

FAIRagro – in a nutshell and first results

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nfdi

FAIRagro domain: scales, disciplines and data categories

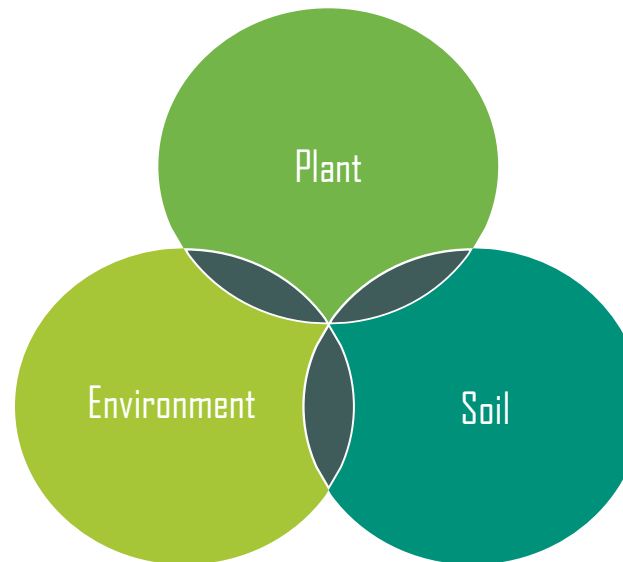
→ Start 1.3.2023

FAIR data for agrosystem research: Crop production, ecosystems and landscapes whose sustainable management and development are based on systems understanding of plant-soil-environment interactions, taking into account cross-scale processes and relationships

Scales



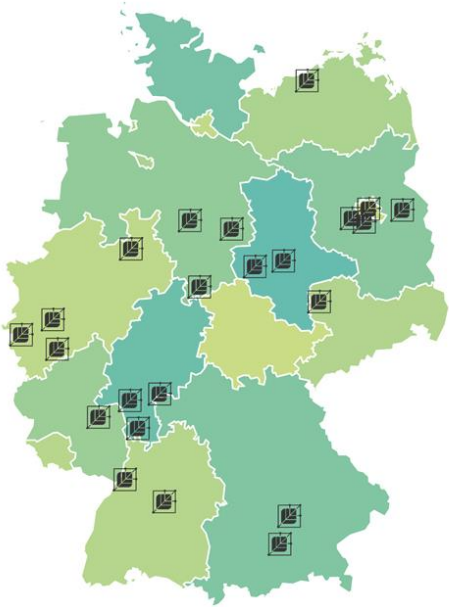
Subjects and disciplines



Data categories



Our partners: leading institutions in the agrosystem domain



11 (Co-)applicants + 19 participants

- Universities
- Universities of applied sciences
- Research institutes
- Federal (research) institutes
- Infrastructure facilities
- Governmental institutions
- Professional scientific associations

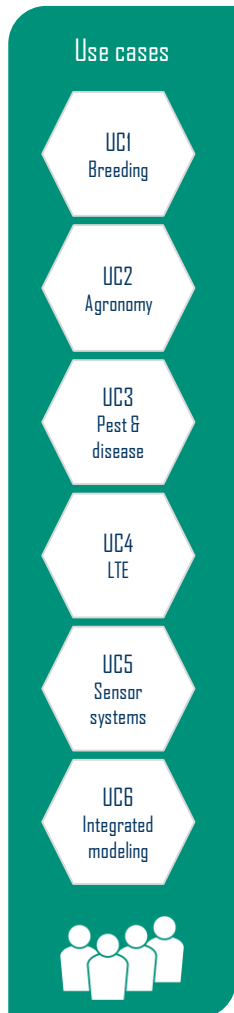
Representing important disciplines in

- Crop and vegetable sciences
- Soil sciences
- Agri-environmental sciences
- Socio-economics



FAIRagro helpdesk <https://fairagro.net/helpdesk/>

Agrosystem community



info@fairagro.net | Toolbox for publishing and managing research data

FAIRagro helpdesk <https://fairagro.net/helpdesk/>

Publishing research code FAIR – a roadmap

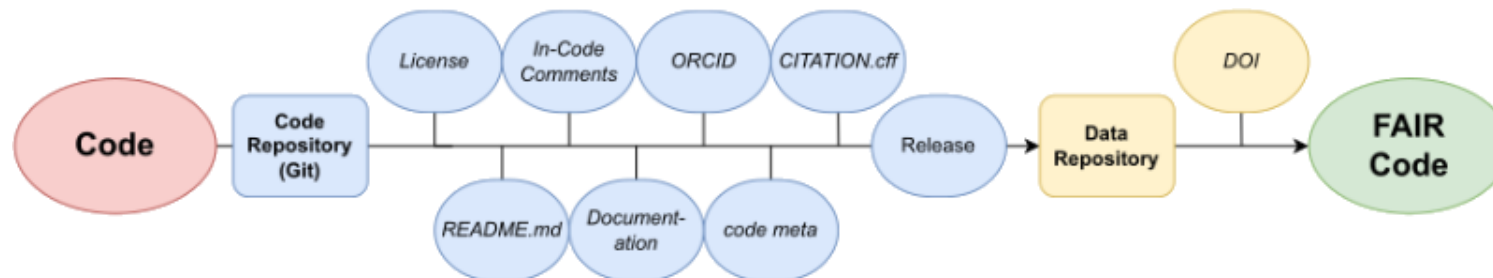
Nowadays, research results are largely generated by self-developed software or code-based scripts. This code is regarded as an integral component of the scientist's independent research. The FAIR principles (Findable, Accessible, Interoperable and Reusable) have become widespread in recent years since their definition by [Wilkinson et al. \(2016\)](#), especially in the context of research data and its sustainable use. The FAIR availability of code, however, lags behind scientific publication and research data publication.

Open document

10.5281/zenodo.14772749

Making Code FAIR

It therefore makes sense to publish code FAIR, especially in the open access area, so that it can be found and reused in the scientific community on the one hand and its authors receive appropriate “credits” when it is reused on the other.

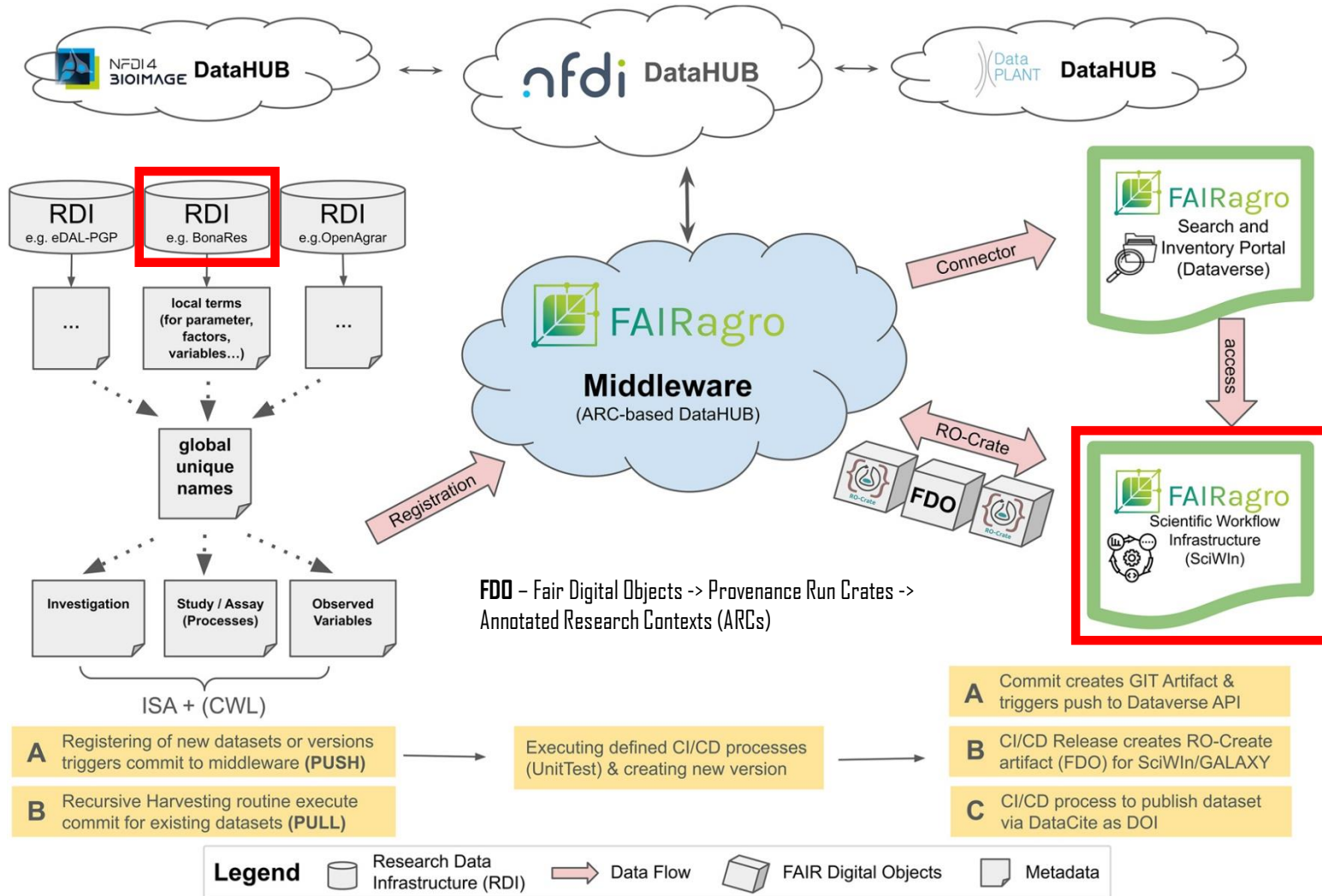




About FAIRagro

The FAIRagro consortium with [more than 30 partners](#) is building a FAIR (Findable, Accessible, Interoperable, Reusable) research data management system for the agrosystems research community. We are developing the right tools and workflows to lay the foundations for sustainable crop production – now and in the future.

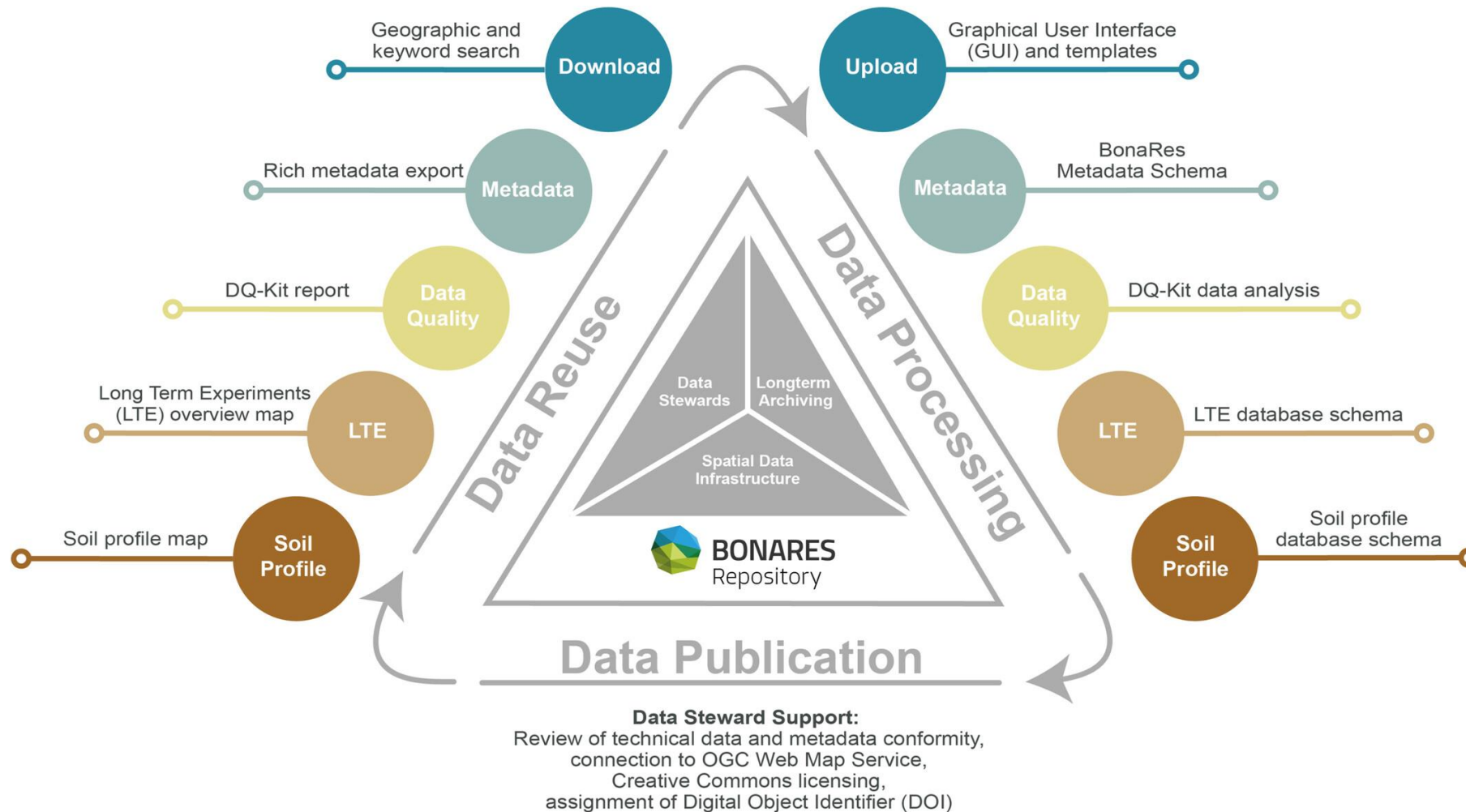
FAIRagro infrastructure: middleware



The central component of the extended middleware is an **ARC-based GitLab infrastructure**, which will be used to register all public datasets provided by the FAIRagro RDIs.

García Brizuela, J., Scharfenberg, C., Scheuner, C., Hoedt, F., König, P., Kranz, A., Leidel, A., Martini, D., Schneider, G., Schneider, J., Singson, L.S., Von Waldow, H., Wehrmeyer, N., Usadel, B., Lesch, S., Specka, X., Lange, M., Arend, D., 2024. A roadmap for a middleware as a federation service for integrative data retrieval of agricultural data. *Journal of Integrative Bioinformatics* 21, 20240027. <https://doi.org/10.1515/jib-2024-0027>

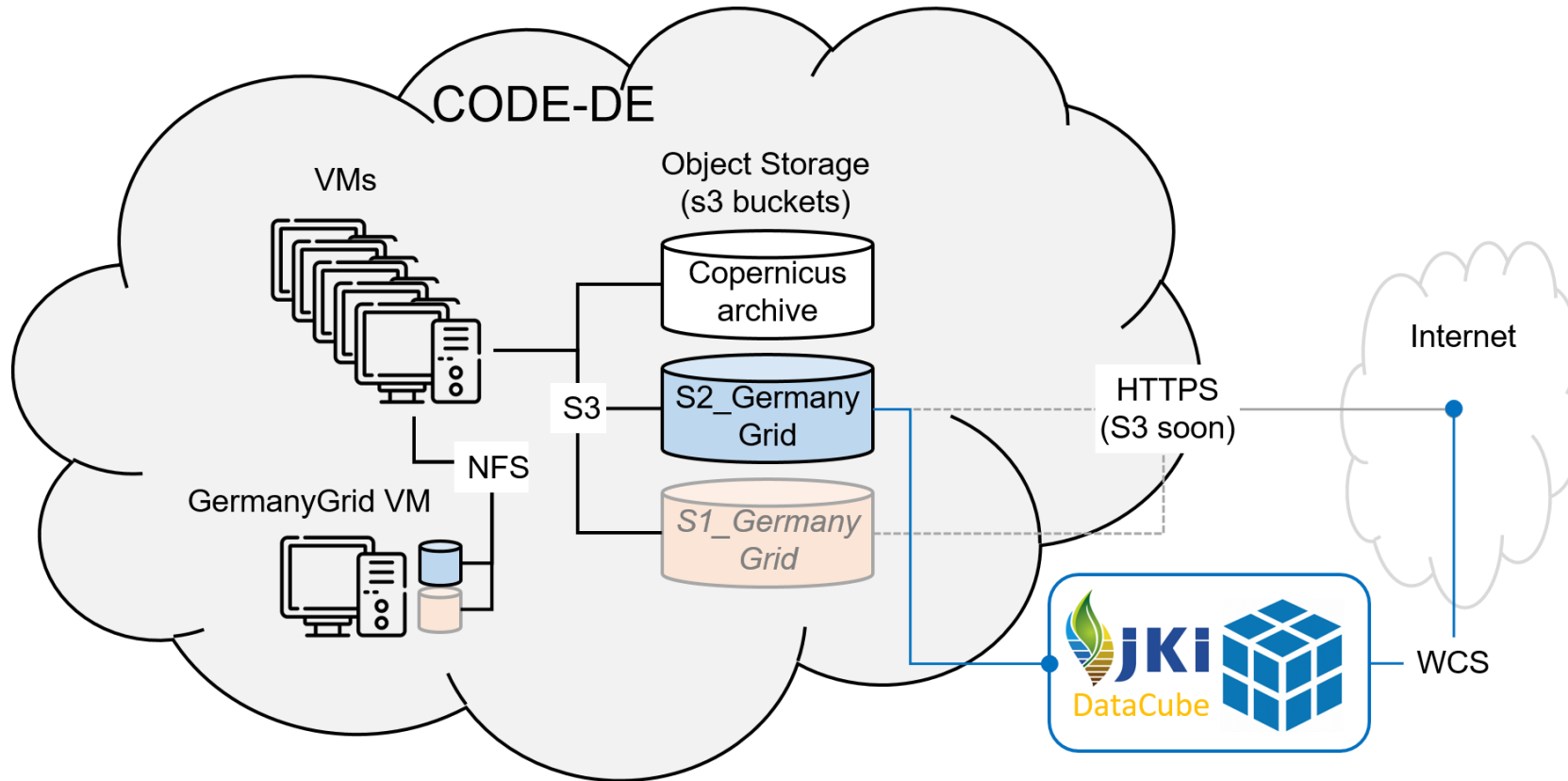
FAIRagro infrastructure: BONARES repository



Core (grey) and discipline-specific (coloured circles) infrastructures and services of the BonaRes Repository

Lachmuth, S., Dönmez, C., Hoffmann, C., Specka, X., Svoboda, N., Helming, K., 2025. Facilitating Effective Reuse of Soil Research Data: The BonaRes Repository. *European J Soil Science* 76, e70103.
<https://doi.org/10.1111/ejss.70103>

FAIRagro infrastructure: JKI Data Cube



EGU25-10578 | Orals | [ESSI3.1](#) ★

DynAWI Extreme Weather Toolbox: an online platform for agricultural risk assessment and decision support ▶

Arno de Kock, Timm Waldau, Pedro Batista, Peter Baumann, Thorsten Behrens, Peter Fiener, Jens Foeller, Markus Moeller, Ingrid Noehles, Karsten Schmidt, and Burkhard Golla

Wed, 30 Apr, 16:40–16:50 (CEST) ■ Room -2.92

FAIR processes

Jupyter Notebook WC(P)S demo of JKI Data Cubes

Beyer, F., Möller, M., Dierks, M., 2024. JKIDataCubeDemo. Zenodo.
<https://doi.org/10.5281/zenodo.14215012>

FAIR multidimensional data

OpenAPI WCS documentation

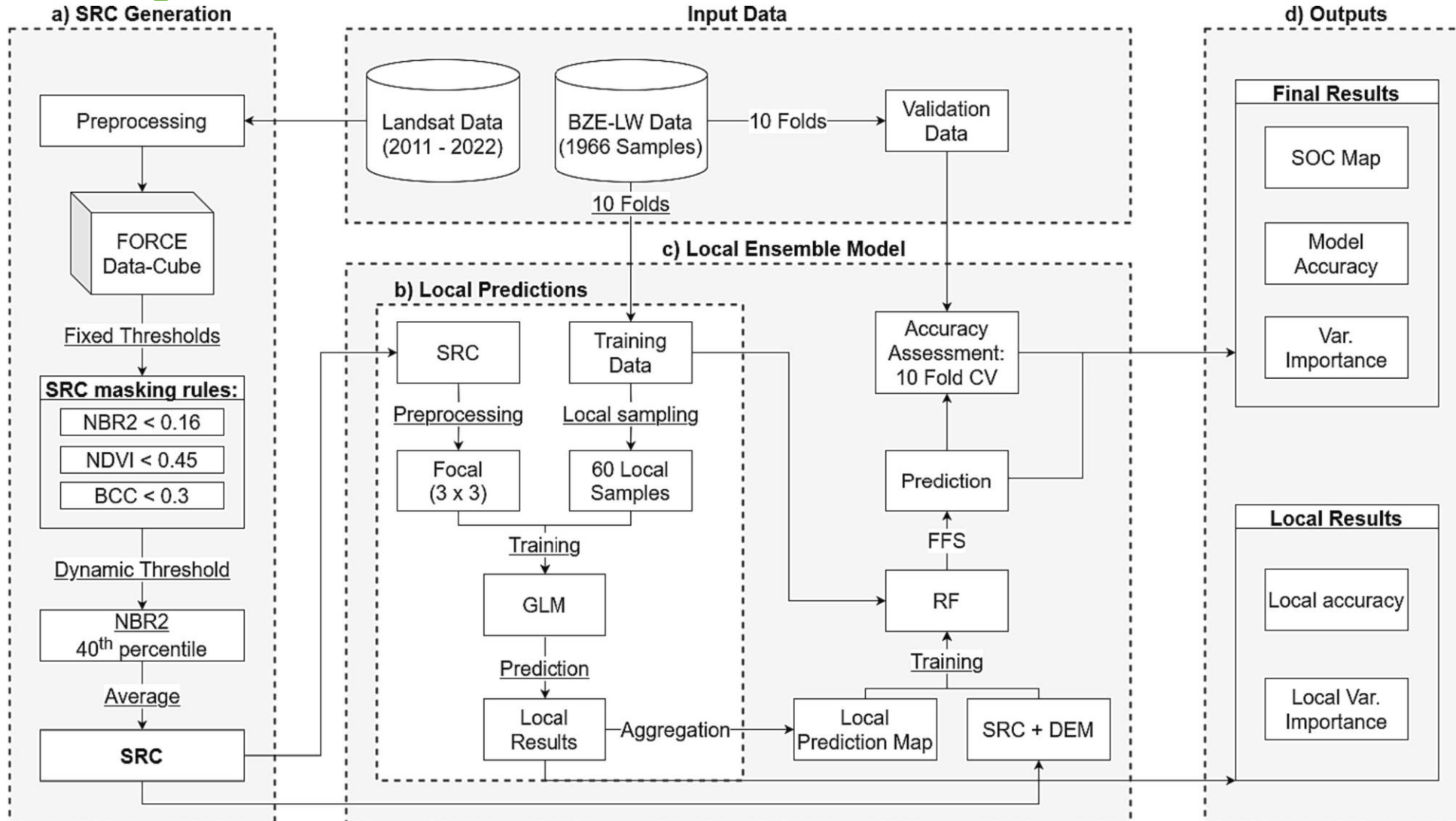
- <https://sf.julius-kuehn.de/openapi/weather/>
- https://sf.julius-kuehn.de/openapi/S2_GermanyGrid_JKI/
- <https://sf.julius-kuehn.de/openapi/phase/>

Beyer, F., Brandt, P., Schmidt, M., König, S., Stahl, U., Baumann, P., Golla, B., Gerighausen, H., Möller, M., Big geodata and spatial data infrastructures: A perspective of a German authority. under review in PFG – Journal of Photogrammetry, Remote Sensing and Geoinformation Science



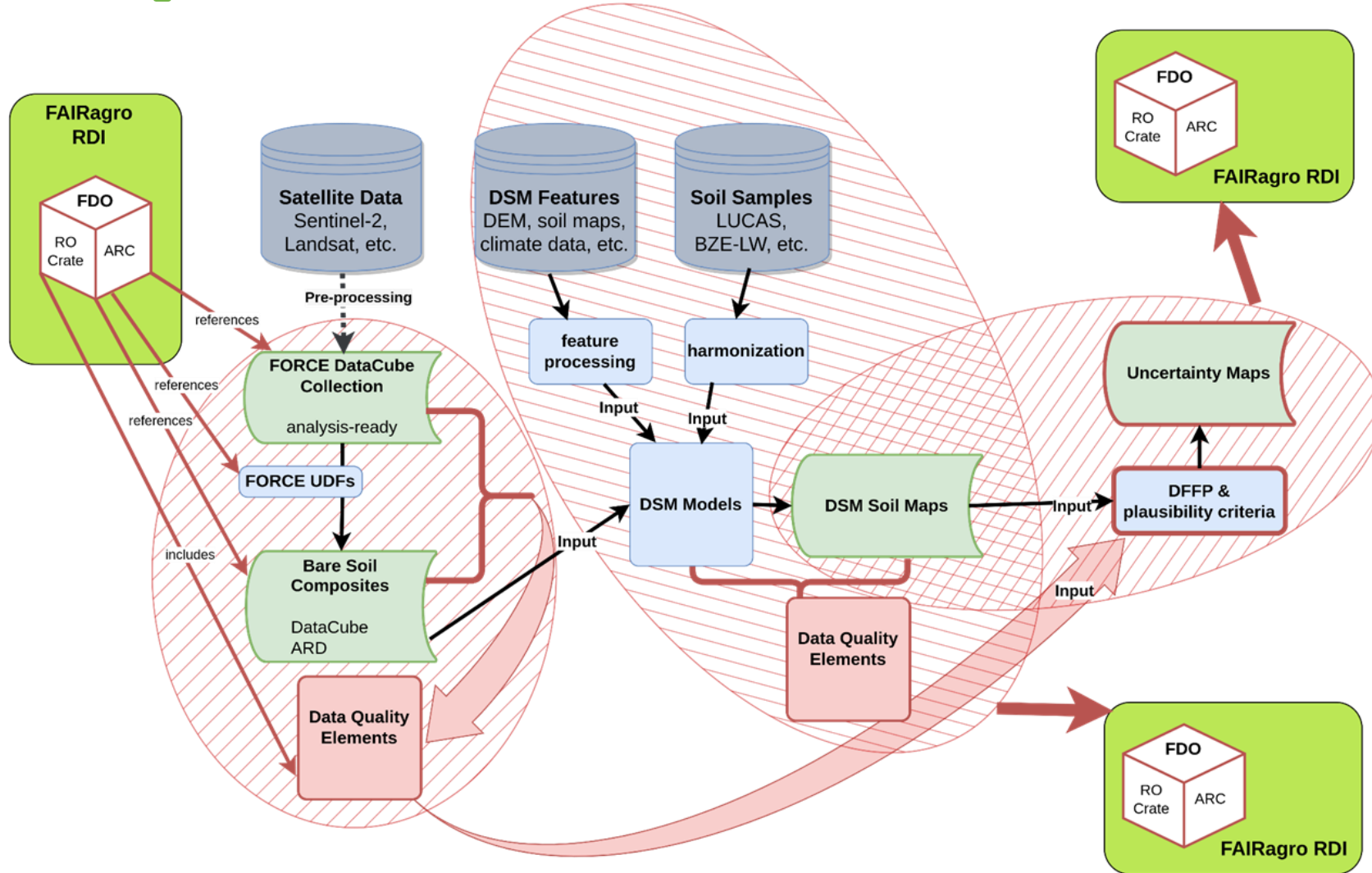
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FAIRagro infrastructure: SciWIn client



Broeg, T., Don, A., Gocht, A., Scholten, T., Taghizadeh-Mehrjardi, R., Erasmi, S., 2024. Using local ensemble models and Landsat bare soil composites for large-scale soil organic carbon maps in cropland. *Geoderma* 444, 116850. <https://doi.org/10.1016/j.geoderma.2024.116850>

FAIRagro infrastructure: SciWin client



ReUseDSM: Boosting the re-usability of Digital Soil Mapping products: A blueprint for the reproducible creation of FAIR data-quality information

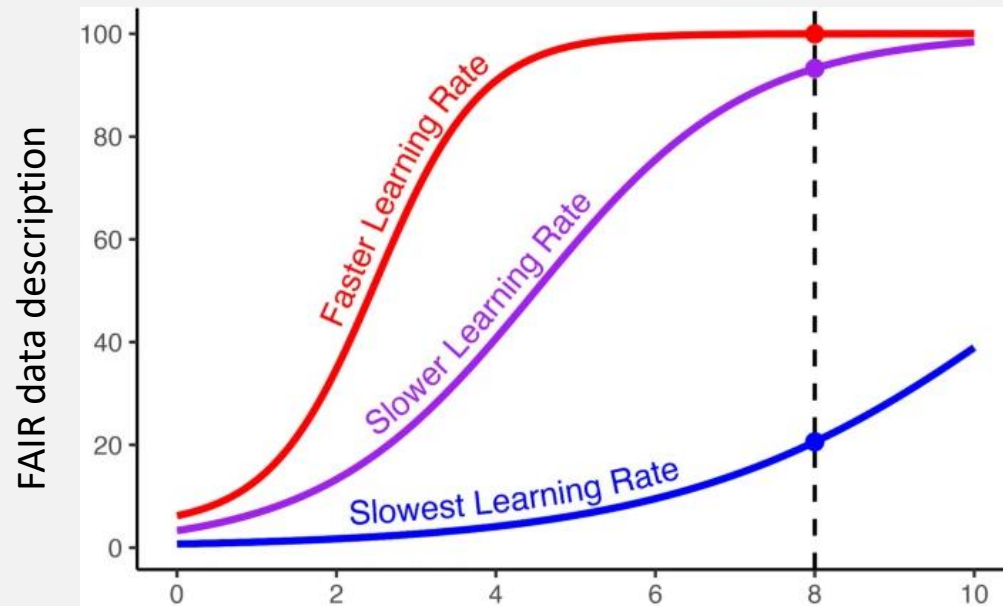
Scientific Workflow Infrastructure (SciWin) Client

RDI - FAIRagro-connected research data infrastructure

DSM - Digital Soil Mapping

FDO - Fair Digital Objects -> Provenance
Run Crates -> Annotated Research Contexts (ARCs)

FAIRagro: Shortening the FAIR learning curve



Numbers of hours spent learning to be FAIR

Tools
Best Practice Examples
...

Schuetze, B.A., 2024. A Computational Model of School Achievement. Educ Psychol Rev 36, 18 (2024). <https://doi.org/10.1007/s10648-024-09853-6>

EGU25-17188 | Orals | [ESSI2.7](#) ★

Enhancing environmental indicator trustworthiness: A framework for user-specific quality assessment of spatial input data using data-fitness-for-purpose principles ▶

Markus Möller, Claus Weiland, and Daniel Martini

Thu, 01 May, 11:45–11:55 (CEST) ■ Room -2.92