RDM Marketplace Information Event

02.09.2020

DIGITALE TU GRAZ MARKETPLACE
RESEARCH DATA MANAGEMENT

TU Graz

WISSEN
TECHNIK
LEIDENSCHAFT

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Agenda

- Introduction to RDM activities at TU Graz
- Overview of the RDM Marketplace
- RDM Marketplace topics
- RDM Marketplace guidance
- Evaluation process
- Discussion & Feedback

Intro RDM at TU Graz

F indable   A ccessible   I nteroperable   R eusable

Digital TU Graz – Handlungsfeld Forschung

Aims

FAIR data through RDM

Re-usability of data

Boost of impact and reputation

International visibility

Disciplinary and cross-disciplinary

State-of-the-art tools & services

Highly attractive working environment for researchers

Why?

Outcomes of Digital TU Graz conception phase (2017-18)

| How do I store and curate data? | Who takes care of my data in future? | How do I comply with funder mandates? | How to collaborate efficiently? | Where can I get training and support for RDM? | What about a centralized data repository @TUG? |

Our Approach

**As general as possible -
As discipline-specific as needed**

- RDM needs researcher-led services
- Avoid one general solution fits all
- Open participation and
  co-creation processes
- Develop social and technical
  solutions in parallel

Activities

Now being implemented via two BMBWF-funded Digitalisierungs projects, FAIR Data Austria & Austrian DataLab and Services:

- Policy Development
- Tools for data management planning
- Research Data Respository (InvenioRDM)
- CyVerse RDM/Analytics Platform
- RDM training and support services
- Concept for Data Stewardship at TU Graz

RDM Marketplace - Scope

- **Small projects (€5,000-25,000)** to fund grass-roots innovation in RDM across disciplines at TU Graz

- **Help you** improve data handling practices in your team/discipline, and increase the reproducibility and reusability of your research

- **Help us** evaluate generic and discipline-specific tools already available, and better understand users' needs for further tools and services to support RDM

- **All relevant projects ideas are welcome** – from initial scoping studies to further development of already established tools

- **For further details** and all relevant documents, see:
  https://www.tugraz.at/sites/rdm/rdm-marketplace-open-call/

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RDM Marketplace - Call Details

- **Who can apply?**
  - Active TU Graz researchers at any career stage.
- **When does the call open and close?**
  - The call will open on 1st August and will close on Wednesday 30th September.
- **How much funding is available?**
  - Depending on the technical characteristics and staff/infrastructure requirements, proposals may receive between €5,000 and €25,000. A total of 5 to 10 proposals is expected to be funded.
- **Timeline**
  - Projects to start 1.1.21 for max duration of 12 months

RDM Marketplace Topics/Clusters

I.   Data Stewardship
- Define faculty-specific needs and responsibilities for RDM policies
- Pilot a faculty-specific RDM implementation strategy
- Gather discipline-specific RDM requirements, or define metadata templates
- Develop use cases for machine-actionable Data Management Plans (maDMPs)

II.   Repository Systems
- Act as an early adopter of the upcoming TU Graz data repository InvenioRDM and provide feedback on its functionalities as a data archiving solution
- Implement specific InvenioRDM modules

III.   Analytic Platforms
- Develop a discipline-specific use case in CyVerse Austria
- Use Docker technology for reproducible analytics
- Use distributed storage resources available via iRODS in CyVerse Austria

IV.   Other RDM tools and services
- Deploy open source electronic lab notebook (e.g. eLabFTW)
- Implement/deploy tools for assessing the FAIRness of data
- Implement specific maDMPs modules
- Prototype or further develop locally created tools for RDM
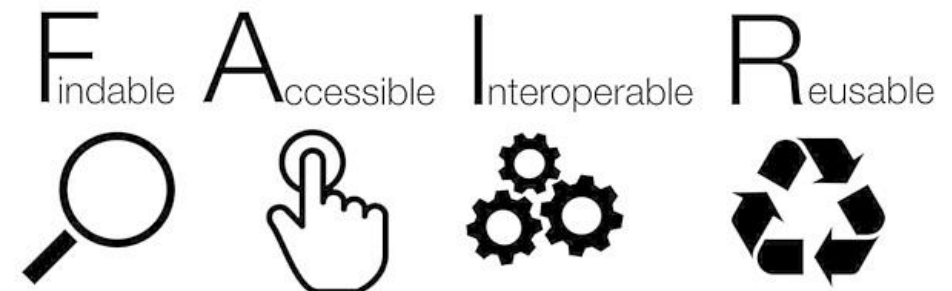
I. Data Stewardship

General Introduction

Data Stewardship is defined as:

Stewardship for open data science = the formalisation of roles and responsibilities and their application to ensure that research objects are managed for long-term reuse, and in accordance with FAIR data principles. In short, stewardship applies skills to make data FAIR, and keep it FAIR.

Tasks for data stewards

- analyze data management needs
- provide advice and consultancy (e.g. DMPs)
- liaise with key faculty stakeholders
- train and inspire
- help comply with funders' and journals' policies
- develop faculty research data policies
- prepare the faculty for the future
- liaise with the data stewardship coordinator and other stewards
- deliver regular reports

F indable A ccessible I nteroperable R eusable

I. Data Stewardship

Ongoing projects

- Development of the TU Graz RDM policy
  - Framework policy
  - Faculty specific implementation strategies

- Ongoing data steward support for DMPs

- Development of a data steward support process
  - Support mail address
  - Zammad Issue Tracking system

- Development of a concept for data stewardship models for Austrian universities

I. Data Stewardship

Suggested Topics

- Define faculty-specific needs and responsibilities for RDM policies
- Pilot a faculty-specific RDM implementation strategy
- Gather discipline-specific RDM requirements
- Define own metadata templates
- Develop use cases for machine-actionable Data Management Plans (maDMPs)
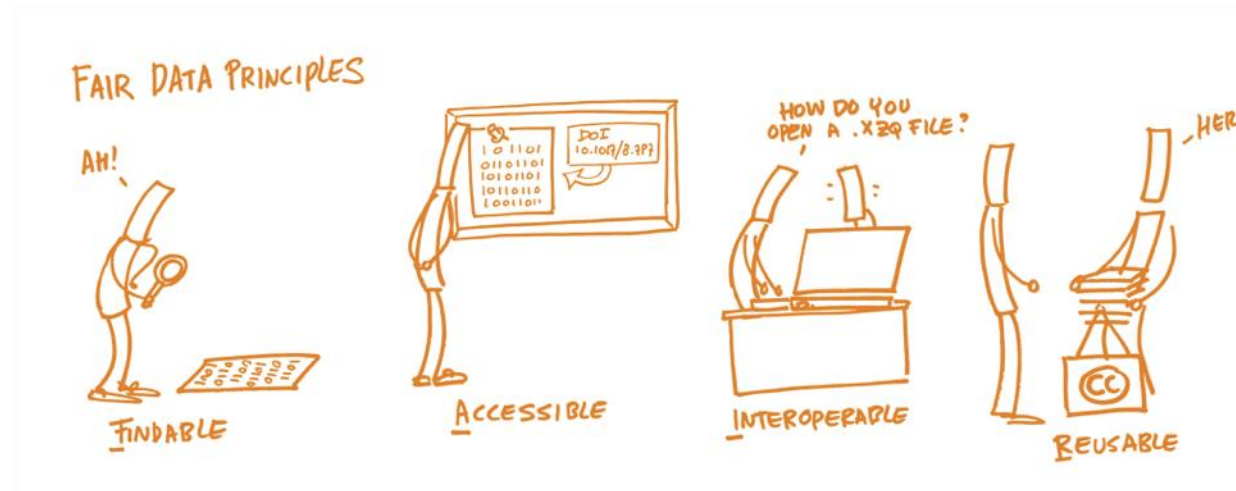
II. Repository System at TU Graz - InvenioRDM
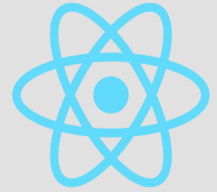
General Introduction

InvenioRDM is turn-key Research Data Management repository, which:

- implements the Next Generation Repository (NGR) vision

- integrates with other Open Science infrastructures such ORCID, DataCite & OpenAIRE

II. Repository System at TU Graz - InvenioRDM

Technologies

Backend	Frontend	Databases	Other Tools

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II. Repository System at TU Graz - InvenioRDM

Ongoing projects

- **TUGRAZ**
  - Test instance – 3 nodes
  - Developed invenio-theme-tugraz, invenio-config-tugraz, and invenio-shibboleth modules

- **CERN**
  - Feedback, submitting and fixing issues on Monthly releases
  - Telecon meetings with other partners
  - Contribution on invenio core modules

- **FAIR-DATA Austria**
  - Monthly dev meetings
  - Daily Discord communication channel
  - invenioRDm ⇔ maDMPs integration

II. Repository System at TU Graz - InvenioRDM

Suggested Topics

- Act as an early adopter of the upcoming TU Graz data repository and provide feedback on its functionalities as a data archiving solution
- Metadata extraction from RAW files e.g. pdf, docs
- UI plugins - semi-automized metadata
- Discovery tool for all repository systems – query to other repositories
- Accessibility (Barrierefrei)
- Bibliometrics – capture more data to enhance statistics
- Demo Animation/videos – usability of the Repository – data upload and curation processes

III. Analytics Platform at TU Graz – CyVerse Austria

General Introduction

Data Management

- **iRODS** Virtualize data storage resources
- **Data Store** Easy-to-use data management
- **Discovery Environment** User interface to access/manage

Data Analytics

- **VICE** Visual and Interactive Computing Environment
- **HTCondor** job scheduling, resource mgmt
- **App container** Integrated Dockerized tools **Data staging-in and out**
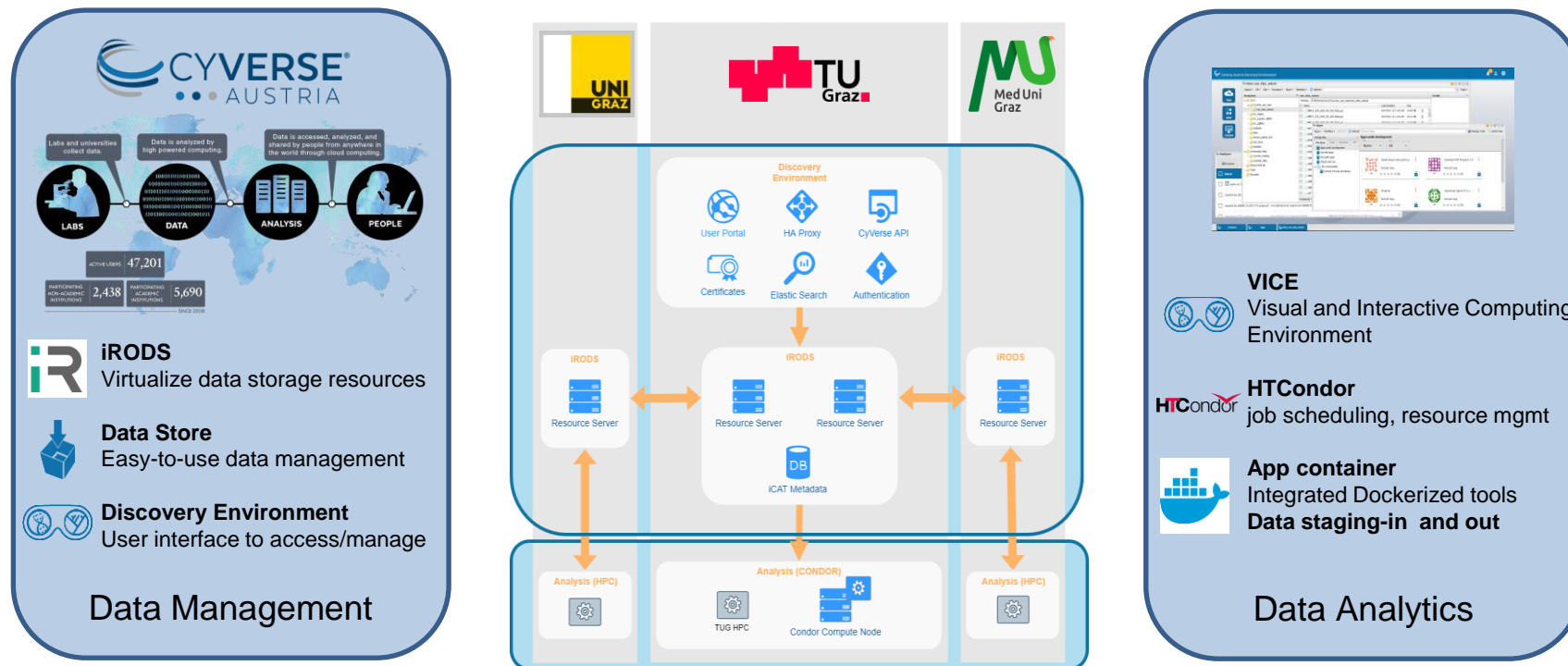
III. Analytics Platform at TU Graz – CyVerse Austria

Ongoing projects

- Data Sharing between MedUni Graz and TU Graz

- Deployment of analytics pipelines in CyVerse Austria
  - E.g. Rosetta *ab initio* protein folding

- Conservation of analytics tools as Docker image
  - E.g. Microbiome research (QIIME2 analysis)

CYVERSE DATA CYCLE

STORE
TRANSFER
ANALYZE
VISUALIZE
METADATA MARKUP
SEARCH & DISCOVER
SHARE & COLLABORATE
PUBLISH
REUSE
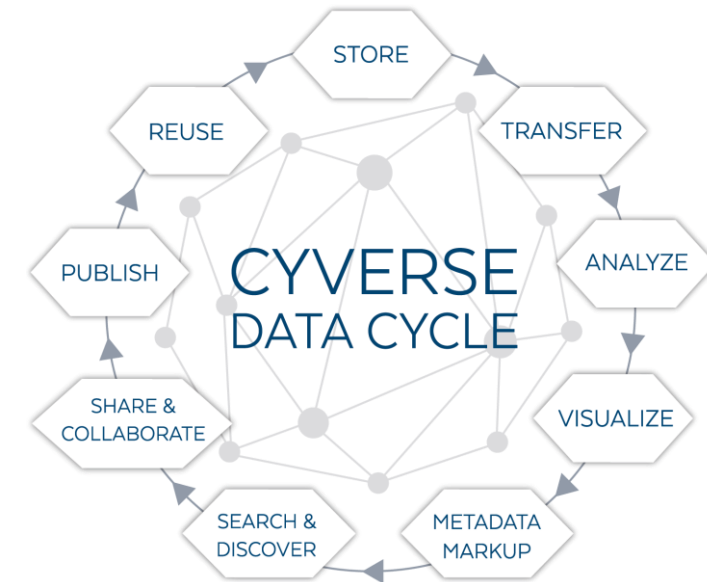
III. Analytics Platform at TU Graz – CyVerse Austria

Suggested Topics

- Develop a discipline-specific use case in CyVerse Austria
- Use Docker technology for reproducible analytics
- Use distributed storage resources available via iRODS in CyVerse Austria
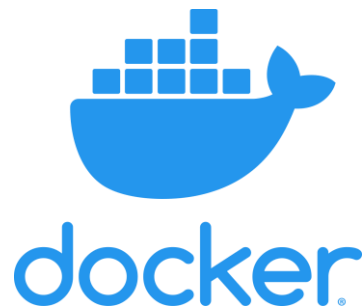
IV. Other RDM tools and services at TU Graz

General Introduction

Gatekeepers such as funding organizations and journals demand data sharing, data management and data stewardship according to FAIR principles in order to ensure transparency, reproducibility and reusability of research

Advantages include:
- researchers receiving credit for their work and benefitting from shared data by other researchers
- funding agencies aiming for long-term data stewardship
- professional data publishers getting credit for their software, tools and services for data handling
- data science community for exploratory analyses

IV. Other RDM tools and services at TU Graz

Ongoing projects

- elabFTW – powered by CyVerse for testing

- maDMPs - automate data management tasks
  - structured information in a DMP
    - machines can act upon it
    - machine-readable data format, reuse of existing standards, controlled vocabulary
  - services which support machine-actionable DMPs can
    - provide information for a DMP
    - consume information from a DMP

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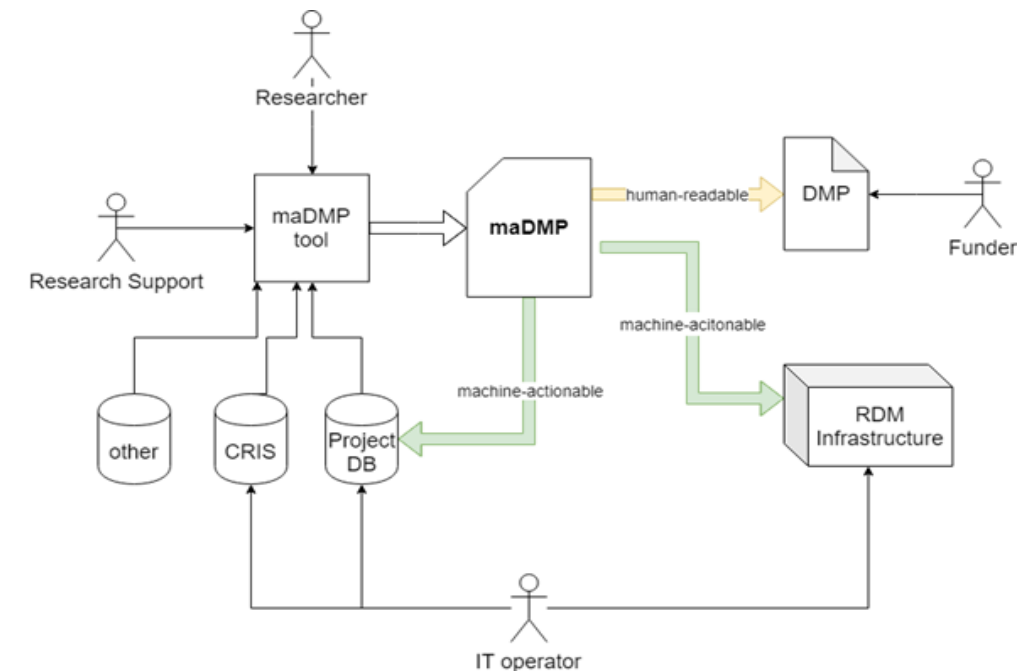
IV. Other RDM tools and services at TU Graz

Suggested projects

- Deploy open source electronic lab notebook
- Implement specific maDMPs modules
- Implement/deploy tools for assessing the FAIRness of data
- Prototype or further develop locally created tools for RDM

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RDM Marketplace GUIDANCE for Cooperation

GUIDANCE for Cooperation

GUIDANCE	TIMELINE	STEPS	SUPPORT

- This **Guidance** provides the applicants of the RDM Marketplace with information and set of rules for the cooperation between Handlungsfeld Forschung and project teams

- The focus of the projects is on the implementation of innovative ideas to improve data handling practices and increase the reproducibility and reusability of research

Approach
- As general as possible - as discipline-specific as needed
- Researcher-led tools and services
- Open participation and co-creation processes

We offer **accompanying measures and support** to facilitate the implementation of projects:
- Support in planning and organizing the entire process
- Transparent guidelines and a project support model
- Regular communication and feedback

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GUIDANCE for Cooperation

| GUIDANCE | TIMELINE | STEPS | SUPPORT |

STEPS

Proposal phase → Onboarding Cluster Kick-Offs → Implementation → Completion

SUPPORT

(Information and support for the proposal process)

(Workshops)

Project Documentation
University Innovation Canvas (UIC), Nextcloud, GitLab, Wiki, Planning tool

Communication & Feedback
f2f, Slack, RDM-Email & Ticket system, Webex

(Demo presentations Feedback – UIC Lessons learned)

Ongoing planning and organization - Handlungsfeld Forschung

GUIDANCE for Cooperation

GUIDANCE	TIMELINE	STEPS	SUPPORT

PROPOSAL PHASE

- Today's information event
- Quick feedback on inquiries to rdm.marketplace@tugraz.at
- Personal discussions with experts (e.g., as part of social events or on demand)

ONBOARDING / CLUSTER KICK-OFFs

In this cooperation phase, the team from Handlungsfeld Forschung and the project teams get to know each other
Depending on the cluster, there will be different onboarding measures:

I. **Data Stewardship Workshop**
   - Policies, requirements analysis, research methodology (interviews, surveys) (Workshop)
II. **Repository Systems**
   - InvenioRDM (Workshop, GitLab, Wiki)
III. **Analytic Platforms**
   - CyVerse Austria (Workshop)
IV. **Other RDM tools and services**
   - Requirements analysis, individual implementations (expert meetings)

IMPLEMENTATION

The project team works independently in this phase. There is coordination and cooperation with the teams around:

- InvenioRDM
- CyVerse Austria
- Experts – qualitative and quantitative research

During this time, researchers can contact Handlungsfeld Forschung via the support mail system
datastewardship@tugraz.at
Regular status meetings (canvas model - UIC) will be held to contribute to project documentation and feedback loop

COMPLETION

In the last phase of the project, the planning for the final presentations and the documentation takes place

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GUIDANCE for Cooperation

GUIDANCE	TIMELINE	STEPS	SUPPORT

WORKSHOPS (2-3 hours each)

Content
- Software stack, frameworks and underlying technologies (InvenioRDM, CyVerse Austria)
- Requirements analysis, research methodology (interviews, surveys)

Operation
- Development methodology
- Forms of cooperation
- Documentation

DOCUMENTATION

The documentation of the project is an ongoing process that is carried out according to the standards of TU Graz (University Innovation Canvas - UIC) In addition, depending on the cluster, the documentation takes place in the code (GitLab), Wiki, Nextcloud or Planning tool (monthly project status report)

COMMUNICATION & FEEDBACK
- Status update meetings
- GitLab will serve as a further communication platform (feedback on issues)
- Support mail (datastewardship@tugraz.at) and ticket system
- Slack (chat)
- Monthly feedback (UIC)
- Other f2f or Webex meetings on demand

ONGOING PLANNING AND ORGANIZATION – HANDLUSNGSFELD

Professional planning and organization is the basis for successfully accompanying the applicants of RDM Marketplace. Handlungsfeld Forschung will provide support in the proposal phase and during the implementation of the projects

COMPLETION

Demo presentations, reports, feedback – UIC, lessons learned

Evaluation Process

- Timeline
  - The call opened on 5th August and will close on 30th September
  - Evaluation process completion - 5th October
  - Decision Committee - 6th October
  - Digitale TU Graz Steering Committee - 8th October
  - Acceptance notification of awarded projects: third week of October
  - Announcement of the awarded projects at the TEL/RDM Marketplace on 28th October

Discussion & Feedback

We look forward to your applications!

For further information please contact us

rdm.marketplace@tugraz.at

rdm.tugraz.at