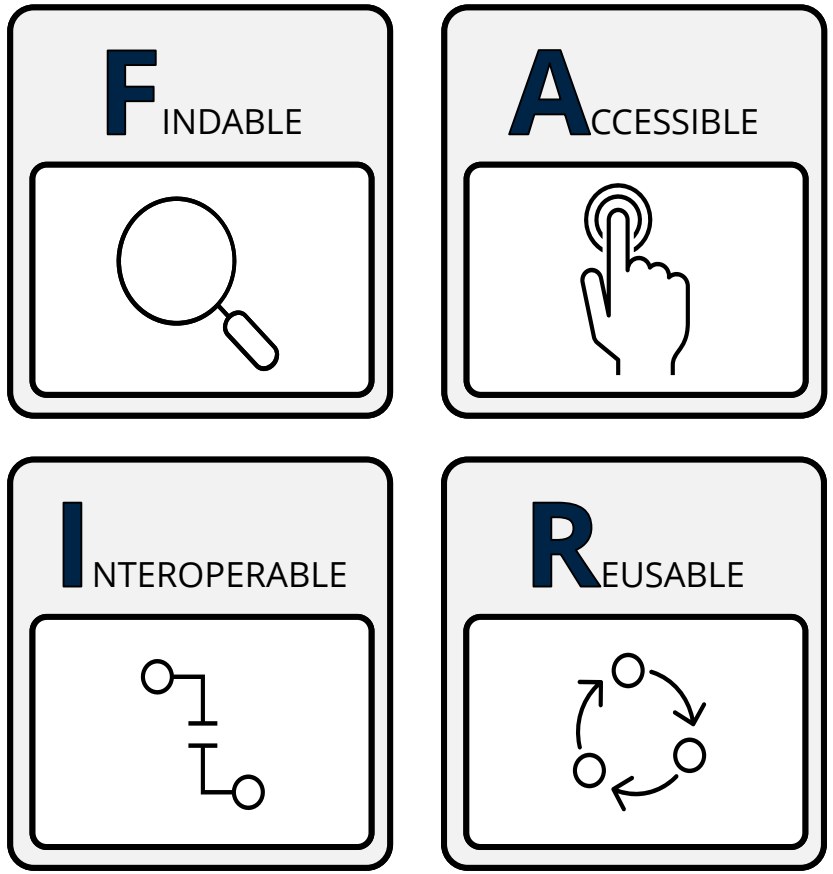
- Which data formats will occur?
- How large will the data sets become?
- What software will be used?
- Where will the data be stored?
- How will data be shared with each other?
- How will the data be backed up?

Data collection and processing: illustrate your data flow! Example



Making data reusable (FAIR)

“What measures will we take to ensure that the data can be reused? By whom?”



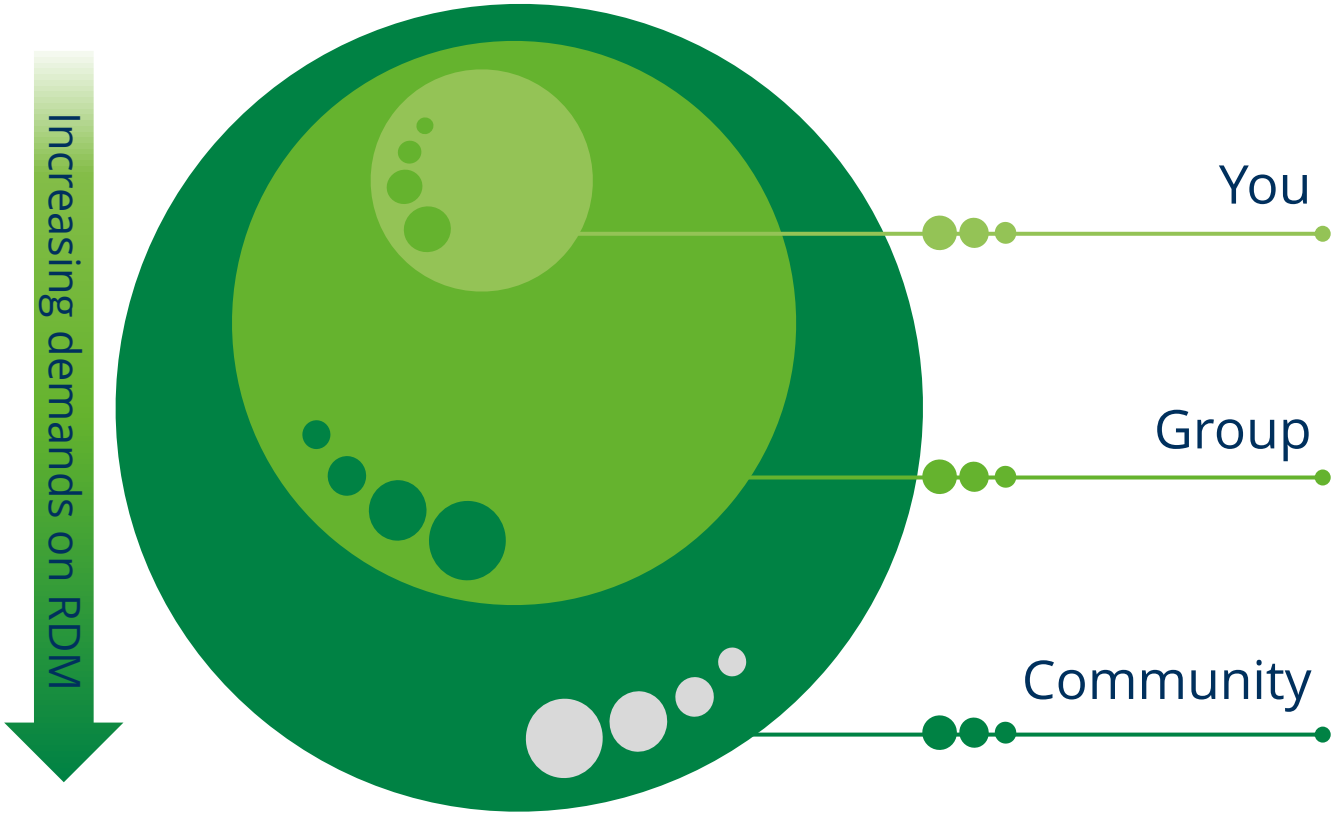
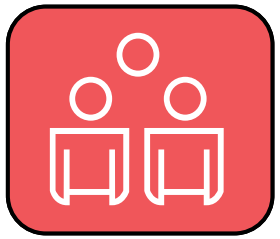


Image based on templates from Slidesgo

Responsibilities and resources

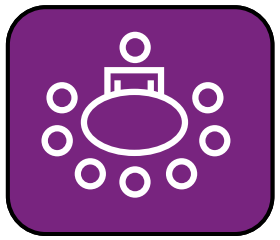
- ☐ **Taking on tasks in the implementation of the RDM**
- ☐ **Structures for the development and management of the RDM**
- ☐ **Introducing and monitoring liabilities**
- ☐ **(External) consulting and support**

Staff



- Consideration in the work plan (FTE)
- Consideration in task descriptions
- Data Manager
- …

Structures



- RDM Committee
- RDM Working Group
- RDM Meetings
- Peer review (for data quality etc.)
- …

Liabilities

- RDM policy
- RDM guideline
- RDM manual
- Checklists and SOPs
- …

Support

By RDM service centers
- Consultation
- Training
- Data meetings
- Best-Practices

Responsibilities and resources

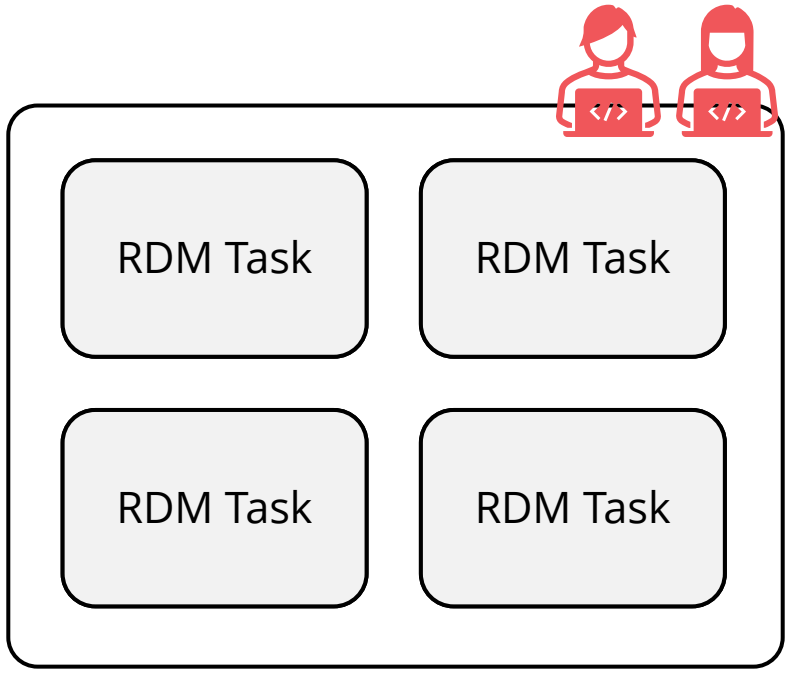
Staff

- Consideration in the work plan (FTE)
- Consideration in task descriptions
- Data Manager
- ...

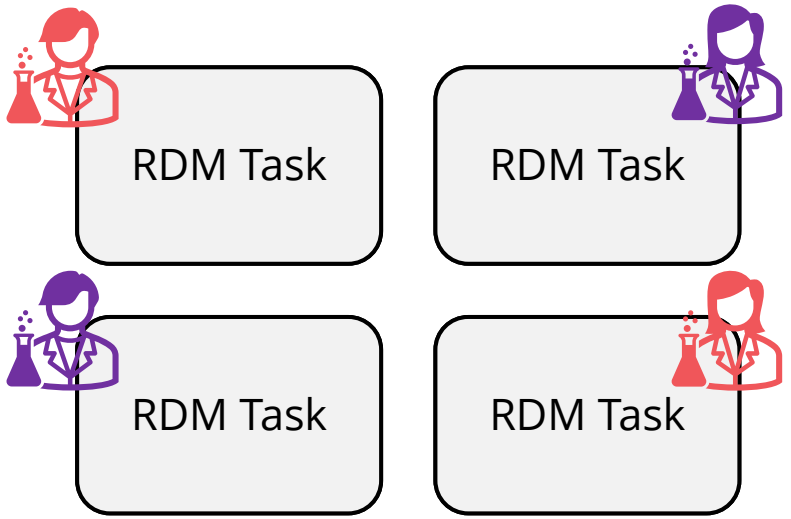
Structures

- RDM Committee
- Peer review (for data quality etc.)
- Working Group
- ...

IT / Data management subproject (e.g. INF)



Allocation of responsibilities



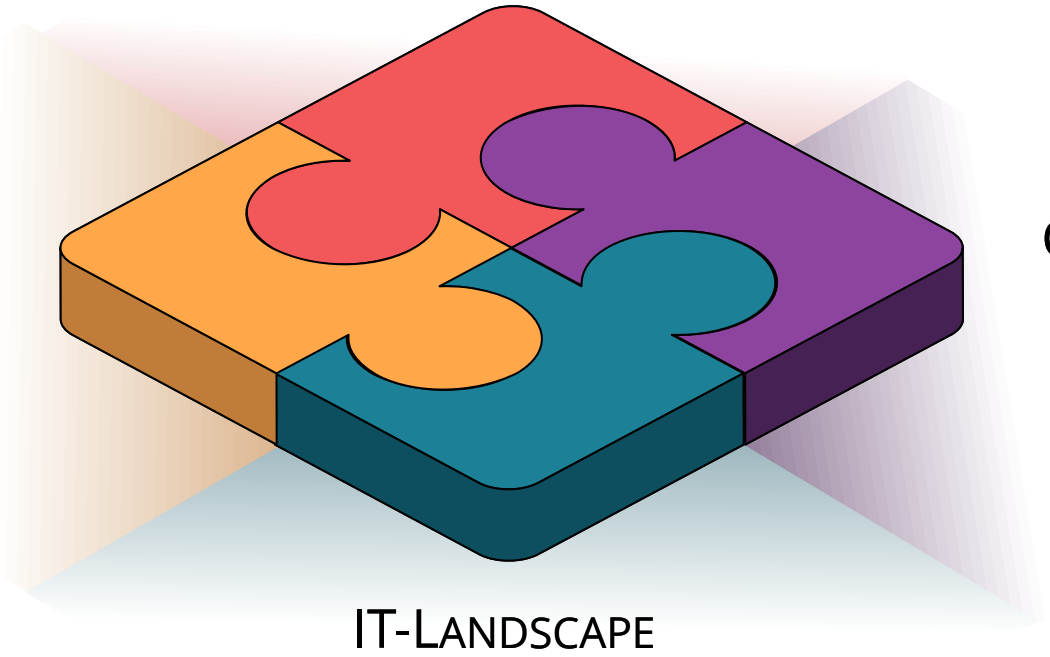
How to Start?

Some suggestions...

What to consider? – Holistic approach to research data management

Responsibilities, Resources and Appreciation

Conceptual Measures



Competences and Awareness

IT-Landscape

Image based on templates from Slidesgo

How to start? – SWOT*-Analysis

Vision

Introduce innovation and professionalize

What could be a sustainable solution?

Calculate workload and costs

What could go wrong in the future?

"Which **chances** can we take advantage of?"	"What **risks** can we reduce?"
"What **strengths** do we have?"	"What are our **weaknesses**?"

What is already going well?

Meet the requirements

What has been going badly so far?

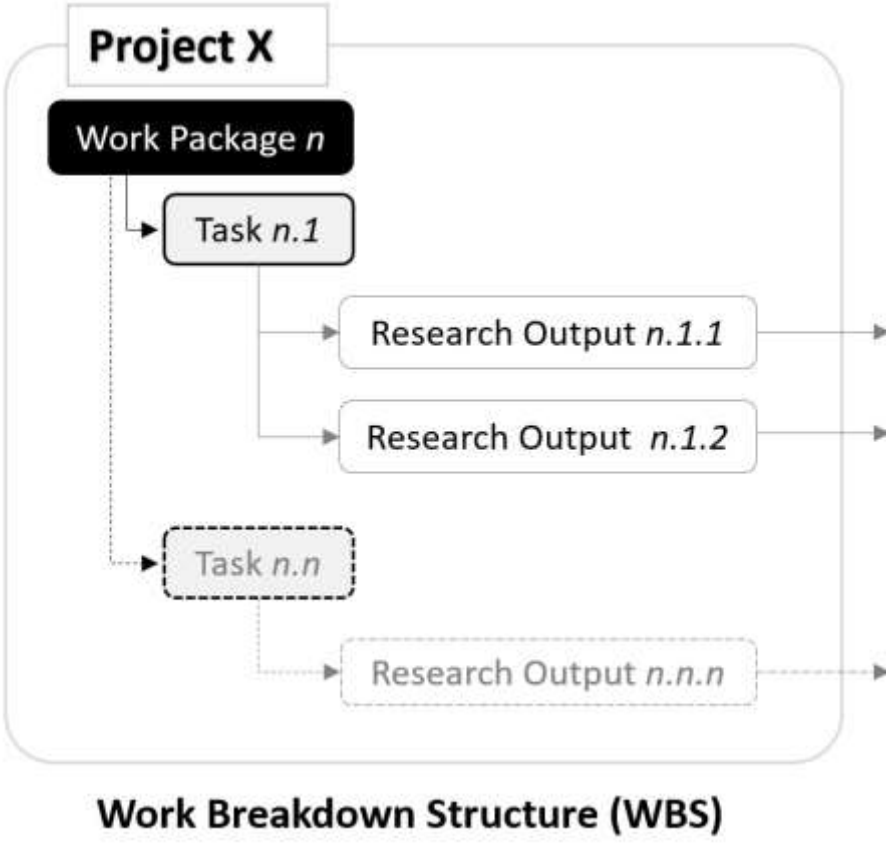
Determine liabilities

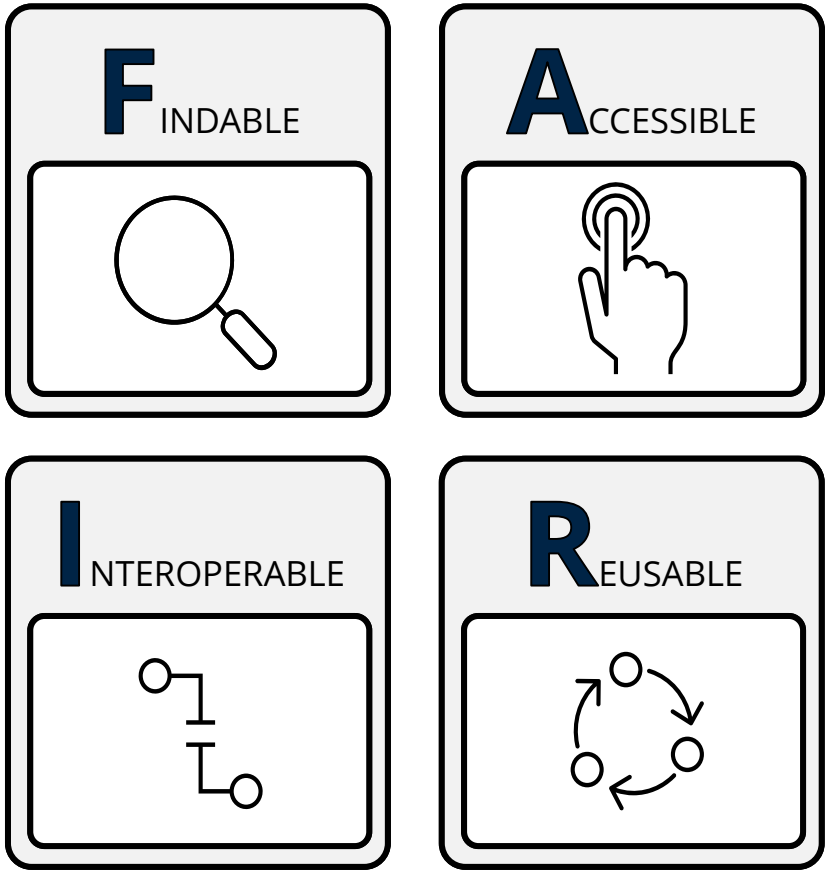
The Present

*Strengths, Weaknesses, Opportunities, Threats

How to start? – Collecting all information for the DMP

Research output management planning (ROMPi) according to the FAIR principles





Adaptation of: Della Chiesa, S. (2024). Research Output Lifecycle - Guidance for the Research Output Management Planning (ROMPi) (3.1). Zenodo. https://doi.org/10.5281/zenodo.11394846

Collecting all information for the DMP – Data description

Research Output	Responsible Person	Data Reuse?	Sensible Data?	Data Type	Data format	Software	Data Volume	Target Group
WP1 - <Name of Work Package>								
RO1.1 - <Name of Research Output>	<Organisation - Person>	<Yes / No>	<Yes / No>	<Data Type> (Text | Tables | Arrays | Images | Code | Geospatial | Physiological | Omics | Bibliographic | ...)	<Data Format> (*.docx, *.txt | *.xlsx, *.tsv, *.csv | *.hdf5, ... | *.png, *.jpg, *.dicom, *.geotiff, ... | *.R, *.py, ... | *.shp, ... | *.eeg, *.ecg, ... | *.FAST, ... | *.xml, *.ris, ...)	<Software>	< xx KB | MB | GB | TB | PB>	<Project Group / Community>
RO1.2 - <Name of Research Output>	<Organisation - Person>	<Yes / No>	<Yes / No>			<Software>	< xx KB | MB | GB | TB | PB>	<Project Group / Community>
WP2 - <Name of Work Package>								
RO2.1 - <Name of Research Output>	<Organisation - Person>	<Yes / No>	<Yes / No>	<Data Type> (Text | Tables | Arrays | Images | Code | Geospatial | Physiological | Omics | Bibliographic | ...)	<Data Format> (*.docx, *.txt | *.xlsx, *.tsv, *.csv | *.hdf5, ... | *.png, *.jpg, *.dicom, *.geotiff, ... | *.R, *.py, ... | *.shp, ... | *.eeg, *.ecg, ... | *.FAST, ... | *.xml, *.ris, ...)	Zotero	< xx KB | MB | GB | TB | PB>	<Project Group / Community>
RO2.2 - <Name of Research Output>	<Organisation - Person>	<Yes / No>	<Yes / No>			<Software>	< xx KB | MB | GB | TB | PB>	<Project Group / Community>
RO2.3 - <Name of Research Output>	<Organisation - Person>	<Yes / No>	<Yes / No>			<Software>	< xx KB | MB | GB | TB | PB>	<Project Group / Community>
RO2.4 - <Name of Research Output>	<Organisation - Person>	<Yes / No>	<Yes / No>			<Software>	< xx KB | MB | GB | TB | PB>	<Project Group / Community>
WP3 - <Name of Work Package>								
RO3.1 - <Name of Research Output>	<Organisation - Person>	<Yes / No>	<Yes / No>	<Data Type> (Text | Tables | Arrays | Images | Code | Geospatial | Physiological | Omics |	<Data Format> (*.docx, *.txt | *.xlsx, *.tsv, *.csv | *.hdf5, ... | *.png, *.jpg, *.dicom, *.geotiff, ... | *.R, *.py, ... | *.shp, ... |	<Software>	< xx KB | MB | GB | TB | PB>	<Project Group / Community>
RO3.2 - <Name of Research Output>	<Organisation - Person>	<Yes / No>	<Yes / No>			<Software>	< xx KB | MB | GB | TB | PB>	<Project Group / Community>
WP4 - <Name of Work Package>								
RO4.1 - <Name of Research Output>	<Organisation - Person>	<Yes / No>	<Yes / No>	<Data Type> (Text | Tables | Arrays |	<Data Format> (*.docx, *.txt | *.xlsx, *.tsv, *.csv |	<Software>	< xx KB | MB | GB | TB | PB>	<Project Group / Community>
RO4.2 - <Name of Research	<Organisation -				* hdf5 | * png, * jpg, * dicom		< xx KB | MB | GB	<Project Group /

Collecting all information for the DMP – Making data Findable

Research Output	Metadata	Metadata Standards	Data Organization	UID/PID
WP1 - <Name of Work Package>				
RO1.1 - <Name of Research Output>	<Metadata> (e.g., PID, Title, Author, Date, Size, File Format, Version, Contributor, Language, Location, References, Description, Parameters, Units, Method, Source, ...)	<Metadata Standard> (e.g., DataCite, discipline specific standard, software standard, device standard, parameter standard for sensors, journal standard, ...)	<Data Organization> (e.g., project specific file naming convention and folder structure, internal ID system, database, version control, electronic lab notebook, ...)	<Persistent Identifier> (e.g., DOI, PURL, UNIPROT, OMIM, ORCID, ROR, ...)
RO1.2 - <Name of Research Output>				
WP2 - <Name of Work Package>				
RO2.1 - <Name of Research Output>	<Metadata> (e.g., PID, Title, Author, Date, Size, File Format, Version, Contributor, Language, Location, References, Description, Parameters, Units, Method, Source, ...)	<Metadata Standard> (e.g., DataCite, discipline specific standard, software standard, device standard, parameter standard for sensors, journal standard, ...)	<Data Organization> (e.g., project specific file naming convention and folder structure, internal ID system, database, version control, electronic lab notebook, ...)	<Persistent Identifier> (e.g., DOI, PURL, UNIPROT, OMIM, ORCID, ROR, ...)
RO2.2 - <Name of Research Output>				
RO2.3 - <Name of Research Output>				
RO2.4 - <Name of Research Output>				
WP3 - <Name of Work Package>				
RO3.1 - <Name of Research Output>	<Metadata> (e.g., PID, Title, Author, Date, Size, File Format, Version, Contributor, Language, Location, References, Description, Parameters, Units, Method, Source, ...)	<Metadata Standard> (e.g., DataCite, discipline specific standard, software standard, device standard, parameter standard for sensors, journal standard, ...)	<Data Organization> (e.g., project specific file naming convention and folder structure, internal ID system, database, version control, electronic lab notebook, ...)	<Persistent Identifier> (e.g., DOI, PURL, UNIPROT, OMIM, ORCID, ROR, ...)
RO3.2 - <Name of Research Output>				

Collecting all information for the DMP – Making data Accessible

Research Output	Responsible for Access Management within the Project Group	Access within the Project Group	Open Access?	Reasons for Closed Access	Trusted Repository for OA	Standard Access Protocol	Metadata Sharing (CC0)? <Yes / No>
WP1 - <Name of Work Package>							
RO1.1 - <Name of Research Output>	<Organisation - Person>	<Cloud | Storage | internal Repository | Database | Data transfer procedure | ...>	<Yes / No>	<Reasons> (e.g., *sensible data from industry partner as per the Grant Agreement*)	<Repository Name and URL> (e.g., ZENODO - https://zenodo.org/, OPARA - https://opara.zih.tu-dresden.de/, GitLab - https://gitlab.hrz.tu-chemnitz.de/, Journal Archive, ...)	<Yes / No>	<Yes / No> <Where> (e.g., via OPARA Archive)
RO1.2 - <Name of Research Output>	<Organisation - Person>		<Yes / No>			<Yes / No>	<Yes / No> <Where>
WP2 - <Name of Work Package>							
RO2.1 - <Name of Research Output>	<Organisation - Person>	<Cloud | Storage | internal Repository | Database | Data transfer procedure | ...>	<Yes / No>	<Reasons>	<Repository Name and URL> (e.g., ZENODO - https://zenodo.org/, OPARA - https://opara.zih.tu-dresden.de/, GitLab - https://gitlab.hrz.tu-chemnitz.de/, Journal Archive, ...)	<Yes / No>	<Yes / No> <Where>
RO2.2 - <Name of Research Output>	<Organisation - Person>		<Yes / No>	<Reasons>		<Yes / No>	<Yes / No> <Where>
RO2.3 - <Name of Research Output>	<Organisation - Person>		<Yes / No>	<Reasons>		<Yes / No>	<Yes / No> <Where>
RO2.4 - <Name of Research Output>	<Organisation - Person>		<Yes / No>	<Reasons>		<Yes / No>	<Yes / No> <Where>
WP3 - <Name of Work Package>							
RO3.1 - <Name of Research Output>	<Organisation - Person>	<Cloud | Storage | internal Repository | Database | Data transfer procedure | ...>	<Yes / No>	<Reasons>	<Repository Name and URL> (e.g., ZENODO - https://zenodo.org/, OPARA - https://opara.zih.tu-dresden.de/, GitLab - https://gitlab.hrz.tu-chemnitz.de/, Journal Archive, ...)	<Yes / No>	<Yes / No> <Where>
RO3.2 - <Name of Research Output>	<Organisation - Person>		<Yes / No>	<Reasons>		<Yes / No>	<Yes / No> <Where>

Collecting all information for the DMP – Making data Interopable

Research Output	Metadata (see also Findable)	Metadata Standards (see also Findable)	other Standards / Vocabulary	Qualified References to other Data?
WP1 - <Name of Work Package>				
RO1.1 - <Name of Research Output>	<Metadata> (e.g., PID, Title, Author, Date, Size, File Format, Version, Contributor, Language, Location, References, Description, Parameters, Units, Method, Source, ...)	<Metadata Standard> (e.g., DataCite, discipline specific standard, software standard, device standard, parameter standard for sensors, journal standard, ...)	<standard | Vocabulary | Ontology | Terminolgy> (e.g., search for research specific standards at fairsharing.org)	<Yes / No>
RO1.2 - <Name of Research Output>				<Yes / No>
WP2 - <Name of Work Package>				
RO2.1 - <Name of Research Output>	<Metadata> (e.g., PID, Title, Author, Date, Size, File Format, Version, Contributor, Language, Location, References, Description, Parameters, Units, Method, Source, ...)	<Metadata Standard> (e.g., DataCite, discipline specific standard, software standard, device standard, parameter standard for sensors, journal standard, ...)	<standard | Vocabulary | Ontology | Terminolgy> (e.g., search for research specific standards at fairsharing.org)	<Yes / No>
RO2.2 - <Name of Research Output>				<Yes / No>
RO2.3 - <Name of Research Output>				<Yes / No> (e.g., RO2.3 is derived from RO2.1 by applying RO2.2)
RO2.4 - <Name of Research Output>				<Yes / No>
WP3 - <Name of Work Package>				
RO3.1 - <Name of Research Output>	<Metadata> (e.g., PID, Title, Author, Date, Size, File Format, Version, Contributor, Language, Location, References, Description, Parameters, Units, Method, Source, ...)	<Metadata Standard> (e.g., DataCite, discipline specific standard, software standard, device standard, parameter standard for sensors, journal standard, ...)	<standard | Vocabulary | Ontology | Terminolgy> (e.g., search for research specific standards at fairsharing.org)	<Yes / No>
RO3.2 - <Name of Research Output>				<Yes / No>

Collecting all information for the DMP – Making data Reusable

Research Output	Documentation	Data Quality Assurance Procedures	Open Access? (from Accessible)	Trusted Repository for OA (from Accessible)	Licence	When can the data be usable? (Embargo)
WP1 - <Name of Work Package>						
RO1.1 - <Name of Research Output>	<Documentation> e.g. via Protocols, ReadMe files, Codebooks, Scripts, Code documentation, etc.; about Methods, Variable definitions, Units of measurement, Data cleaning, aggregation, processing steps, and analyses)	<Data Quality Assurance Procedures> (e.g., Code review, Data review, Checklists, Peer review, Automatization ...)	<Yes / No>	<Repository Name and URL> (e.g., ZENODO - https://zenodo.org/, OPARA - https://opara.zih.tu-dresden.de/, GitLab - https://gitlab.hrz.tu-chemnitz.de/, Journal Archive, ...)	<Licence> *In Horizon Europe, research data should be made open access by default and licensed under the latest version of CC BY (attribution required) or CC 0 (public domain), or equivalent.* https://www.openaire.eu/how-do-i-license-my-research-data	<Answer> (e.g, upon request, immediately, after paper publication, after patent approval, ...)
RO1.2 - <Name of Research Output>			<Yes / No>			
WP2 - <Name of Work Package>						
RO2.1 - <Name of Research Output>	<Documentation> e.g. via Protocols, ReadMe files, Codebooks, Scripts, Code documentation, etc.; about Methods, Variable definitions, Units of measurement, Data cleaning, aggregation, processing steps, and analyses)	<Data Quality Assurance Procedures> (e.g., Code review, Data review, Checklists, Peer review, Automatization ...)	<Yes / No>	<Repository Name and URL> (e.g., ZENODO - https://zenodo.org/, OPARA - https://opara.zih.tu-dresden.de/, GitLab - https://gitlab.hrz.tu-chemnitz.de/, Journal Archive, ...)	<Licence> *In Horizon Europe, research data should be made open access by default and licensed under the latest version of CC BY (attribution required) or CC 0 (public domain), or equivalent.* https://www.openaire.eu/how-do-i-license-my-research-data	<Answer> (e.g, upon request, immediately, after paper publication, after patent approval, ...)
RO2.2 - <Name of Research Output>			<Yes / No>			
RO2.3 - <Name of Research Output>			<Yes / No>			

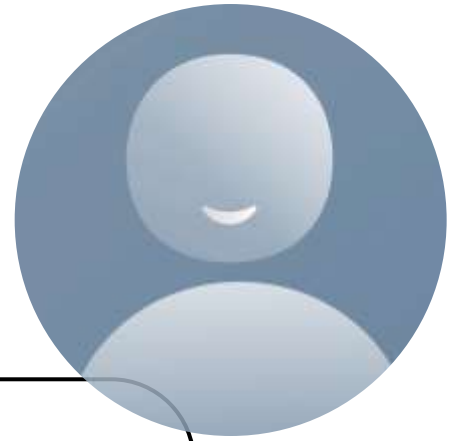
Collecting all information for the DMP – Storage

Research Output	Secure Storage	Backup	Transfer	Long-term preservation
WP1 - <Name of Work Package>				
RO1.1 - <Name of Research Output>	<Secure Storage> (e.g. institutional NFS/CIFS storage, S3 storage, HPC storage, institutional cloud service, Git, other plattform)	<Yes | No> <how?>	<Transfer> (e.g., institutional cloud service, access to institutional storage, secure data transfer tool, other)	<for xx Years | Unlimited> <where?> (e.g., institutional archive or repository, discipline specific trusted repository, generic trusted repository -> see *Reusable*)
RO1.2 - <Name of Research Output>		<Yes | No> <how?>		
WP2 - <Name of Work Package>				
RO2.1 - <Name of Research Output>	<Secure Storage> (e.g. institutional NFS/CIFS storage, S3 storage, HPC storage, institutional cloud service, Git, other plattform)	<Yes | No> <how?>	<Transfer> (e.g., institutional cloud service, access to institutional storage, secure data transfer tool, other)	<for xx Years | Unlimited> <where?> (e.g., institutional archive or repository, discipline specific trusted repository, generic trusted repository -> see Reusable)
RO2.2 - <Name of Research Output>		<Yes | No> <how?>		
RO2.3 - <Name of Research Output>		<Yes | No> <how?>		
RO2.4 - <Name of Research Output>		<Yes | No> <how?>		
WP3 - <Name of Work Package>				
RO3.1 - <Name of Research Output>	<Secure Storage> (e.g. institutional NFS/CIFS storage, S3 storage, HPC storage, institutional cloud service, Git, other plattform)	<Yes | No> <how?>	<Transfer> (e.g., institutional cloud service, access to institutional storage, secure data transfer tool, other)	<for xx Years | Unlimited> <where?> (e.g., institutional archive or repository, discipline specific trusted repository, generic trusted repository -> see *Reusable*)
RO3.2 - <Name of Research Output>		<Yes | No> <how?>		
WP4 - <Name of Work Package>				
RO4.1 - <Name of Research Output>	<Secure Storage> (e.g. institutional NFS/CIFS	<Yes | No> <how?>	<Transfer> (e.g., institutional cloud	<for xx Years | Unlimited> <where?> (e.g., institutional archive or repository

Summary and (Possible) Next Steps

Summary

- “Story” and Group
- Collaboration
- Data Collection and Processing
- Making data reusable (FAIR)
- Resources and Responsibilities



Take-Away Message

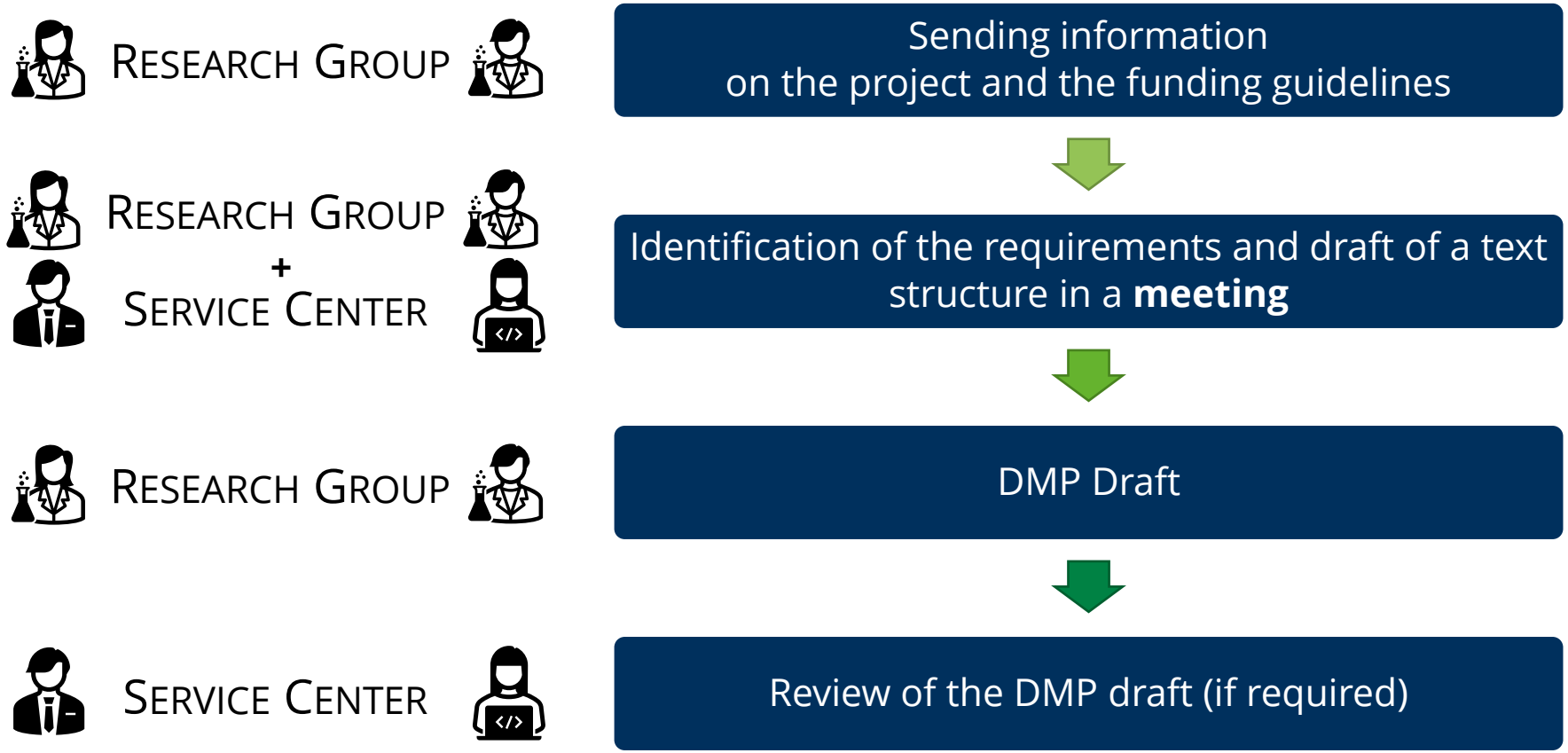
"It's not about planning all the details, but about conveying the idea and honestly assessing the effort."

Writing a data management plan

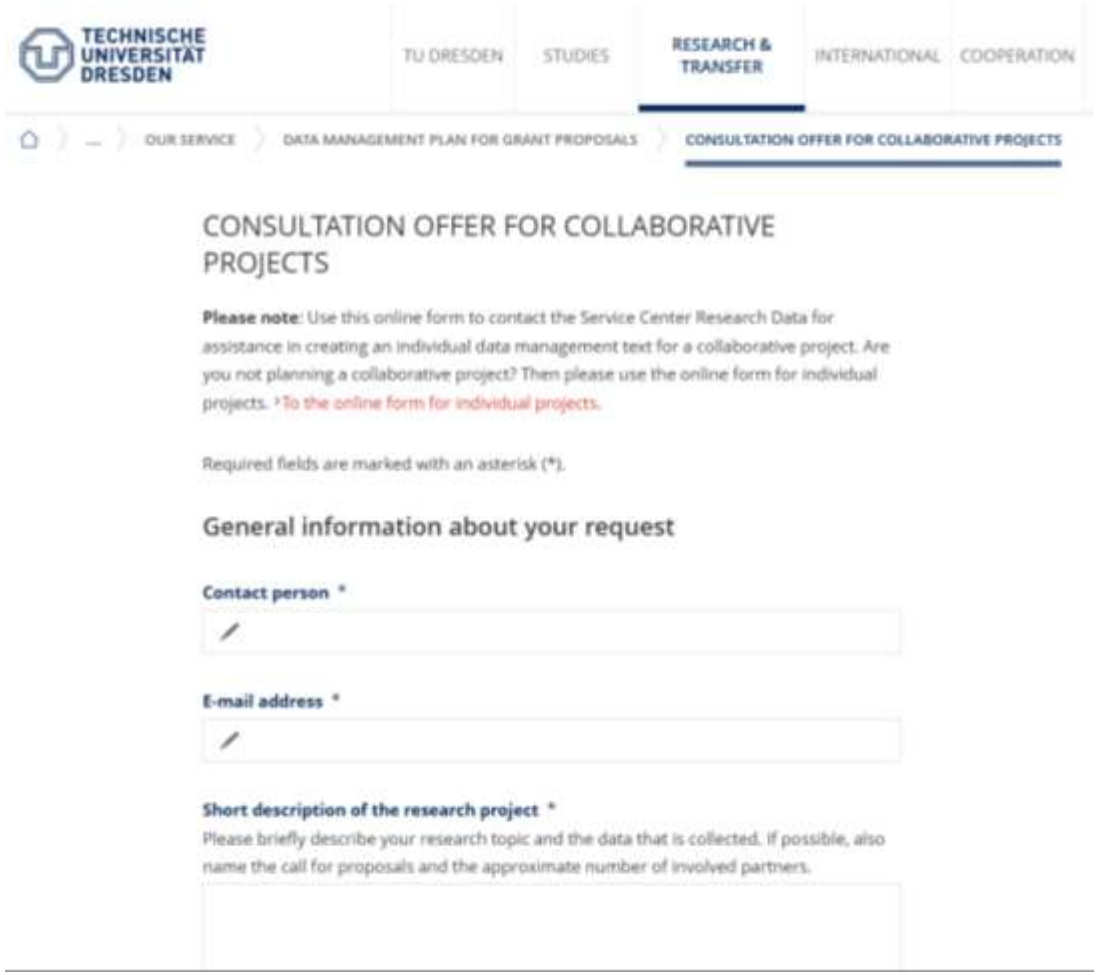
- ✓ **Start early!**
- ✓ **Write together!**
- ✓ **Stay realistic and practical!**
- ✓ **Use the template of the funding institutions (if available)!**
- ✓ **Get support! (e.g. Service Center Research Data of TU Dresden)**

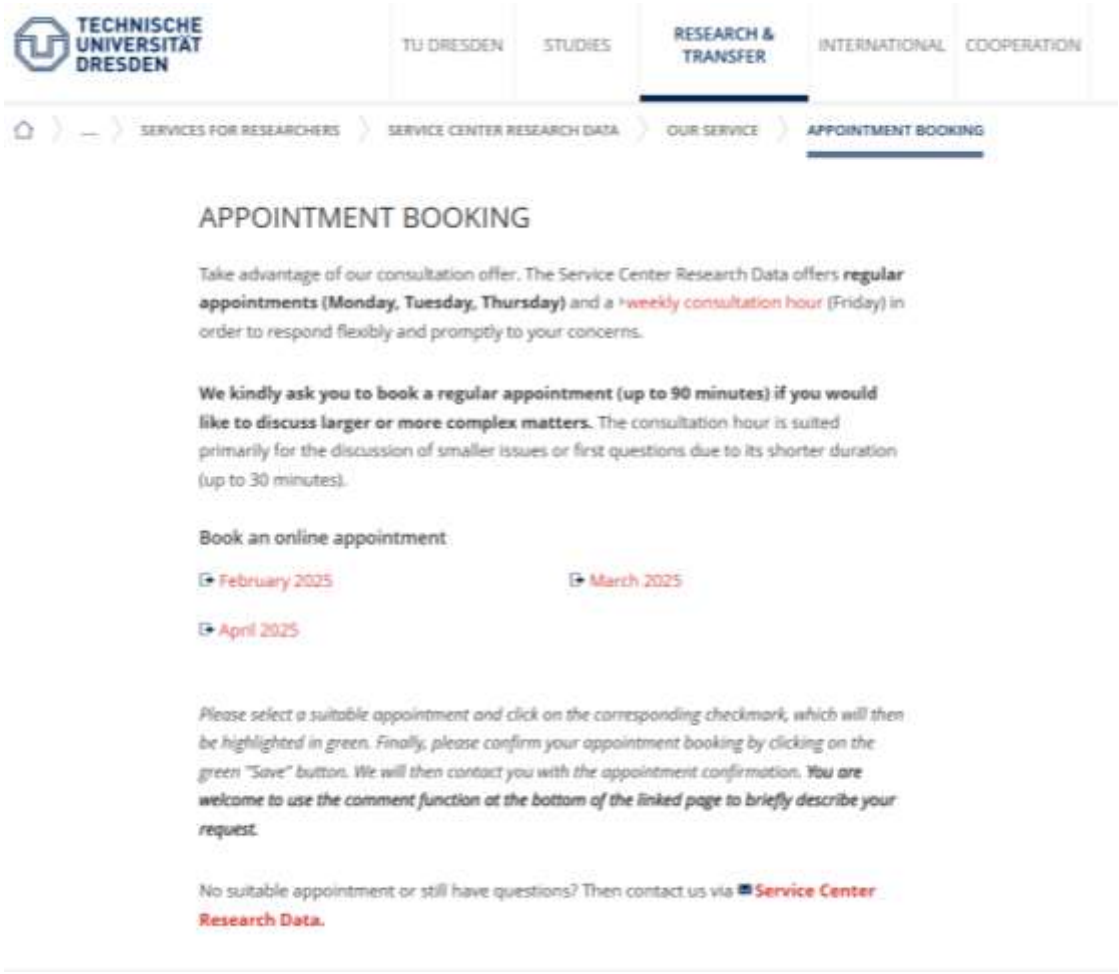
www.digitalbevaring.dk

Support – DMP for collaborative project proposals and deliverables



SUPPORT – DMP FOR COLLABORATIVE PROJECT PROPOSALS AND DELIVERABLES





Next steps / our service

Look for further lectures of the Service Center Research Data or book an appointment.

Make yourself familiar with the ZIH IT Infrastructure https://tud.link/yvbh
For further questions regarding IT infrastructure (group drives, cloudstore, ..) contact the ZIH Service Desk:
https://tu-dresden.de/zih/dienste/service-desk | servicedesk@tu-dresden.de

TECHNISCHE UNIVERSITÄT DRESDEN

ZIH SLUB Wir führen Wissen. DRESDEN concept

Service Center Research Data

Thank you for your attention

https://tu-dresden.de/kontaktstelle-forschungsdaten

kontaktstelle-forschungsdaten@tu-dresden.de