

# Quickstart Guide

## Working environment for research projects in the field of energy

Infrastructure


Consulting

Development

Training

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For research projects in the field of energy that want to train and use AI models, the AI Service Centre not only offers the necessary infrastructure and software resources, but also comprehensive consulting services, further education, training and project support.



After receiving an enquiry for an individual initial or further consultation, we use three parameters to gain an initial impression of your project:

1. What type of data is used to train AI models?
2. What is the source of the data?
3. What function should the model have?

1. Data types	2. Data sources	3. Function/ Goal
<ul style="list-style-type: none"><li>• Tabular data</li><li>• Image and video data</li><li>• Textdata</li><li>• Numerical data</li><li>• Time series</li><li>• ...</li></ul>	<ul style="list-style-type: none"><li>• <b>Measurement data</b> such as performance time series of systems and consumption units or measurements on power and work machines</li><li>• <b>Meteorological data</b> from e.g. weather forecasts, satellite images and geoinformation data</li><li>• <b>Price and energy trading data</b></li><li>• <b>Simulation data</b> from areas such as mechanics, electronics or materials</li><li>• ...</li></ul>	<ul style="list-style-type: none"><li>• Performance and consumption forecasts</li><li>• Anomaly detection, predictive maintenance</li><li>• Automated electricity trading</li><li>• Optimised operation of an energy system or storage system</li><li>• AI-supported design processes and optimisation of parts and components</li></ul>

# From the idea to the AI application



Problem analysis  
and concept  
development

Initial consultation  
with data analysis

Training and  
counselling services

Draft of a  
project plan

Feasibility and  
potential analysis

Support in preparing  
quotations



Data management  
and development of  
AI solutions

GDPR-compliant  
computing  
infrastructure

Provision of an  
experimental area

Data and model  
catalogues

Development and  
fine-tuning of  
AI models



Implementation of  
the AI application

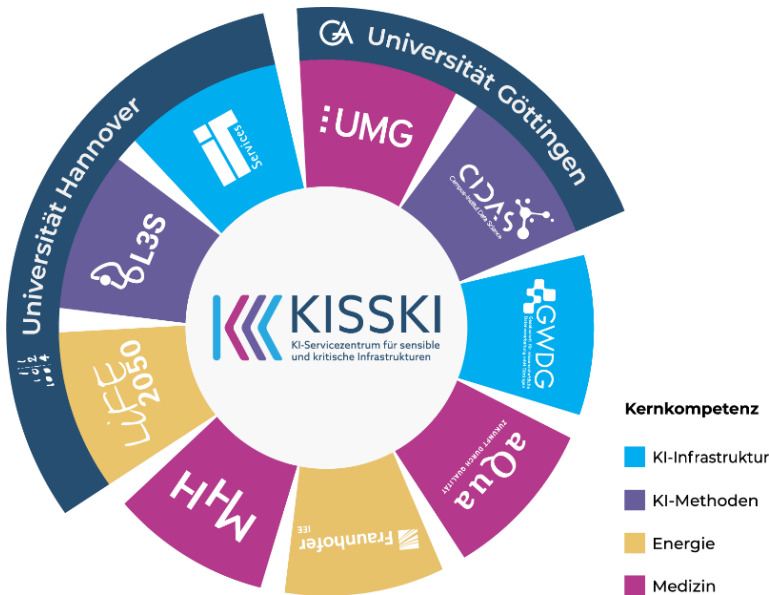
Support with  
integration into  
production systems

Evaluation of the  
generated solution

Advice on monitoring  
and optimisation

# Technical specifications of our computing infrastructure

- HPC cluster system with the latest NVIDIA A100 and H100 GPUs
- Highly available inference platform
- Federated Learning Framework
- Support for common frameworks (PyTorch, Tensorflow, ...)



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