

# Forschen: Digital und Offen

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## Research Data Management

How do I take care of my research data?  
What about reusability?

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- eigener Rechner, unstrukturiert, undokumentiert
  - auf GitLab, kollaborativ, Dokumentation ist schwierig
  - jeder für sich, eher nicht für andere
  - Referenzierung ist schwierig
  - Parameter sichern, Simulationsergebnisse ggf. neu generieren
  - NextCloud, unstrukturiert zw. den Partnern
  - interne Serverstruktur
  - Dilemma zw. Offenheit und Qualität der Dokumentation
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## Open Research

What is it? What is FAIR?  
Findable, Accessible, Interoperable, and Reusable

Why should I do it?  
Why should I not do it?

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# GitLab

An open-source...

- Git Repository
  - Wiki
  - Issue tracker
  - CI/CD pipeline
  - ... **project management tool** (not only for software)!
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# GitLab

**For student management:**

- 1 Institute Student Management Repository:
    - student tracking
    - replaces internal *Laufzettel* (routing slip)
    - progress tracking
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# GitLab

**For student management:**

- 1 Student's Thesis Repository
    - thesis-related file management
    - directed workflow with shared issues and milestones
    - storage for presentation files
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# GitLab

## For PhD thesis management:

- progress tracking with milestones and issues
  - research diary in Wiki
  - versioning for code and thesis
  - shared with Prof
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# GitLab

## For publishing open-source code:

- develop on GitLab (internal)
- publish to GitHub (public)
- link to [Zenodo \(http://help.zenodo.org/features/\)](http://help.zenodo.org/features/) (CERN-hosted)
- obtain DOI
- reference DOI

"Machen Sie Ihre Software auf Github zitierfähig"  
(<https://www.tub.tuhh.de/blog/2018/07/23/machen-sie-ihre-software-auf-github-zitierfaehig/>)

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## **[Mattermost \(https://mattermost.com/\)](https://mattermost.com/)**

- open-source Slack alternative
  - linked to GitLab repositories
    - automatic info about commits, finished CI pipelines, new issues, ...
    - have student groups communicate in team
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## **[Jabref \(http://www.jabref.org/\)](http://www.jabref.org/) Literature workflow:**

- MIT-licensed free reference management tool
- tracks literature (tags, comments, overview)
- works on a single .bib file
- easily combined with GitLab workflow!
  - read → highlight PDF → comment & tag in JabRef → commit to GitLab → close resp. issue

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## **[Zotero \(https://www.zotero.org/\)](https://www.zotero.org/) Literature workflow:**

- [GNU Affero General Public License \(https://www.gnu.org/licenses/agpl.html\)](https://www.gnu.org/licenses/agpl.html)
- tracks literature (tags, comments, overview)
- exports to different formats (also .bib)
- makes working in reading groups easy
- great plugins for text extraction (e.g. [zotfile \(http://zotfile.com/\)](http://zotfile.com/))
- works with GitLab, too!

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[WriteMD \(https://writemd.rz.tuhh.de/-cMwWcLyT-6KYIIFYleYAq#\)](https://writemd.rz.tuhh.de/-cMwWcLyT-6KYIIFYleYAq#) for fast, collaborative presentations:

- Markdown syntax
- TUHH-hosted
- exports to Latex/Beamer and Powerpoint (using [Pandoc \(https://pandoc.org/\)](https://pandoc.org/))
- Supports [images, videos, TeXs, code blocks, UML diagrams, flow charts, ... \(https://writemd.rz.tuhh.de/features\)](https://writemd.rz.tuhh.de/features)
- $$\phi(z) = \int_0^{\infty} t^{z-1} e^{-t} dt$$

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Thank you! Any questions?