A Knowledge Graph for the German Digital Library

PROBLEM STATEMENT

In the **German Digital Library (DDB)**, cultural heritage resources span more than a millenium.

- No unified cataloging standards
- Metadata quality is poor
  - unnormalized
  - incomplete
  - inaccurate
  - incoherent

GOALS

- Improve search and retrieval of 40M+ multimodal cultural heritage objects.
- Foster **interoperability** of metadata from different memory institutions such as libraries, museums, and archives.
- Encode **semantics** of heterogeneous objects in the knowledge graph (KG).
- Use external KGs to enhance metadata.

SOLUTIONS

- A new KG adapting domain and application ontologies (FRBR, FaBiO, VRA, MO, ACO, etc.)
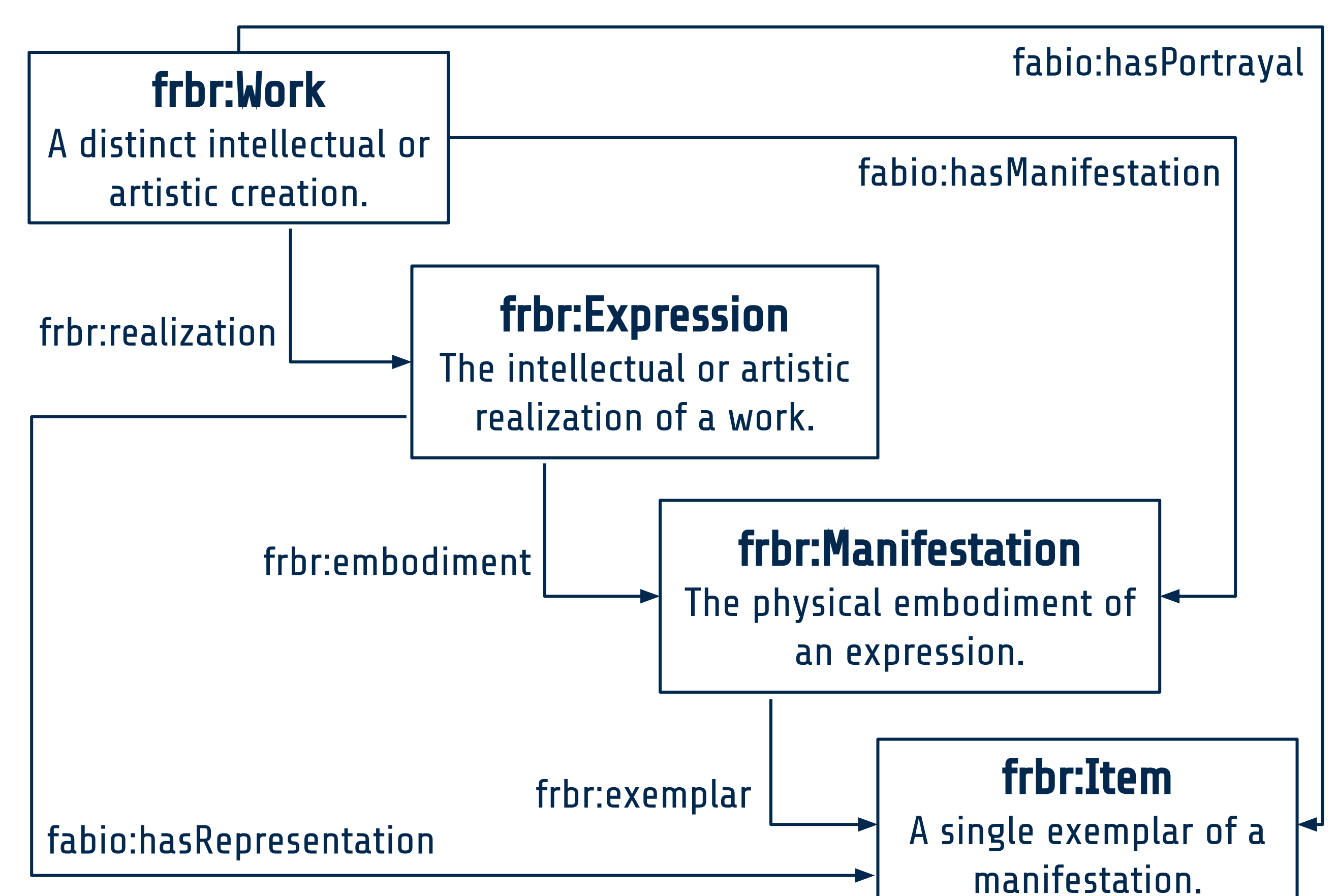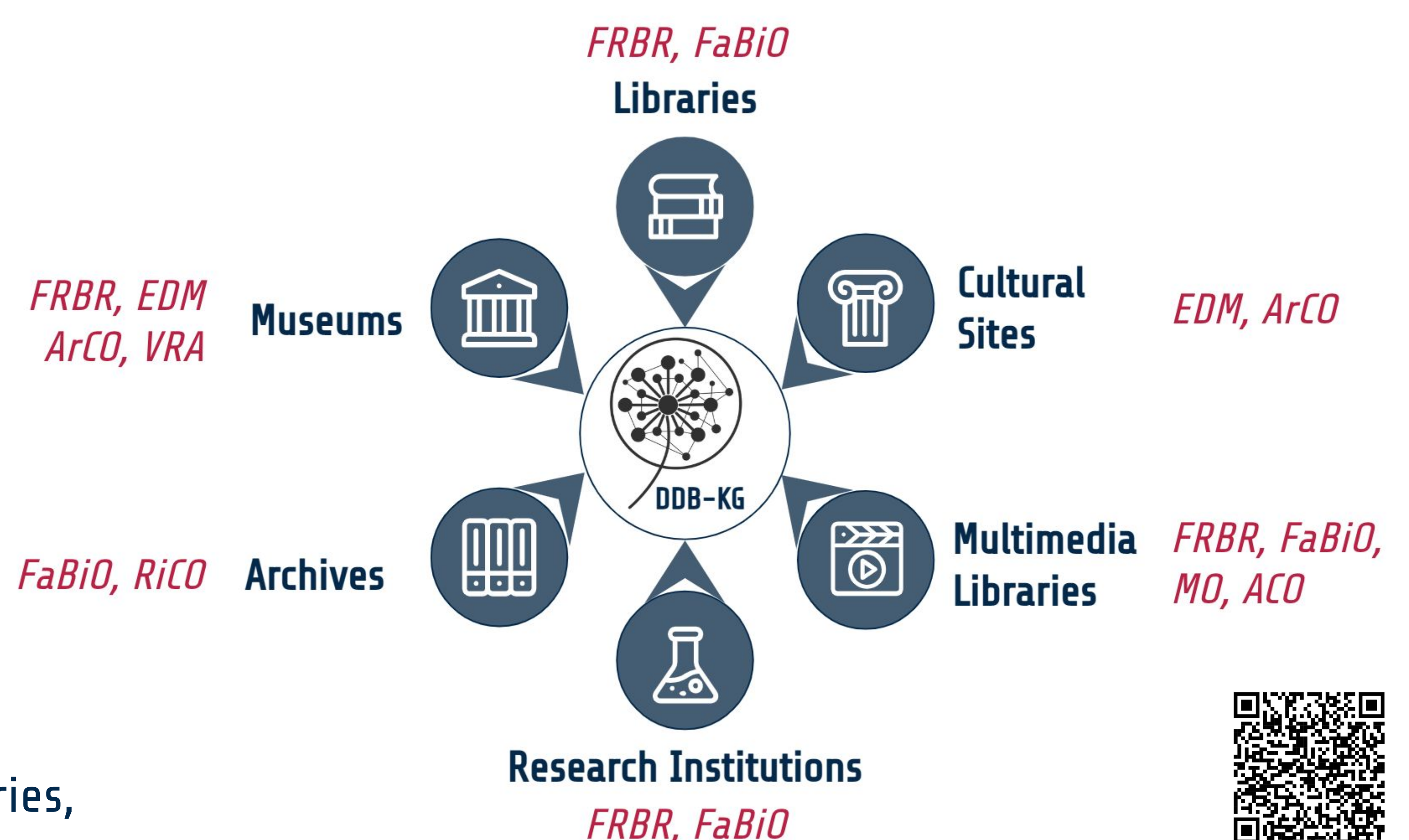- **FRBR-ization** of the collection

OPEN CHALLENGES

Which **frbr:Work** is this **frbr:Item** associated with?

Entity Alignment (EA)

- DDB dataset contains long-tail entities with non-distinguishable attributes.
- Lack of domain-specific EA benchmark dataset.
- Synthetic datasets do not reflect degree distributions of real-life objects.

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> "Only librarians like to search, everyone else likes to find."
> – Roy Tennant

FRBR, FaBiO
Libraries

FRBR, EDM ArCO, VRA **Museums**

Cultural Sites *EDM, ArCO*

FaBiO, RiCO **Archives**

DDB-KG

Multimedia Libraries *FRBR, FaBiO, MO, ACO*

Research Institutions
FRBR, FaBiO

frbr:Work
A distinct intellectual or artistic creation.

fabio:hasPortrayal

fabio:hasManifestation

frbr:realization

frbr:Expression
The intellectual or artistic realization of a work.

frbr:embodiment

frbr:Manifestation
The physical embodiment of an expression.

fabio:hasRepresentation

frbr:exemplar

frbr:Item
A single exemplar of a manifestation.

	Work	Expression	Manifestation	Item
DDB			✓	✓
GND	✓			
Wikidata	✓	✓		

FIZ Karlsruhe

KIT Karlsruher Institut für Technologie