Particle, Universe, NuClei and Hadrons for the Nationale ForschunsDatenInfrastruktur

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Presentation :

The PUNCH4NFDI consortium covers the German community of particle, astroparticle, nuclear, and hadron physicists.

The goal of PUNCH4NFDI is to develop and share solutions for **big data challenges** and assuring **FAIR** (Findable,Accessible,Interoperable,Reusable) **data**.

The main product of PUNCH4NFDI will be a **science data platform** that consist of a **data lake** with **storage and cloud computing systems**, a **data transformation layer** allowing the **analysis** of the data, and a user- friendly **interface** functioning as a **data portal**

PUNCH4NFDI

PUNCH 4 NFDI

Objectives and aims :

How to use and manage big data	Science data plateform	Data archives
How to assure FAIR principles	Description of data, metadata, persistent identifiers, analysis worklows and code, simulation, and knowledge	Open source codes
Deal with irreversibility challenge		Detailed use cases
Facilitate cross experiment and cross community data analysis	Establish a Marketplace for tool methods and services	Data management
Enable live analysis and live peer review	Educate professionals and non professionals	Methods

Tasks and work packages :

TA1 : Management and governance	TA2 : Data management	TA3 : Data transformation	TA4 : Data portal	TA5 : Data irreversibility	TA6 : Synergies and services	TA7 : Training, education, outreach citizen science
WP 1 : Management setup	WP 1 : Standardized access to data and metadata	WP 1 : Statistical methods	WP 1 : Digital research products and their catalogue	WP 1 : Implications for discovery potential and reproducibility	WP 1 : Marketplace	WP 1 : raining of scientists
WP 2 : Financial and administration	WP 2 : Compute4PUNCH	WP 2 : Numerical methods and simulation	WP 2 : Mapping and collating metadata	WP 2 : Dynamic filtering	WP 2 : Authorization and authentication infrastructure	WP 2 : Education of students
WP 3 : Controlling and reporting	WP 3 : Automatisation and optimization of big data management workflows	WP 3 : Machine learning methods	WP 3 : Implementation of interfaces	WP 3 : Dynamic archiving	WP 3 : FAIRness	WP 3 : Public outreach
WP 4 : Consortium organization		WP 4 : Methods for analysis across datasets	WP 4 : Build and operate the science data portal	WP 4 : Scaling workflows	WP 4 : Open-source data analysis tools	WP 4 : Support for citizen science
				WP 5 : Evaluation and validation of instrument response	WP 5 : Services in big data management	

Partners

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