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RADAR - a flexible FAIR research data repository

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RADAR, developed and operated by FIZ Karlsruhe –Leibniz Institute for Information Infrastructure, provides a robust and versatile research data repository designed to facilitate adherence to FAIR principles—ensuring data is Findable, Accessible, Interoperable, and Reusable. Since its inception, RADAR has evolved significantly, offering enhanced services tailored to diverse research communities.

The FAIR principles are deeply integrated into RADAR's infrastructure through comprehensive metadata schemas, persistent identifiers (DOIs), and standardised licensing, ensuring that research data remain discoverable and accessible. RADAR supports interoperability by adopting widely accepted metadata standards such as DataCite and Dublin Core, alongside integration with discipline-specific terminologies facilitated by the recent implementation of TS4NFDI (Terminology Service for NFDI). This inclusion significantly enriches metadata quality and consistency, facilitating semantic interoperability across various research domains.

A central strength of RADAR is its flexibility, offering tailored solutions through deployment models: RADAR Cloud as a centrally hosted, turnkey solution, and RADAR Local for institutions preferring to maintain full control over their infrastructure. These deployment models accommodate a broad spectrum of institutional requirements and technical preferences.

Recently introduced functionalities further enhance RADAR's usability and integration capabilities. Notably, researchers can now seamlessly import data via GitHub and WebDAV, streamlining data publication work-flows directly from commonly used platforms. RADAR also provides a comprehensive RESTful API that facilitates automated interactions, enabling efficient data submission, metadata management, and integration into existing research workflows.

In addition, RADAR has implemented FAIR Signposting, a machine-actionable mechanism for signaling FAIRaligned metadata, thereby improving automated discovery and reuse of research data. This advancement underscores RADAR's commitment to supporting emerging best practices in FAIR data management.

Specialized RADAR variants have been developed under the umbrella of Germany's National Research Data Infrastructure (NFDI) initiative to meet community-specific needs:

RADAR4Chem, in collaboration with NFDI4Chem, supports chemical research data, including specialized features like DOI assignments, embargo periods, and peer-review integration.

RADAR4Culture addresses data publication and preservation needs within cultural heritage.

RADAR4Memory supports the historical humanities, offering tailored metadata standards and communityspecific functionalities for managing and preserving historical research data.

Through continuous development informed by community feedback, RADAR remains at the forefront of data management infrastructures. Its commitment to FAIR principles, combined with innovative integrations such as TS4NFDI terminologies, GitHub and WebDAV import options, robust API access, and FAIR Signposting, positions RADAR as a leading repository, significantly advancing open science and interdisciplinary data reuse.

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