Knowledge graph infrastructure for the research community

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Introduction:
Why KGs and why KGI

KGs are an important technology supporting **interoperability** and enabling **data exchange**:

- KG is a **graph-structured knowledge base** containing a terminology (vocabulary or ontology) and data entities interrelated via the terminology;
- KGs are based on **semantic web technologies** (RDF, SPARQL, etc.) and often used for agile data integration;
- KGs are already **widely used** by research data producers and managers in Germany.

Overview NFDI

Introduction:
KGs in NFDI

nfdi Nationale Forschungsdaten Infrastruktur

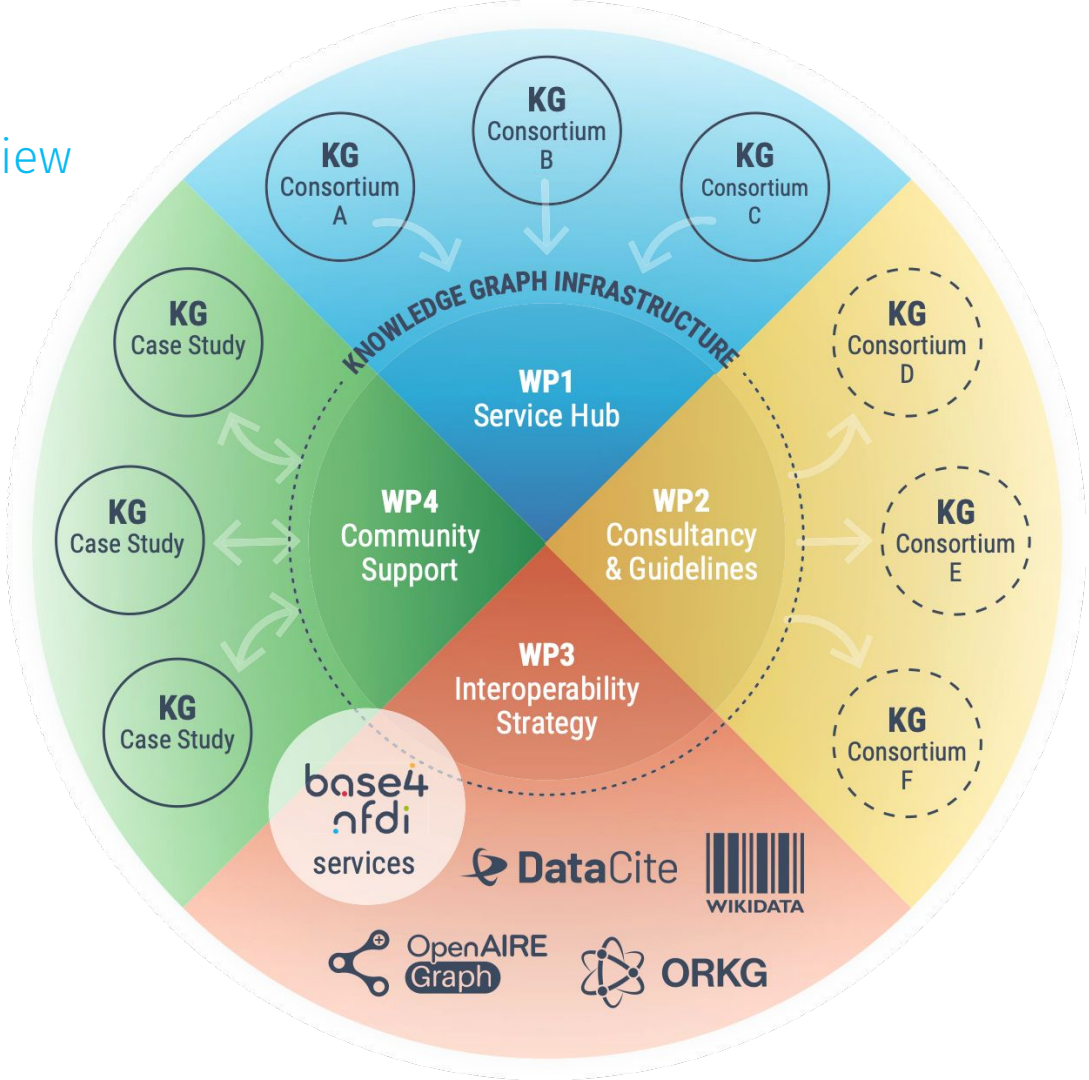
Humanities and social sciences
- BERD@NFDI (KGs)
- KonsortSWD
- NFDI4Culture (KGs)
- NFDI4Memory (KGs)
- NFDI4Objects (KGs)
- Text+ (KG)

Engineering sciences
- NFDI4DataScience (KGs & KG Software)
- NFDI4Energy (KG)
- NFDI4Ing (KG Software)
- NFDI-MatWerk (KGs & KG Software)
- NFDIxCS

Life sciences
- DataPLANT
- FAIRagro
- NFDI4Immuno
- GHGA
- NFDI4Biodiversity
- NFDI4BIOIMAGE (KG)
- NFDI4Health
- NFDI4Microbiota (KG)

Natural sciences
- DAPHNE4NFDI
- FAIRmat
- NFDI4Cat (KG)
- MaRDI (KGs)
- NFDI4Chem (KGs)
- NFDI4Earth (KG)
- PUNCH4NFDI

KGI4NFDI:
Service overview



Use cases:
Personas

Aleena

First year Postdoc Researcher in Bioinformatics

Aleena works remotely at the University of Cologne. Her scholarly interests are interdisciplinary and she enjoys contributing to citizen science projects like Wikidata. She has some experience using KGs but wants to learn more.

Andreas

Second year PhD Researcher in Sociology

Andreas is a PhD student at the University of Mannheim. He is interested in exploring large corpora of available sociological survey data. Andreas is comfortable using standard software for statistics and analysis, but wants to explore more innovative methods particularly in terms of discovery and data reuse.

Alexandra

Senior Data Steward for Engineering Data Domain

Alexandra works at a Leibniz Centre and is responsible for data collections in the Engineering domain. She is responsible for integrating the data in her institute to other national and international initiatives and is keen to explore the potential of KGs for this task.

Lisa

Junior Developer in a research lab

Lisa is an MA graduate in CS, working in a research lab at a Leibniz Institute. She works closely with scientists and enjoys working on services that support innovation in science. She lacks industry experience, but is passionate about open source software and contributes to several projects in volunteer capacity.

Luca

Senior Developer in a research lab

Luca is semantic web expert working in a research lab at a Fraunhofer Institute. He runs a big KG project and is eager to improve it and see how others use it. He is involved in various expert committees and wants to make knowledge and best practice sharing more effective.

Use cases:
The KGI service hub

Aleena

When I

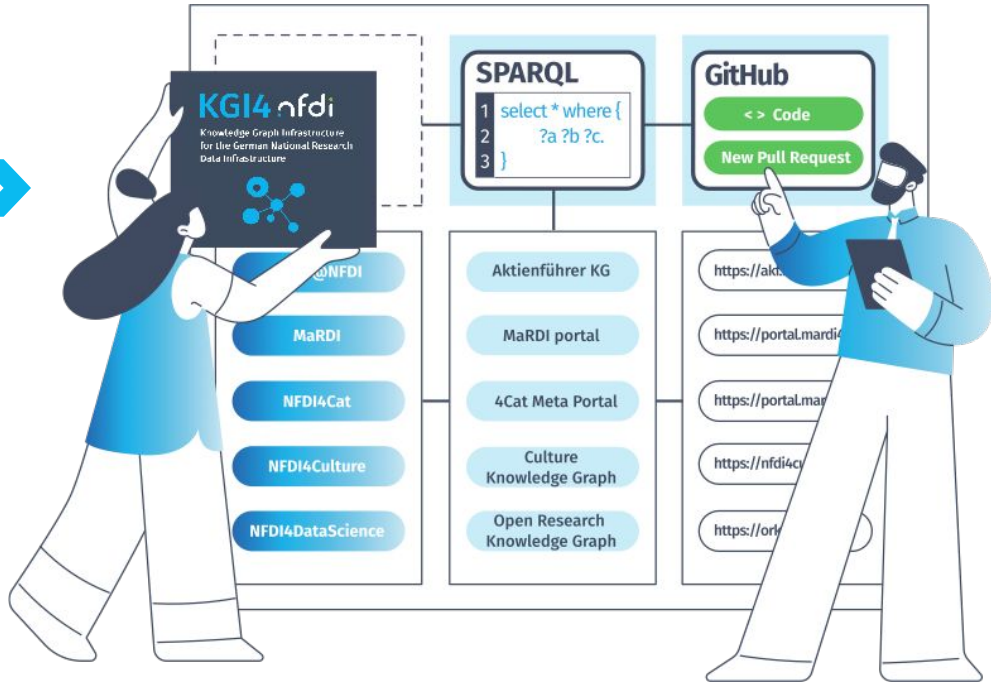
am looking for existing knowledge graphs in the domain of Bioinformatics,

I need / I wish

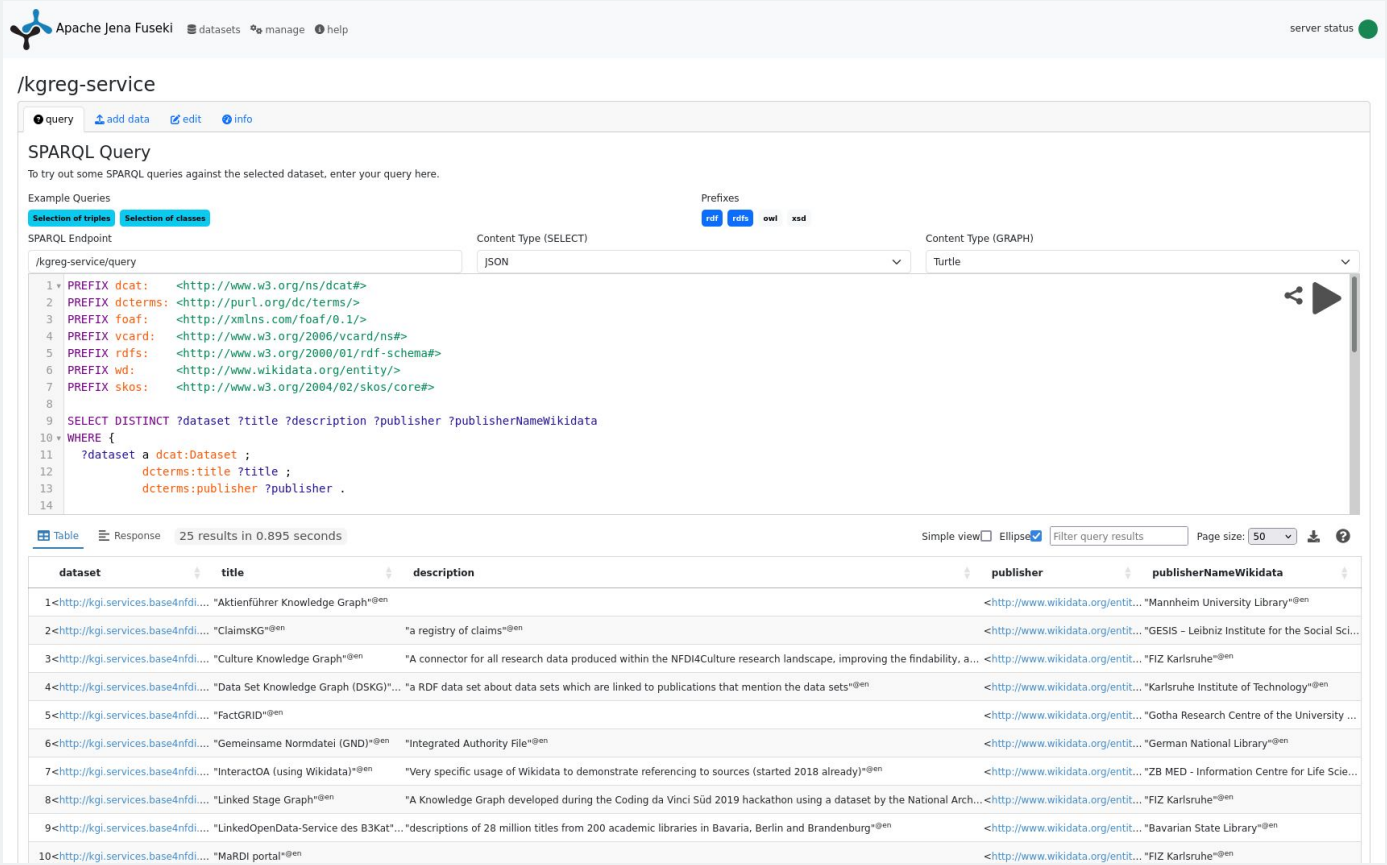
I need a centralised registry of knowledge graphs.

I am frustrated when

I don't know what question to ask in the query interface and how best to formulate it.



- **Registry of KGs in NFDI**
- **Search and query platform**
- **Query examples to get started**



https://sparql.kgi.services.base4nfdi.de/ **(WIP!)**

Use cases:
Deploy your own KG

Lisa

When I

am deciding which KG technology to deploy,

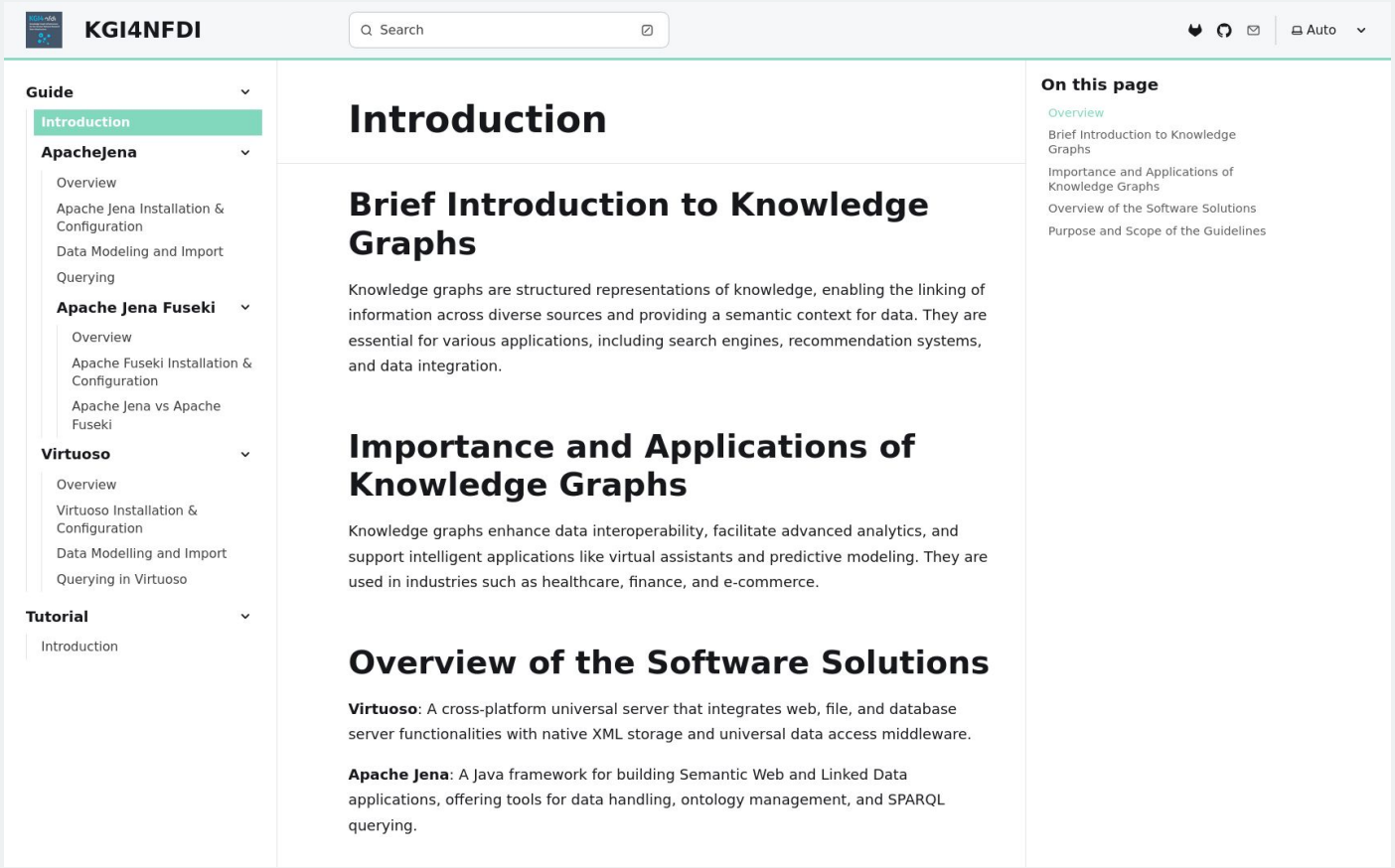
I need / I wish

an overview of existing tools with clear indication of advantages & disadvantages of each tool.

I am frustrated when

there is not enough documentation to support less experienced users of these technologies.

- **Several tool options to choose from**
- **Guidance docs and deployment pipelines**
- **Consulting service**



https://kgi4nfdi.github.io/Guidelines/ **(WIP!)**

Get involved!

Participate in our survey!

Survey open until:
2024-12-31

Visit the service hub

https://kgi.services.base4nfdi.de/

Contribute to the federation show cases

Get in touch at: kgi4nfdi@lists.nfdi.de

Thank you!
Questions?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base4nfdi-servicestewards@lists.nfdi.de for general inquiries


https://github.com/KGI4NFDI

base4 nfdi Basic Services for NFDI

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