



Denise Dörfel

Service Center Research Data
Kontaktstelle Forschungsdaten

**THE ZIH INFRASTRUCTURE I CAN USE FOR SECURE
STORAGE AND SUSTAINABLE MANAGEMENT OF MY
RESEARCH DATA**

THE SERVICE CENTER RESEARCH DATA

Cooperation between



Department 4.3 Research-related
Services



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

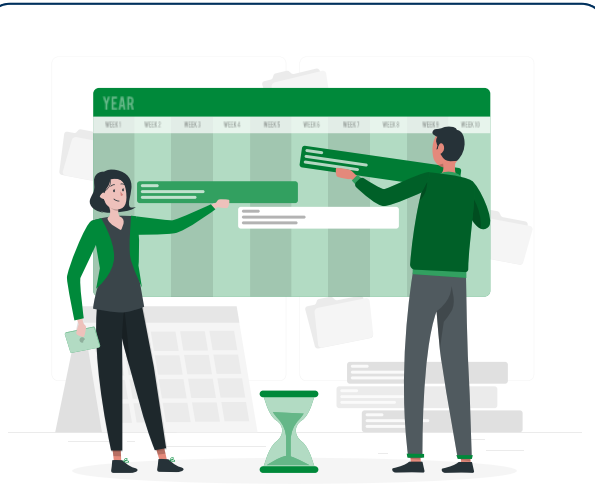
➤ Certified in ITIL and Requirements Engineering

Services:

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

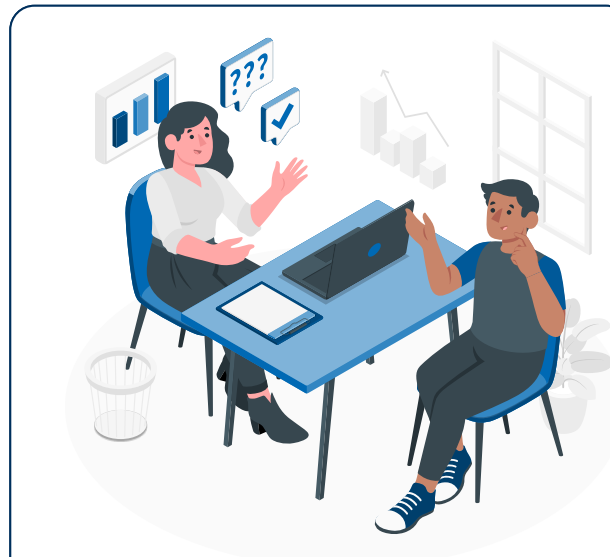


THE SERVICE CENTER RESEARCH DATA



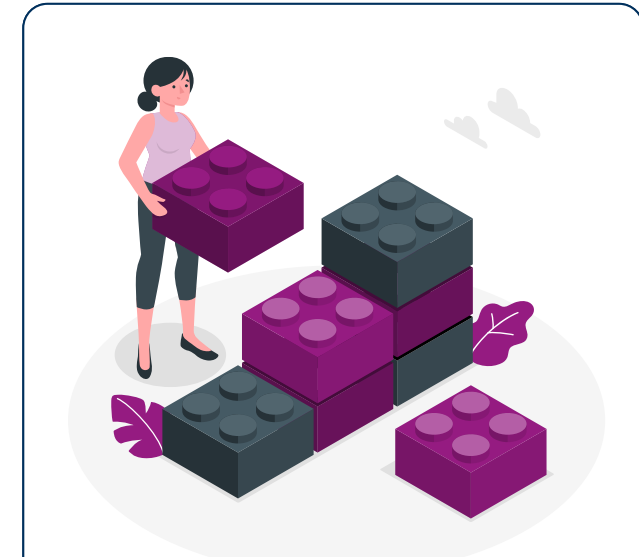
PLAN – Data management plan (DMP)

- 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

INFORMATION ON FURTHER TRAINING EVENTS

Please consult the website of the Service Center Research Data

<https://tud.link/a4up>

**TECHNISCHE
UNIVERSITÄT
DRESDEN**

TU DRESDENSTUDIUMFORSCHUNG & TRANSFERINTERNATIONALESKOOPERATION

[FORSCHUNG & TRANSFER](#) [SERVICES FÜR FORSCHENDE](#) [KONTAKTSTELLE FORSCHUNGSDATEN](#)

UNSER SERVICE **SCHULUNGEN** SCHULUNGSTERMINEWISSENSWERTESÜBER UNS

 **SLUB**
Wir führen Wissen.



KONTAKTSTELLE FORSCHUNGSDATEN

Die Digitalisierung hat Einzug in die Forschung gehalten. Technologische Neuerungen bieten für Forschende neue Potentiale, die eigene Arbeit effizienter und effektiver zu gestalten. Aus diesen Potentialeen ergeben sich jedoch zugleich neue Herausforderungen.

Die Kontaktstelle Forschungsdaten unterstützt jede Wissenschaftlerin und jeden Wissenschaftler der TU Dresden sowie der Einrichtungen von DRESDEN-concept bei individuellen Herausforderungen im Umgang mit Forschungsdaten.

Um dies zu ermöglichen, arbeiten in der Kontaktstelle Forschungsdaten die SLUB und das ZIH zusammen. Diese organisationsübergreifende Zusammenarbeit erlaubt es, interdisziplinäre Dienstleistungen im Bereich Forschungsdatenmanagement anzubieten.

[WEITERE INFORMATIONEN](#)

EINBLICKE IN DIE PRAXIS [»Weitere News](#)



19.03.2025

Schulungen zum Forschungsdatenmanagement im Sommersemester - Wie kann ich (meine) Daten organisieren, verstehen, wiederfinden, archivieren und publizieren?

[» Weiterlesen](#)



28.02.2024

Was kann eine gute Dokumentation erreichen?

[» Weiterlesen](#)



28.01.2024

Definition von Forschungsdatenmanagement

[» Weiterlesen](#)

TERMINE [»Weitere Termine](#)

[<](#) **APR 10 2025** **SaxFDM Digital Kitchen – Von der Ordnerstruktur zum automatisierten Datenmanagement** **APR 30 2025** **Archivierung und Publikation meiner Forschungsdaten - Eine Einführung (Vortrag in Englisch)** [>](#)

GOALS OF THIS TALK



At the end of the lecture, you will know which systems you can use at the ZIH to:

- ✓ Save data and provide it with a backup
- ✓ Collaborate with others on data and documents
- ✓ Share data with other (external) stakeholders
- ✓ Create a data and project overview
- ✓ Archive data





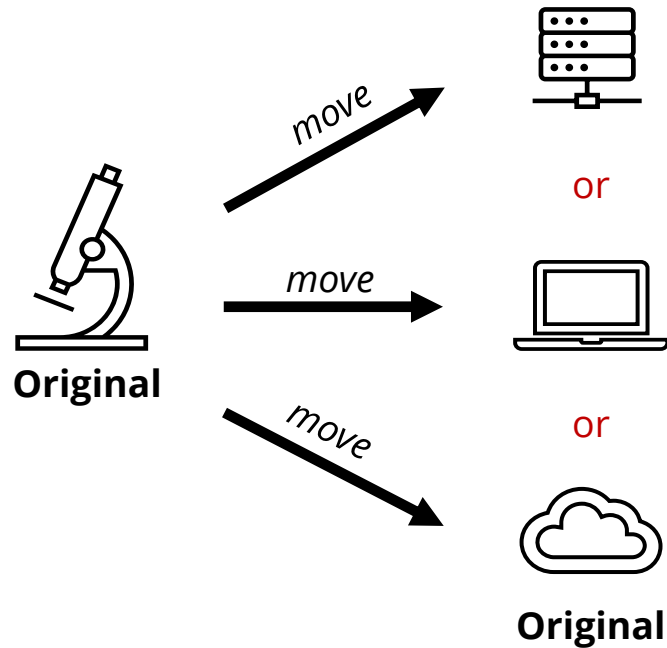
DATA STORAGE AND BACKUP AT TU DRESDEN

Terminology

DATA STORAGE VS BACKUP

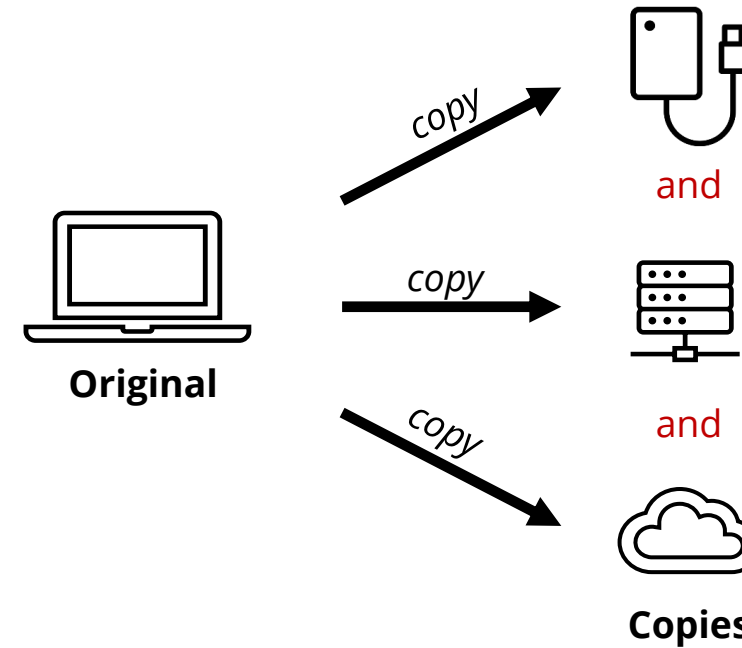
Storage

- Recording data to a storage medium to store it securely and accessibly



Backup

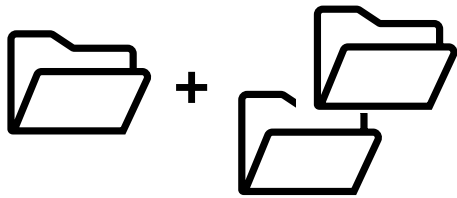
- Make one or more copies of the data in case the original data is lost, damaged or otherwise inaccessible



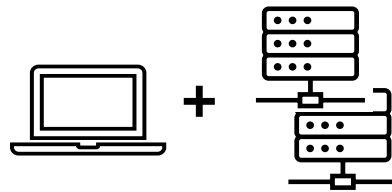
WHAT IS A BACKUP?

- Copy of the original data, which is saved on a suitable storage medium
- Purpose: to avoid data loss
- Should be redundant to the original data and created regularly

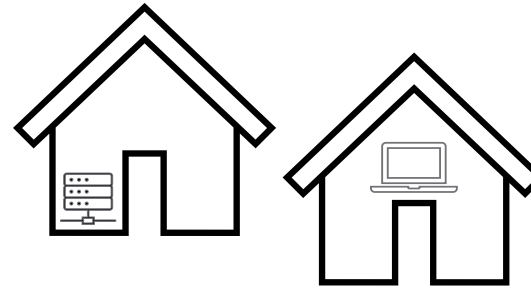
3-2-1 Backup rule:



At least **3 copies** of the data ...



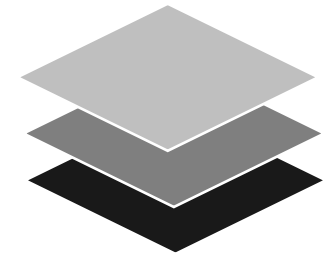
... stored on **2 different** kinds of storage media ...



... **1 copy** is physically separated from the others ...

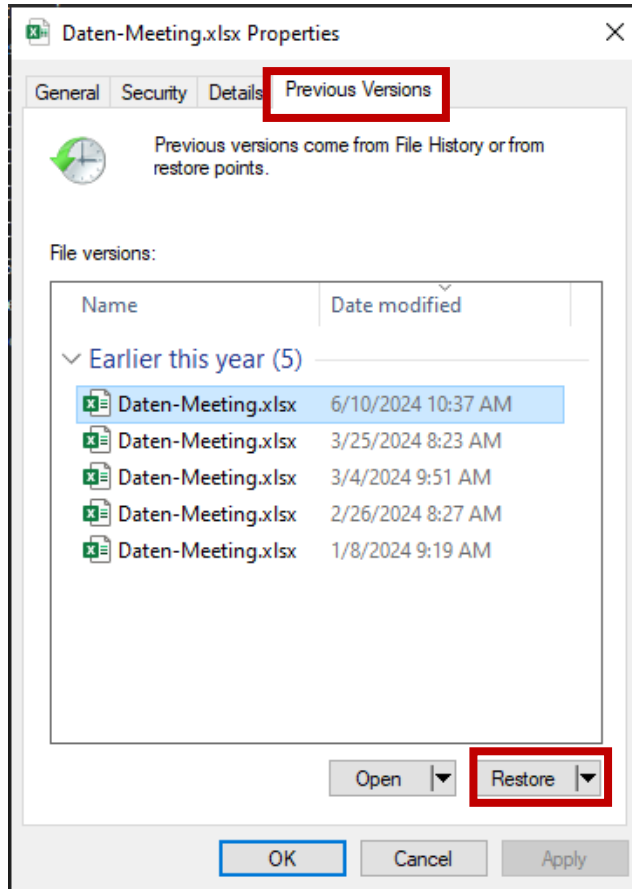


... to create several **layers** that prevent the loss of data.



BACKUP TERMINOLOGY FOR CENTRAL STORAGE

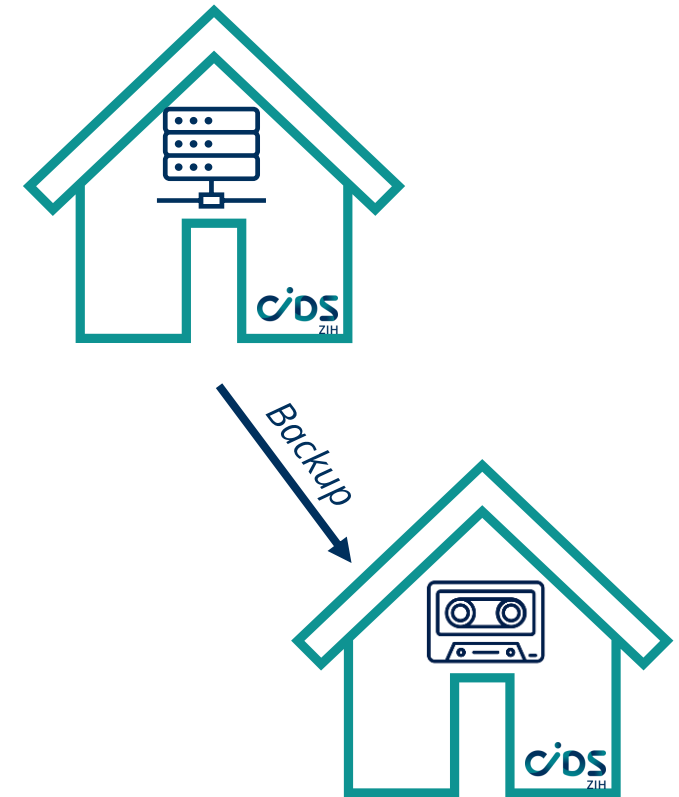
Snapshots



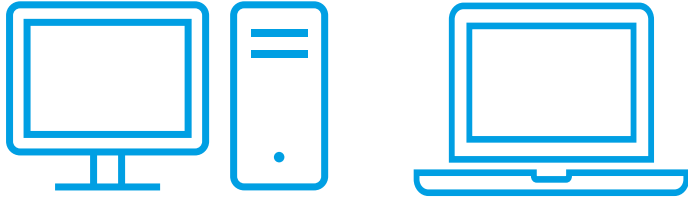
Mirror



Backup

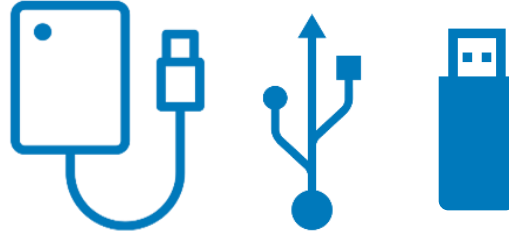


COMPARISON OF STORAGE SYSTEMS



(own) Desktop PC or laptop

- Easy access
- Sharing/collaboration difficult
- Encryption and backup must be set up by yourself



External magnetic or flash memory

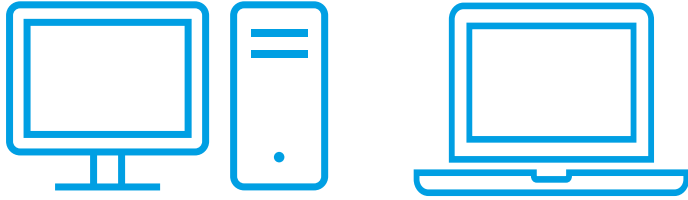
- Easy to transport
- Can be shared, but collaboration is still difficult
- Easily lost, stolen, or broken
- Encryption and backup must be set up by yourself



Institute servers or (external) cloud services

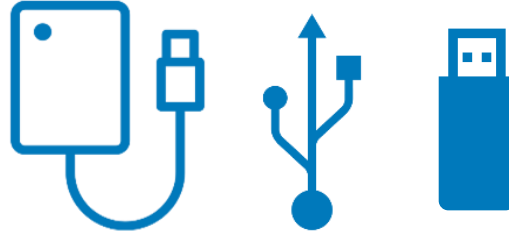
- Automatic backup
- Professional support
- Access rights management
- Remote access
- Less personal control

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- Remote access
- Less personal control



DATA STORAGE AND BACKUP AT TU DRESDEN

Local Systems

STORAGE SYSTEMS: LOCAL STORAGE

System	ZIH- login	VPN	Backup / Copies	Sensitive data	Volume	Collaborative work
Local PC						

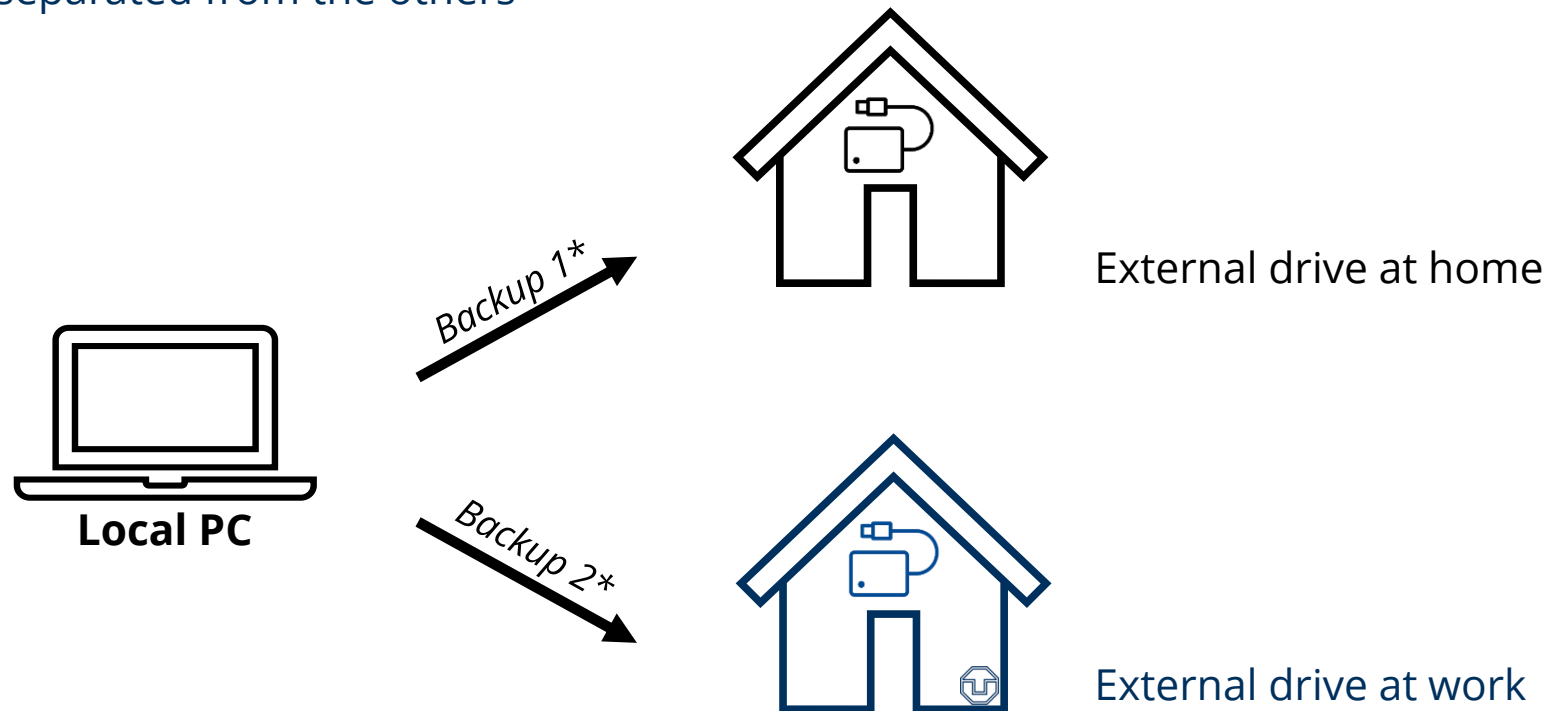
*extendable on request; **request via [ZIH Self Service Portal](#),
*** High Performance Computing

INDIVIDUAL BACKUP OF LOCAL PC

3-2-1 Backup rule:

- at least 3 copies of the data...
- ... stored on 2 different kinds of storage media...
- ... 1 copy is physically separated from the others

Example



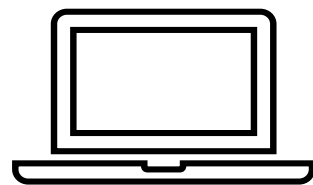
*e.g., using [PureSync](#)

ZIH-BACKUP OF LOCAL PC

3-2-1 Backup rule:

- at least 3 copies of the data...
- ... stored on 2 different kinds of storage media...
- ... 1 copy is physically separated from the others

Example



Local PC

Central backup
system of ZIH



- ✓ Two copies of a file (mirror)
- ✓ Daily backup
- ✓ File versions are stored up to 180 days
- ✓ Graphical front end or command line tool for restore
- ✓ Restore to any place on the originating machine

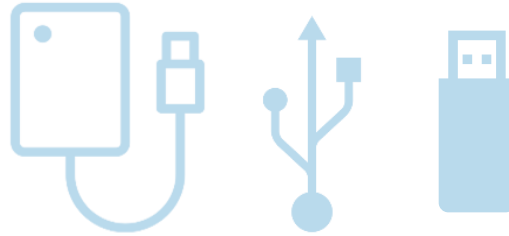


STORAGE SYSTEMS – CENTRAL STORAGE



(own) Desktop PC or laptop

- Easy access
- Sharing/collaboration difficult
- Encryption and backup must be set up by yourself



External magnetic or flash memory

- Easy to transport
- Can be shared, but collaboration is still difficult
- Easily lost, stolen, or broken
- Encryption and backup must be set up by yourself



Institute servers or (external) cloud services

- Automatic backup
- Professional support
- Access rights management
- Remote access
- Less personal control



DATA STORAGE AND BACKUP AT TU DRESDEN

Central Network Drives

STORAGE SYSTEMS – CENTRAL STORAGE: NETWORK DRIVES

System	ZIH-login	VPN	Backup / Copies	Sensitive data	Volume	Collaborative work
Local PC						
Home Drive				only with encryption	20 – 200 GB	

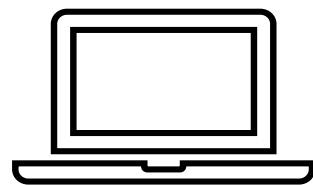
*extendable on request; **request via [ZIH Self Service Portal](#),
*** High Performance Computing

ZIH-HOME DRIVE AND BACKUP

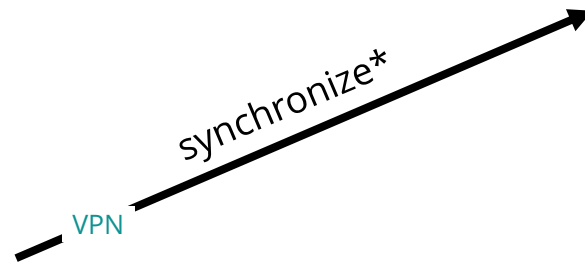
3-2-1 Backup rule:

- at least 3 copies of the data...
- ... stored on 2 different kinds of storage media...
- ... 1 copy is physically separated from the others

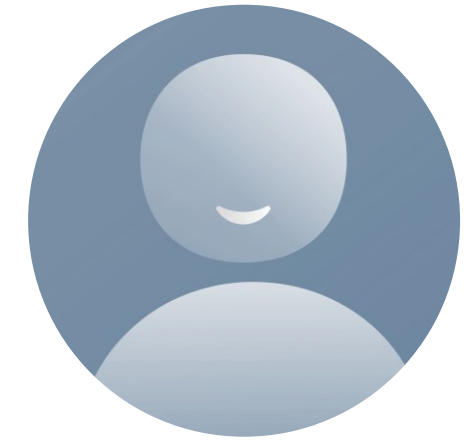
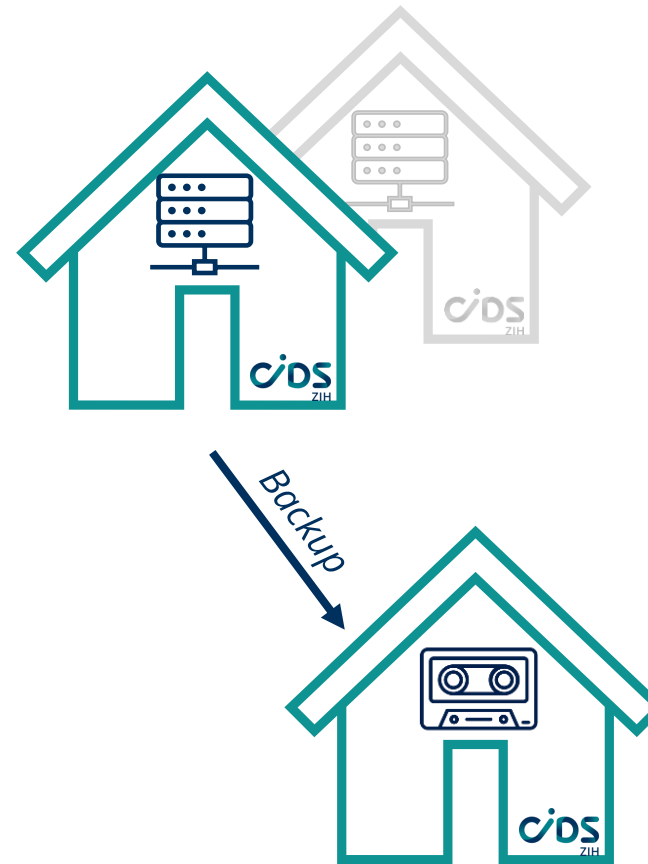
Example



Local PC



*e.g., with [PureSync](#)



ZIH-Home Drive:

- ✓ Available instantly with ZIH-login
- ✓ Mirror to second site
- ✓ Snapshots

Automatic backup by ZIH

- ✓ 26 weeks recovery period

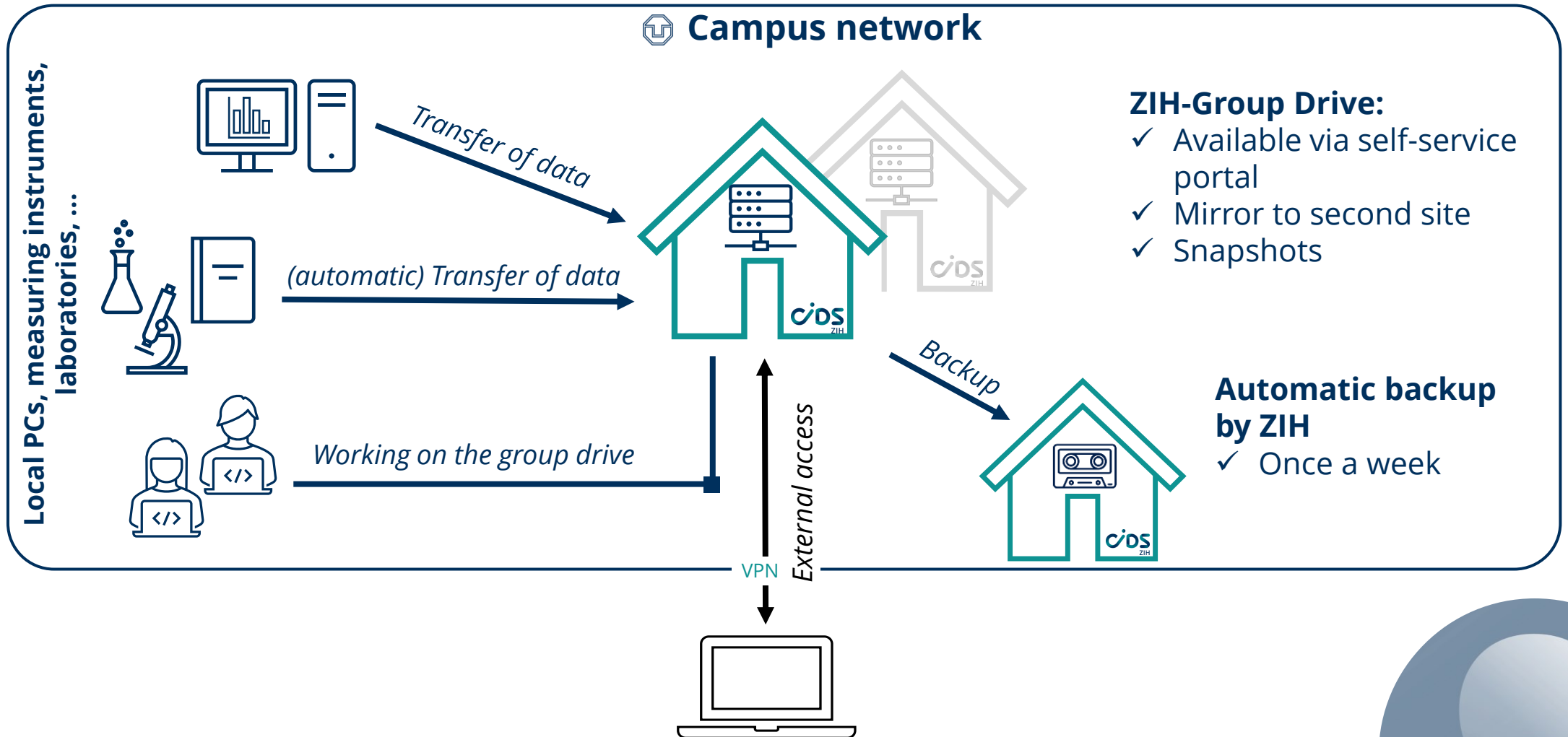
STORAGE SYSTEMS – CENTRAL STORAGE: NETWORK DRIVES

System	ZIH- login	VPN	Backup / Copies	Sensitive data	Volume	Collaborative work
Local PC						
Home Drive				only with encryption	20 – 200 GB	
Group Drive**				with additional settings	< 50 TB	

} Think
about
access
rights!

*extendable on request; **request via [ZIH Self Service Portal](#),
*** High Performance Computing

USING THE ZIH-GROUP DRIVE – EXAMPLE AND BACKUP



FINDING YOUR ZIH-INFRASTRUCTURE – TU DRESDEN SELF-SERVICE PORTAL

 TECHNISCHE UNIVERSITÄT DRESDEN	☾	🌐 English ▼	➔ Login
SELF-SERVICE PORTAL		My tasks	Data protection declarations



Welcome to the self-service portal. Without logging in, you can browse the services offered by ZIH. After logging in (top right), you will have the opportunity to book services and adjust or cancel booked services.

Actions available directly in the self-service portal can be recognized by the gear wheel ⚙️ in the tiles. We are continuously expanding the scope. In doing so, we also want to take your opinion as a user into account. We therefore welcome  **your feedback.**

<https://selfservice.tu-dresden.de/>

FINDING YOUR ZIH-INFRASTRUCTURE – TU DRESDEN SELF-SERVICE PORTAL

Central storage

The diagram illustrates the 'Central storage' section of the TU Dresden self-service portal. On the left, a sidebar contains three menu items: 'Backup' (with subtext 'Data saving on personal computers and servers'), 'Home drive' (with subtext 'User's personal disk space'), and 'Shared NFS and CIFS storage' (with subtext 'Shared storage space' and a gear icon). Two green arrows point to the 'Backup' and 'Home drive' items. The main content area is titled 'Shared NFS and CIFS storage (Shared storage space)'. It features a tabbed interface with 'Service description' and 'Shared storage overview' tabs. The 'Shared storage overview' tab is active, displaying the text 'On this page you can view your shared storages or request new ones.' and a prominent red button labeled 'Request shared storage'. A white callout box with the text 'Group drive' is positioned over the 'Shared NFS and CIFS storage' menu item.

Backup
Data saving on personal computers and servers

Home drive
User's personal disk space

Shared NFS and CIFS storage
Shared storage space

Group drive

Shared NFS and CIFS storage (Shared storage space)

Service description

Shared storage overview

On this page you can view your shared storages or request new ones.

Request shared storage



TU DRESDEN SELF-SERVICE PORTAL – ZIH-GROUP DRIVE REQUEST FORM

NFS and CIFS Storage

Request shared storage

Fields marked with * are required.

General

Shared storage's name*

minimum 4, maximum 10 characters, starting with letters. Cannot be changed afterwards!

Duration*

Define data protection level

Data protection requirements*

[help for protection needs assessment](#)

purpose of use

- ☐ Kategorie Backup/Archiv (Time Machine, rsync oder ähnlich) (Backup: no, Mirror: no, Snapshots: no, maximum size: 2048 GB)
- ☐ Kategorie Instituts-, Projekt- und Publikationsdaten (Backup: yes, Mirror: yes, Snapshots: yes, maximum size: 5120 GB)
- ☐ Kategorie Forschungsrohdaten (Backup: no, Mirror: yes, Snapshots: yes, maximum size: 51200 GB)

Size in GiB*

GiB

Define data volume

Shared storage's management group*

Nur [IDM-Gruppenportal](#)

Define access rights

Configuration*

Define backup strategy



DATA STORAGE AND BACKUP AT TU DRESDEN

Central Cloud Services

STORAGE SYSTEMS – CENTRAL STORAGE: CLOUD SERVICES

System	ZIH-login	VPN	Backup / Copies	Sensitive data	Volume	Collaborative work
Local PC	✗	✗	?	✗	?	✗
Home Drive	✓	✓	✓	only with encryption	20 – 200 GB	✗
Group Drive**	✓	✓	✓	with additional settings	< 50 TB	✓
Datashare	✓	✗	✗	✗	2 – 10* GB	✓
SharePoint	✓	✗	✓	with additional settings	5* GB	✓

Think about access rights!

*extendable on request; **request via [ZIH Self Service Portal](#),
*** High Performance Computing



CLOUD SERVICES – FEATURES

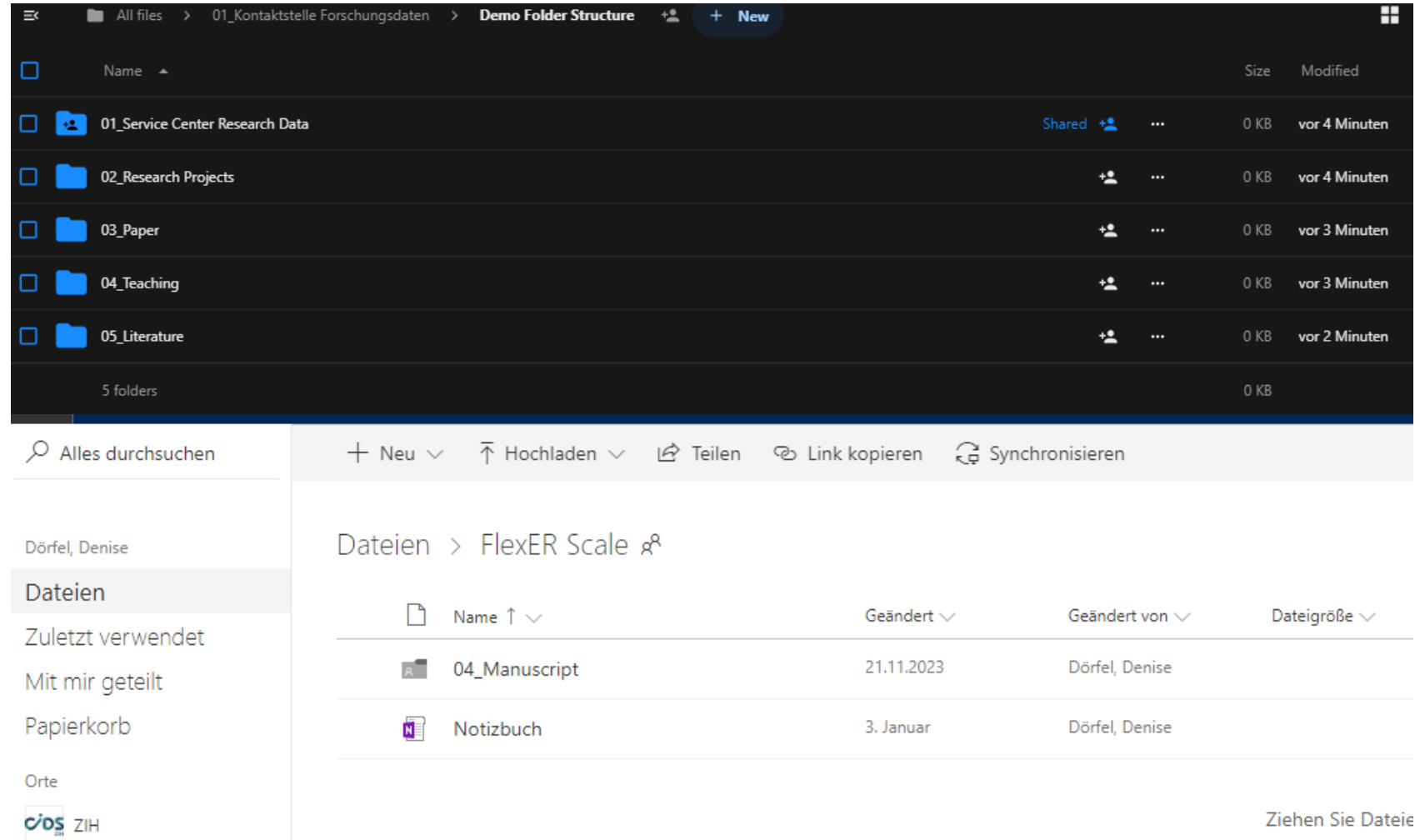
Shared access to folders
and files



Datashare



SharePoint

A screenshot of a cloud storage interface, likely OneDrive or SharePoint. The top bar shows the path: 'All files > 01_Kontaktstelle Forschungsdaten > Demo Folder Structure'. Below this is a table of folders:

Name	Size	Modified
01_Service Center Research Data	0 KB	vor 4 Minuten
02_Research Projects	0 KB	vor 4 Minuten
03_Paper	0 KB	vor 3 Minuten
04_Teaching	0 KB	vor 3 Minuten
05_Literature	0 KB	vor 2 Minuten

Below the table, it says '5 folders' and '0 KB'. The bottom section shows a search bar 'Alles durchsuchen' and a list of files under 'Dateien > FlexER Scale 88'. The files are:

Name	Geändert	Geändert von	Dateigröße
04_Manuscript	21.11.2023	Dörfel, Denise	
Notizbuch	3. Januar	Dörfel, Denise	

CLOUD SERVICES – FEATURES

Working simultaneously on office documents

Working simultaneously on office documents

The screenshot shows a Microsoft Excel spreadsheet with the following data:

	2. Version FlexER12	Anzahl Antwortende FlexER12	Version FlexER26	Antworten FlexER26	Version FlexER42	Antworten FlexER42
IV. Skalenentwicklung)			ja	250	ja	180 - 200
u. + ER Experiment)	ja		111			
	ja		177			
	ja		409			
Experiment, ESER)			ja	110		
Experiment, ESER)			ja	50		
Erhebung, MA)			ja	33		
Experiment)	ja		160			
Erhebungskräfte, MA)						
			857		443	
			1300			



Datashare

A new Questionnaire Measuring Emotion Regulation Flexibility - Draft - Gespeichert

Was möchten Sie tun? IN WORD BEARBEITEN

AaBbCc Standard AaBbCc Klein Leerra... AaBbCc Überschrift 1 AaBbCc Überschrift 2 AaBbCc Überschrift 3

Suchen Ersetzen

Abatz Formatvorlagen Bearbeiten

Kopfzeile

Dörfel, Denise
information

Type of article

Methodology articles: these include novel experimental approaches, statistical techniques, material development, and other methodological innovations directly relevant to affective science. Methodology articles have a **5,000 word** limit. The abstract is to be no longer than 250 words. There are no limits on figures, tables or references. Use of supplemental information and available open-source materials are encouraged.

Manuscript

https://link.springer.com/journal/42761/submission-guidelines=Instructions%20for%20Authors_Manuscript%20Submission

https://link.springer.com/journal/42761/submission-guidelines=Instructions%20for%20Authors_Text

Wichtig: APA Style auch bei Überschriften und Text

Seitenumbruch

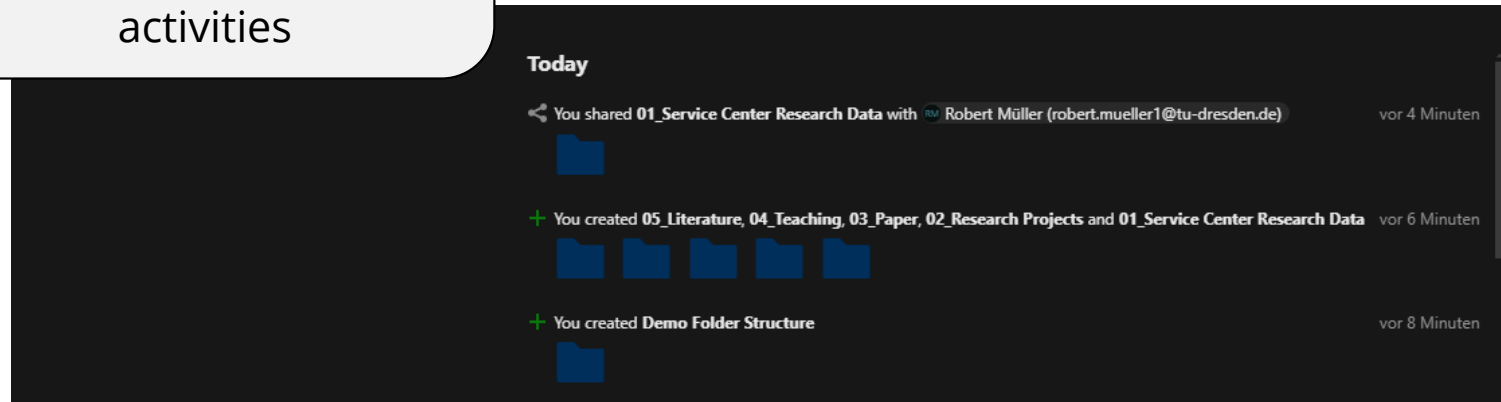
Title Page

https://link.springer.com/journal/42761/submission-guidelines=Instructions%20for%20Authors_Title%20Page

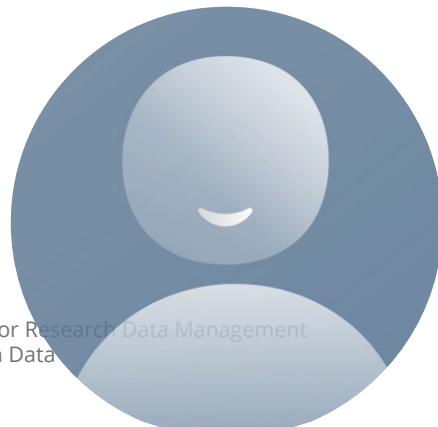
Sha

CLOUD SERVICES – FEATURES

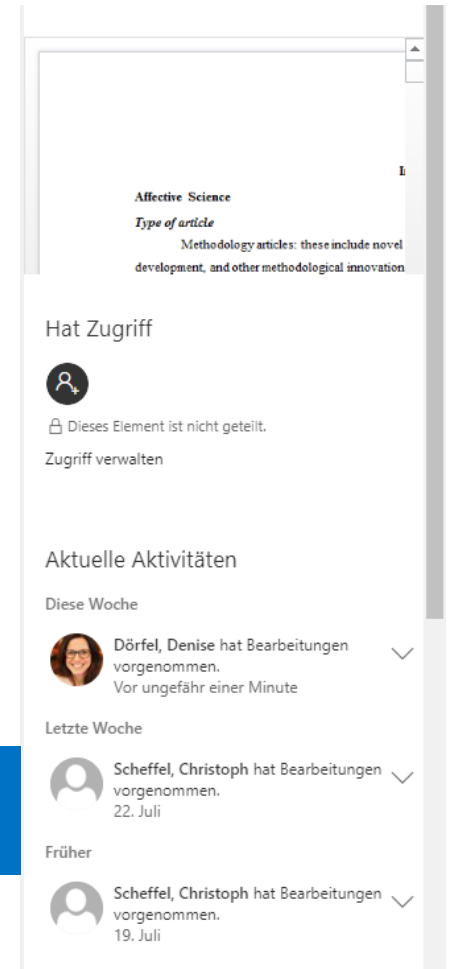
Information about activities



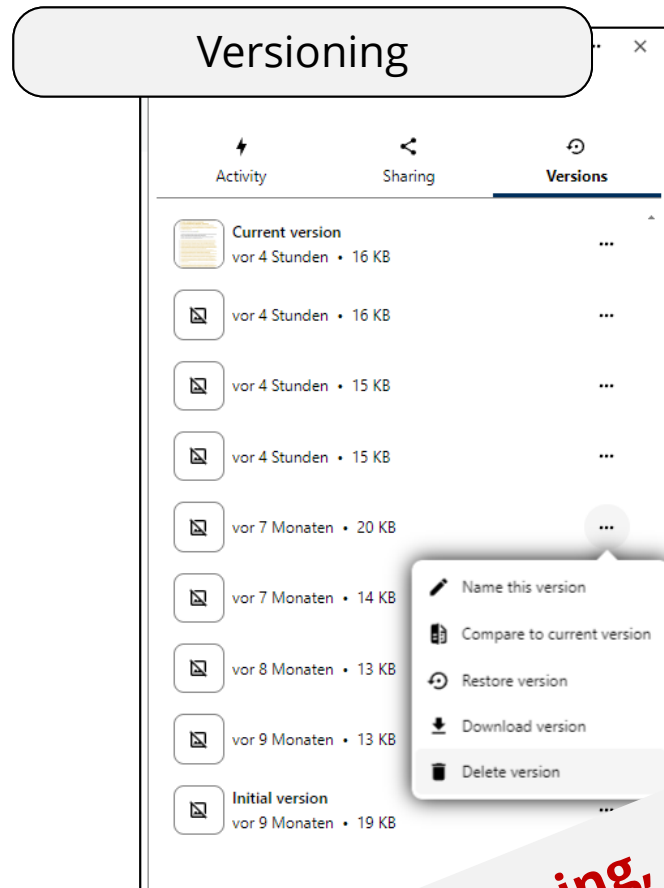
Datashare



SharePoint



CLOUD SERVICES – FEATURES



**Versioning,
but no backup**

(if activated)

Versionsverlauf

Alle Versionen löschen

Nr.	Geändert	Geändert von	Größe
11.0	02.08.2024 14:28	☐ Dörfel, Denise	2,1 MB
10.0	14.05.2024 11:30	☐ Dörfel, Denise	2,1 MB
9.0	14.05.2024 11:30	☐ Dörfel, Denise	2,1 MB
Wissensbasis - Name in Titel kopieren Stufe 1			
8.0	14.05.2024 11:30	☐ Dörfel, Denise	2,1 MB
7.0	30.04.2024 16:27	☐ Dörfel, Denise	2,1 MB
Titel Speichersysteme TUD - SharePoint - DEU			
6.0	30.04.2024 16:27	☐ Dörfel, Denise	2,1 MB
Wissensbasis - Name in Titel kopieren Stufe 1			
5.0	30.04.2024 16:27	☐ Dörfel, Denise	2,1 MB
4.0	27.02.2024 16:21	☐ Dörfel, Denise	2,1 MB
3.0	27.02.2024 16:21	☐ Dörfel, Denise	2,1 MB
Thema SharePoint Speichersystem			
Themenbereich Datenorganisation			
Schlagworte ZIH; Daten teilen; Daten bearbeiten			
2.0	07.02.2024 11:12	☐ Dörfel, Denise	2 MB



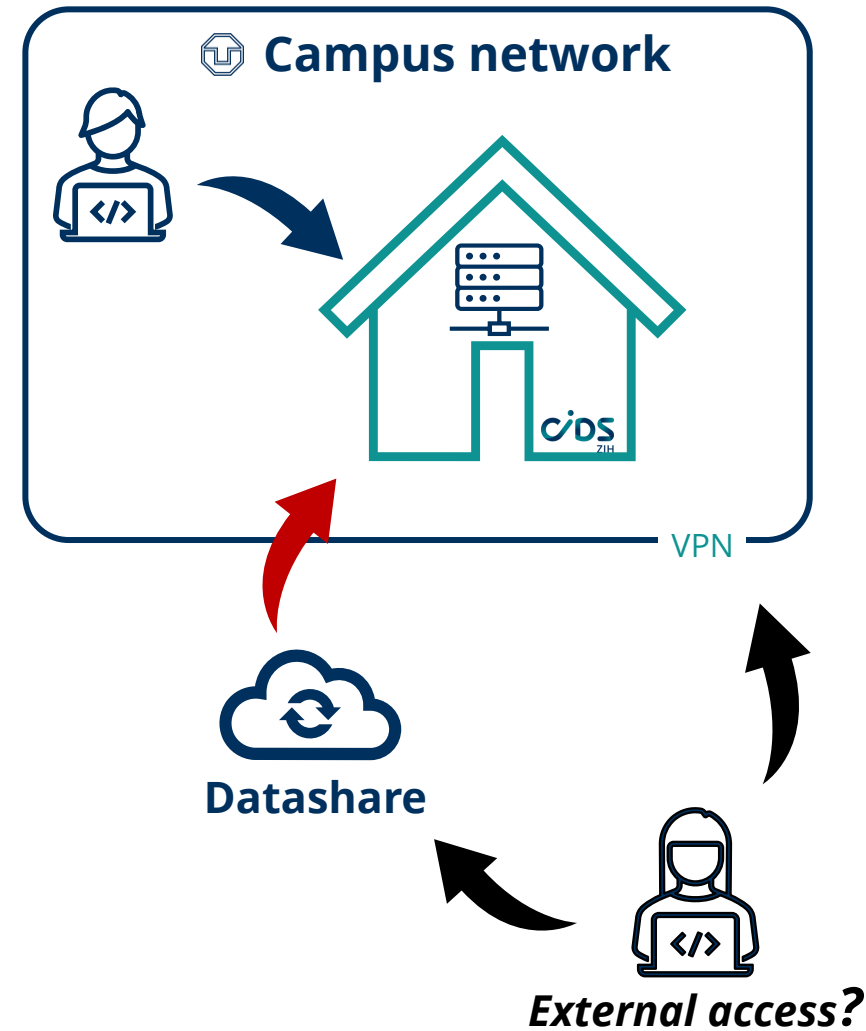
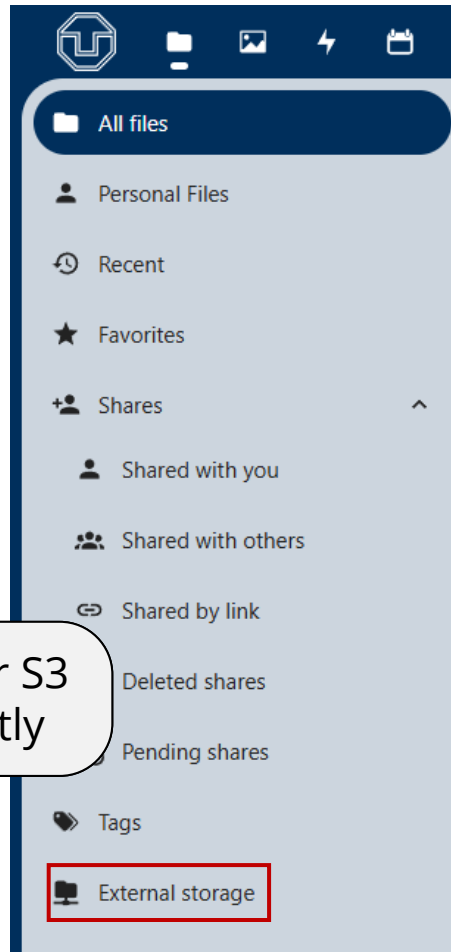
SharePoint

LINKING NETWORK DRIVES WITH CLOUD SERVICES – EXTERNAL STORAGE



Access group drive or S3
object storage directly

How-To





DATA STORAGE AND BACKUP AT TU DRESDEN

Systems to Manage Data Processing

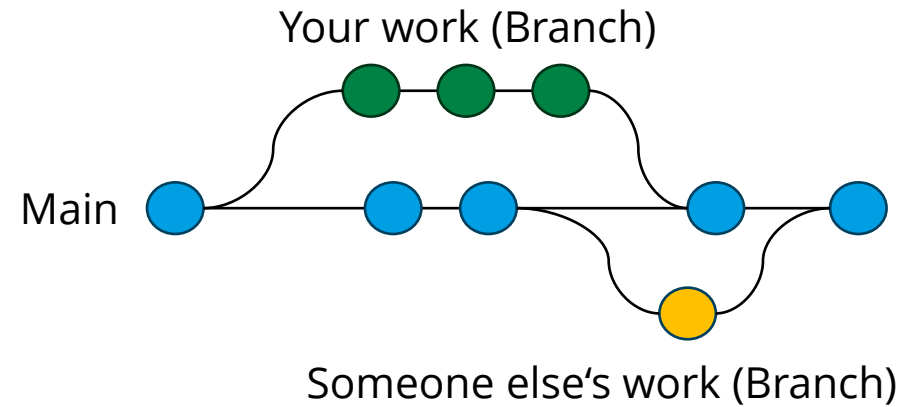
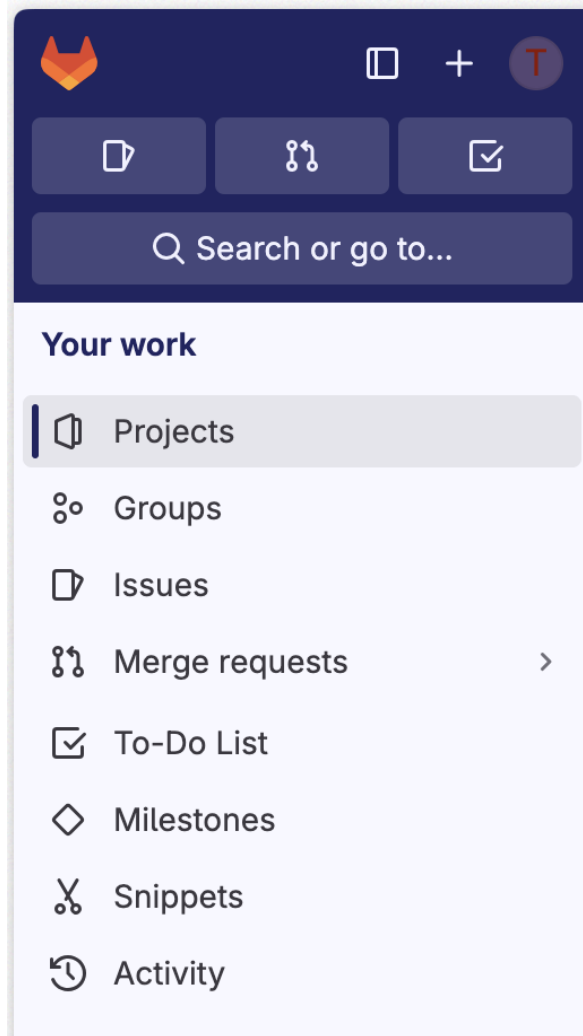
STORAGE SYSTEMS – MANAGING CODE AND SCRIPTS

System	ZIH-login	VPN	Backup / Copies	Sensitive data	Volume	Collaborative work
Local PC	✗	✗	?	✗	?	✗
Home Drive	✓	✓	✓	only with encryption	20 – 200 GB	✗
Group Drive**	✓	✓	✓	with additional settings	< 50 TB	✓
Datashare	✓	✗	✗	✗	2 – 10* GB	✓
SharePoint	✓	✗	✓	with additional settings	5* GB	✓
Gitlab TU Chemnitz	✓	✗	✓	✗	50 MB p. project	✓

Think about access rights!

*extendable on request; **request via [ZIH Self Service Portal](#),
*** High Performance Computing

STORAGE SYSTEMS – MANAGING CODE AND SCRIPTS



Versioning

Branching / Merging

Issues

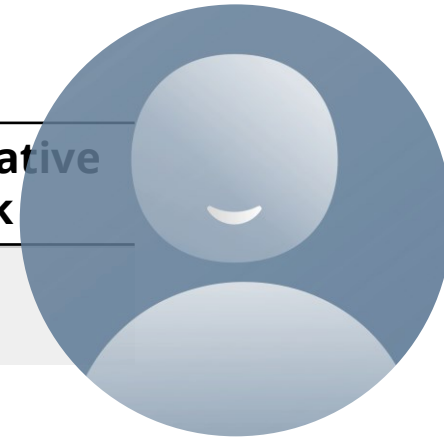
Continuous Integration /
Continuous Deployment

A screenshot of the GitLab CI/CD pipeline list. The table shows the status of various pipelines, including their ID, triggerer, commit, and stages.

Status	Pipeline ID	Triggerer	Commit	Stages
passed	#51742 latest		opara-theme -> bc391d95 updated front homepage ...	✓
passed	#51253 latest		develop -> e8695c6a Merge tag 'dSPACE-7.1' into...	✓✓✓
failed	#50278 yaml invalid error		infrastructure -> 57bb689e Upload docker image to r...	

STORAGE SYSTEMS – INFRASTRUCTURE AS A SERVICE

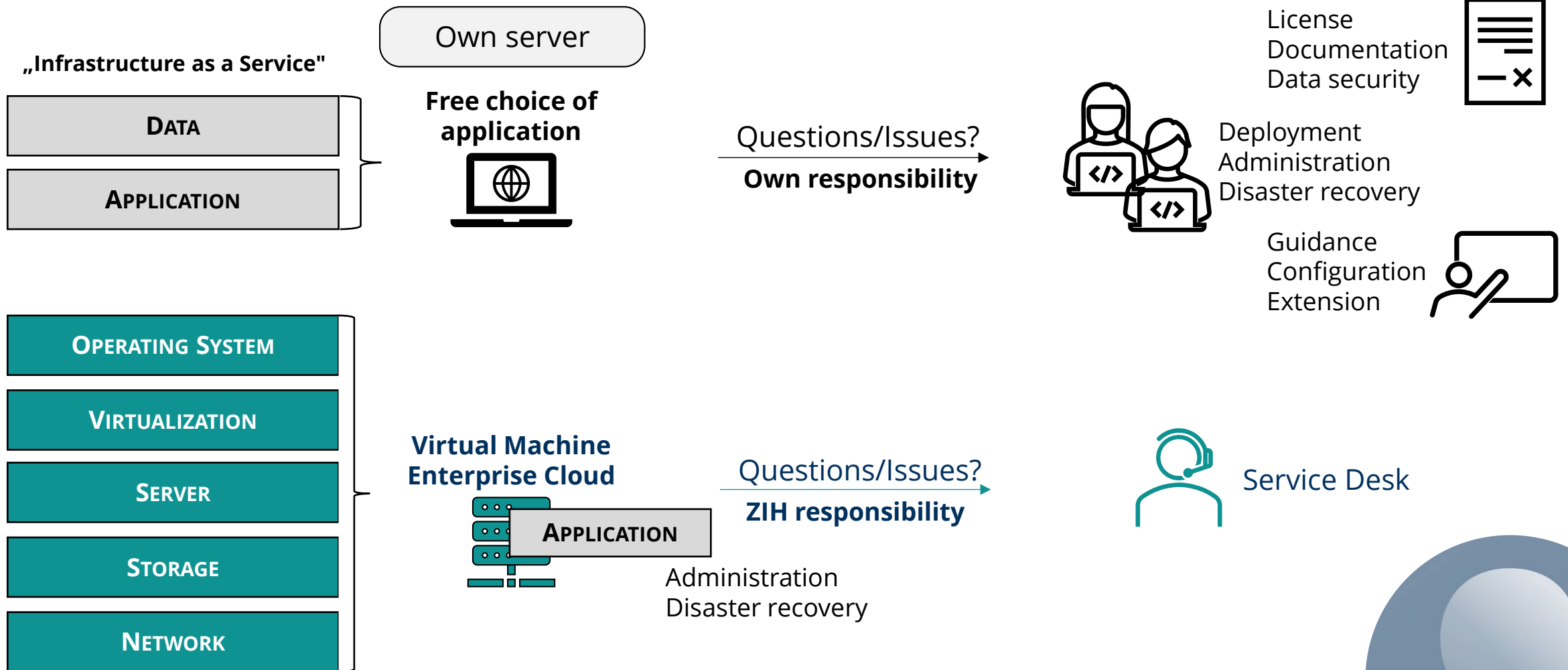
System	ZIH- login	VPN	Backup / Copies	Sensitive data	Volume	Collaborative work
Local PC	✗	✗	?	✗	?	✗
Home Drive	✓	✓	✓	only with encryption	20 – 200 GB	✗
Group Drive**	✓	✓	✓	with additional settings	< 50 TB	✓
Datashare	✓	✗	✗	✗	2 – 10* GB	✓
SharePoint	✓	✗	✓	with additional settings	5* GB	✓
Gitlab TU Chemnitz	✓	✗	✓	✗	50 MB p. project	✓
Research Cloud / Enterprise Cloud	✓	depends	possible	not in RC	< 10 TB	✓



Think about access rights!

*extendable on request; **request via [ZIH Self Service Portal](#),
*** High Performance Computing

STORAGE SYSTEMS – INFRASTRUCTURE AS A SERVICE



STORAGE SYSTEMS – HIGH PERFORMANCE COMPUTING

System	ZIH- login	VPN	Backup / Copies	Sensitive data	Volume	Collaborative work
Local PC	✗	✗	?	✗	?	✗
Home Drive	✓	✓	✓	only with encryption	20 – 200 GB	✗
Group Drive**	✓	✓	✓	with additional settings	< 50 TB	✓
Datashare	✓	✗	✗	✗	2 – 10* GB	✓
SharePoint	✓	✗	✓	with additional settings	5* GB	✓
Gitlab TU Chemnitz	✓	✗	✓	✗	50 MB p. project	✓
Research Cloud / Enterprise Cloud	✓	depends	possible	not in RC	< 10 TB	✓
HPC***	✓	✓	depends	depends	95 GB – 4 PB	✓

Think
about
access
rights!

*extendable on request; **request via [ZIH Self Service Portal](#),
*** High Performance Computing

STORAGE SYSTEMS – HIGH PERFORMANCE COMPUTING

Access to fast storage
and computing hardware

ZIH
Information Services and
High Performance Computing

ZIH HPC Compendium

Search

GitLab hpc-compedium
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ZIH HPC Compendium

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Applications and Software >

Software Development and
Tools >

HPC Resources and Jobs >

User Support

Archive >

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Documentation >

ZIH HPC Documentation

This is the documentation of the HPC systems and services provided at [TU Dresden/ZIH](#).

This documentation will be continuously updated, since we try to incorporate more information with increasing experience and with every question you ask us.

If the provided HPC systems and services helped to advance your research, please cite us. Why this is important and acknowledgment examples can be found in the section [Acknowledgement](#).

Contribution

The HPC team invites you to take part in the improvement of these pages by correcting or adding useful information. Your contributions are highly welcome!

The easiest way for you to contribute is to report issues via the GitLab [issue tracking system](#).

Please check for any already existing issue before submitting your issue in order to avoid duplicate issues.

Please also find out the other ways you could contribute in our [guidelines how to contribute](#).

Reminder

Non-documentation issues and requests need to be send to hpc-support@tu-dresden.de.

HPC Support

Operation Status [hpc-support@tu-dresden.de](#)

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DATA STORAGE AND BACKUP AT TU DRESDEN

Data Archiving and Publishing

STORAGE SYSTEMS – REPOSITORY FOR DATA ARCHIVING AND PUBLICATION

System	ZIH- login	VPN	Backup / Copies	Sensitive data	Volume	Collaborative work
Local PC	✗	✗	?	✗	?	✗
Home Drive	✓	✓	✓	only with encryption	20 – 200 GB	✗
Group Drive**	✓	✓	✓	with additional settings	< 50 TB	✓
Datashare	✓	✗	✗	✗	2 – 10* GB	✓
SharePoint	✓	✗	✓	with additional settings	5* GB	✓
Gitlab TU Chemnitz	✓	✗	✓	✗	50 MB p. project	✓
Research Cloud / Enterprise Cloud	✓	depends	possible	not in RC	< 10 TB	✓
HPC***	✓	✓	depends	depends	95 GB – 4 PB	✓
OPARA	✓	✗	✓	✗	PB possible	✓

Think
about
access
rights!

*extendable on request; **request via [ZIH Self Service Portal](#),
*** High Performance Computing

STORAGE SYSTEMS – REPOSITORY FOR DATA ARCHIVING AND PUBLICATION



Data submission



Choose where to submit your data to

Search for a collection



Archive
- For your group -



Publish
- For everyone -

DOI, Licenses

Home

Submit to Archive

Archive a data package without publication

Submission overview

Home

Submit to Publish

Create a data publication



All of OPARA

Search the repository ...

Search

Show

Your Submissions

Your submissions

Now showing 1 - 1 of 1

Home

Transfer a large dataset

to prepare an archive or publication submission



STORAGE SYSTEMS IN DEVELOPMENT

System	ZIH- login	VPN	Backup / Copies	Sensitive data	Volume	Collaborative work
Local PC	✗	✗	?	✗	?	✗
Home Drive	✓	✓	✓	only with encryption	20 – 200 GB	✗
Group Drive**	✓	✓	✓	with additional settings	< 50 TB	✓
Datashare	✓	✓	✓	settings	50 MB p. project	✓
SharePoint	✓	✓	✓	settings	50 MB p. project	✓
Gitlab TU Chemnitz	✓	✗	✓	✗	50 MB p. project	✓
Research Cloud / Enterprise Cloud	✓	depends	possible	not in RC	< 10 TB	✓
HPC***	✓	✓	depends	depends	95 GB – 4 PB	✓
OPARA	✓	✗	✓	✗	PB possible	✓

This list of storage systems is
constantly being expanded.

*Think
about
access
rights!*

*extendable on request; **request via [ZIH Self Service Portal](#),
*** High Performance Computing



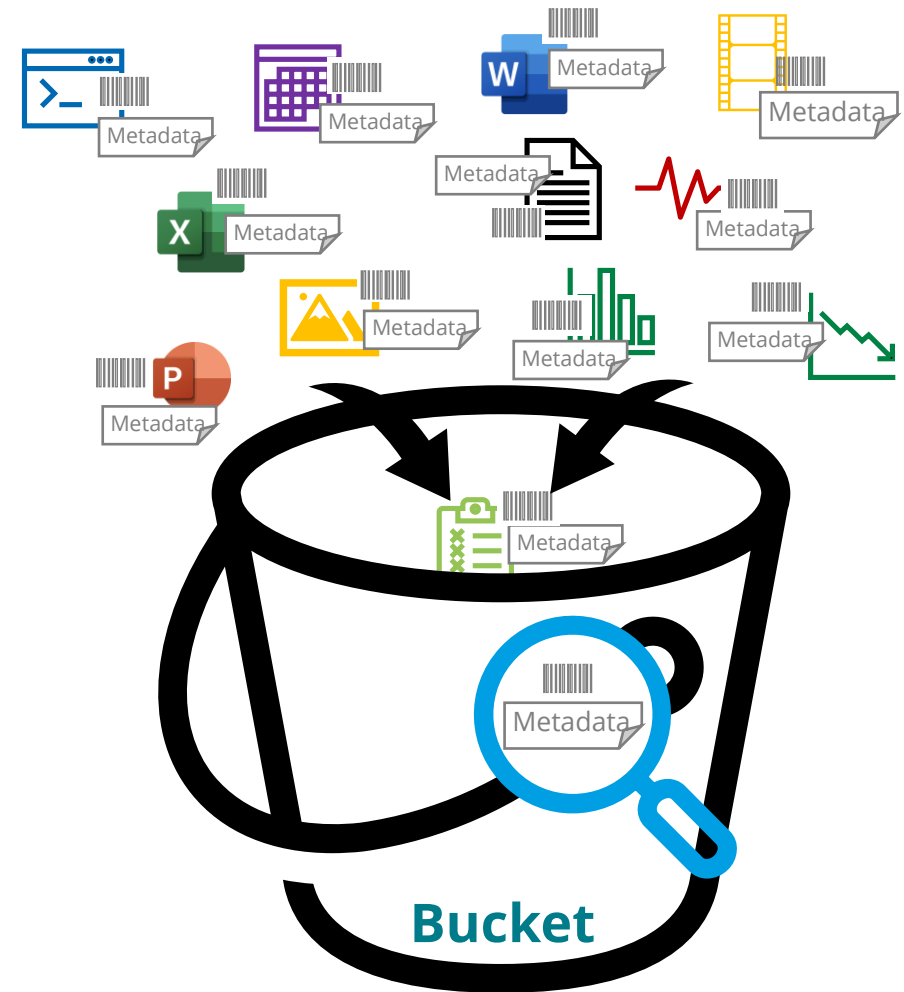
DATA STORAGE AND BACKUP AT TU DRESDEN

Systems in Development

STORAGE SYSTEMS IN DEVELOPMENT – OBJECT STORAGE

Different concept of data organization

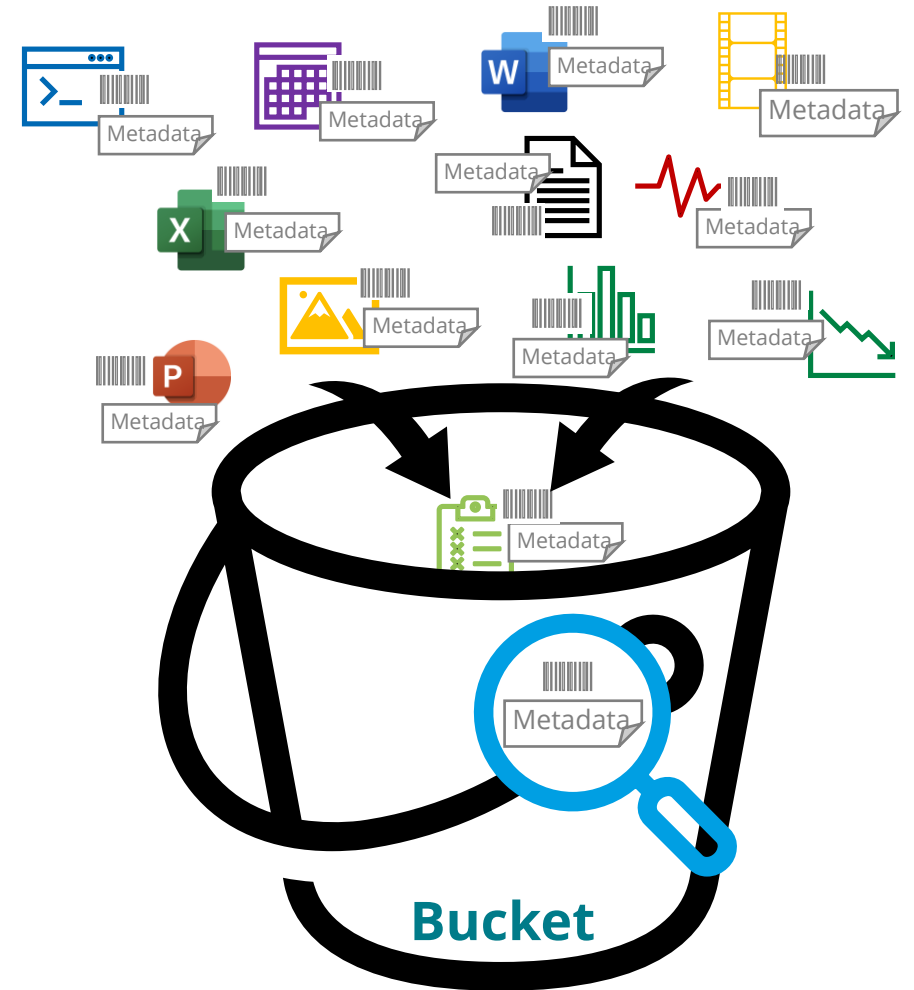
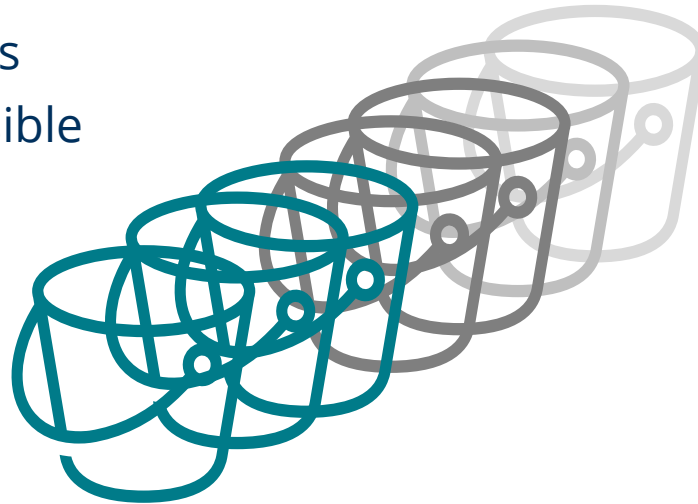
- Method of storing data in which each piece of data is treated as a self-contained unit called an "object", including three components:
 - ✓ Data: The actual content or file.
 - ✓ Metadata: Information that describes the data (like details, tags, or attributes).
 - ✓ Unique Identifier: A unique ID that makes the object easily identifiable
- Flat organization, no hierarchical structure
- Especially for large amounts of unstructured data
- Objects are stored independently
- Easily searchable



STORAGE SYSTEMS IN DEVELOPMENT – OBJECT STORAGE

Access to central object store

- Initially 20 GB, up to 200 GB, extendable upon request
- “Unlimited” objects
- Up to 50 buckets
- Encryption possible
- No backup



STORAGE SYSTEMS IN DEVELOPMENT – ELECTRONIC LAB NOTEBOOK (ELN)



Experiments > Editing an entry Create

← [Icons] ⋮

Started on: 05 / 09 / 2023 [Calendar] ⌚★★★★★

Title: [This is a title]

Status: Running ▾

Tags: Keyword1 Keyword2 Keyword3

Visibility: ☒ All the teams I am part of

Can write: ☒ Only me and admins

File Edit View Insert Format Tools Table

↶ ↷ Heading 1 26.6667px B I U [Icons] [Icons] [Icons]

Goal:

Procedure:

Results:

Chemotion - Action Bar All IUPAC, InChI, SMILES, RInC [Icons]

Collection Bar **Element Bar**

Collections: All chemotion.net Col1 Col2

Chemical Database: My shared collections Shared with me Synchronized with me Inbox

IM-R1 [Icons] From To

Detail Modal

Scheme

Starting materials	Ref	TIR	Amount	Conc	Equiv
Reactants					
+ cyclopenta-1,3-diene,iro...		0.000	ng 0.00	mmol 0.000	n.d. mmol 0.000
Products					
		TIR	Amount	Conc	Yield

Solvents Conditions

Name: [Text] Status: Select... Temperature: [Icon] Temperature °C

Start: [Text] Stop: [Text] Duration: [Text] [Icon] [Icon] Input Duration... Hour(s)

Type (Name Reaction Ontology): [Text] Role: Select...

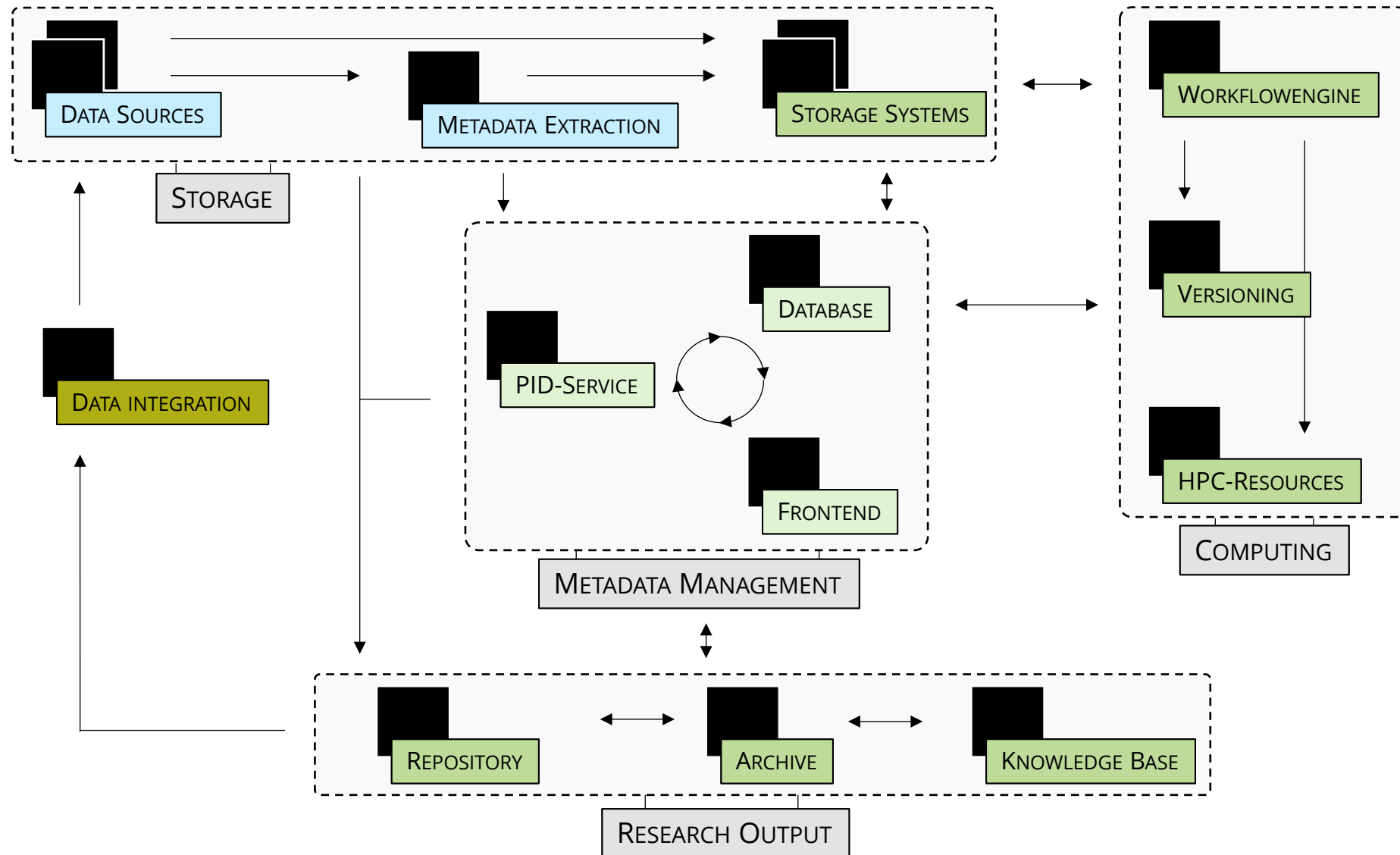
→ Project to set up ELNs as a central service
Interested? Service Center Research Data



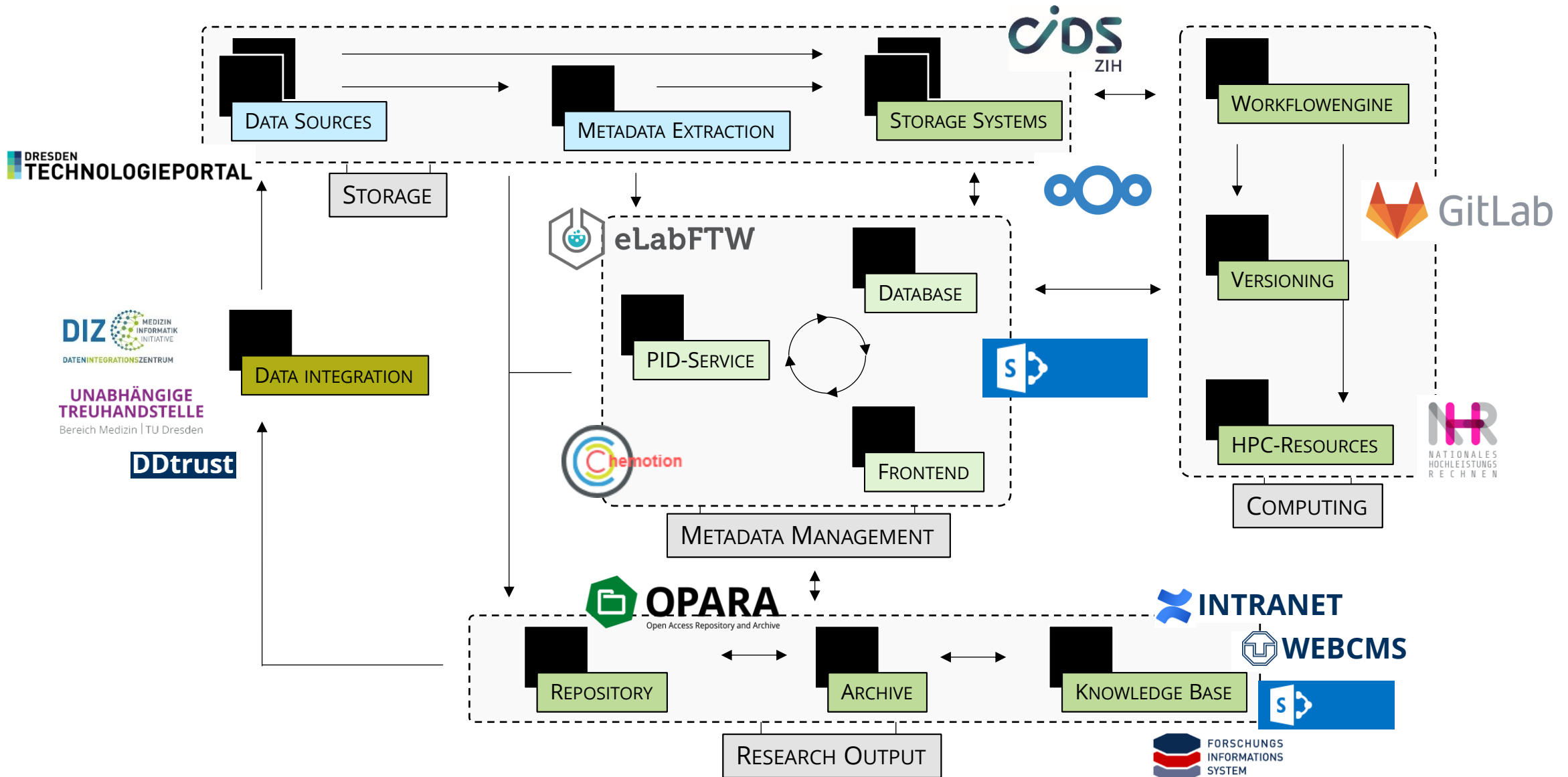
DATA STORAGE AND BACKUP AT TU DRESDEN

Summary

INFRASTRUCTURE OF TUD AND PARTNERS COVERS THE BASIC COMPONENTS OF RDM

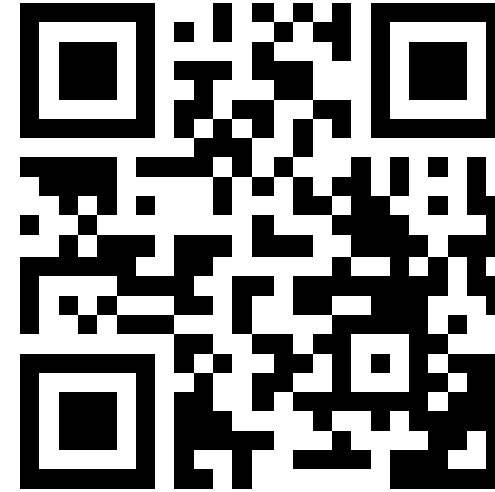
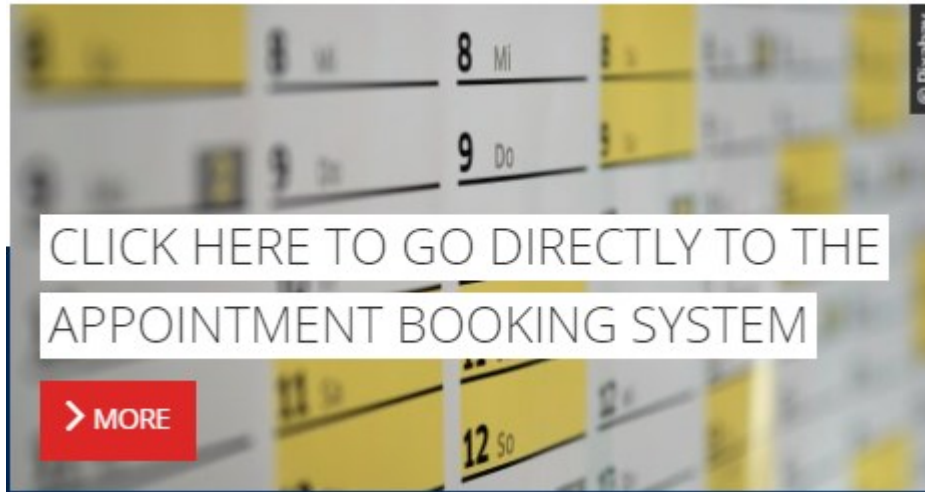


INFRASTRUCTURE OF TUD AND PARTNERS COVERS THE BASIC COMPONENTS OF RDM



NEXT STEPS / OUR SERVICE

Look for further [lectures](#) of the Service Center Research Data or book an [appointment](#).



Make yourself familiar with the [ZIH storage systems](#) and the [self-service portal](#)
For further questions regarding IT infrastructure (group drives, cloudstore, ..) contact the [ZIH Service Desk](#): servicedesk@tu-dresden.de



Service Center Research Data

THANK YOU FOR YOUR ATTENTION

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

 kontaktstelle-forschungsdaten@tu-dresden.de