FAIR: A project to make weather information more usable

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Bundesministerium für Verkehr und digitale Infrastruktur

mFUND – Das Startkapital für die Mobilität 4.0

Data Week 2022

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CISS TDI GmbH

https://www.fair-opendata.de

BayWa r.e. – r.e.think energy

HCU HafenCity Universität Hamburg

KARLSRUHE MARKETING | EVENT GMBH

mundialis

CISS TDI

terrestris

UNIVERSITÄT DUISBURG ESSEN – Offen im Denken

YellowMap

Deutscher Wetterdienst – Wetter und Klima aus einer Hand – DWD

about us

The greatest sight there is is the world
- go see it.

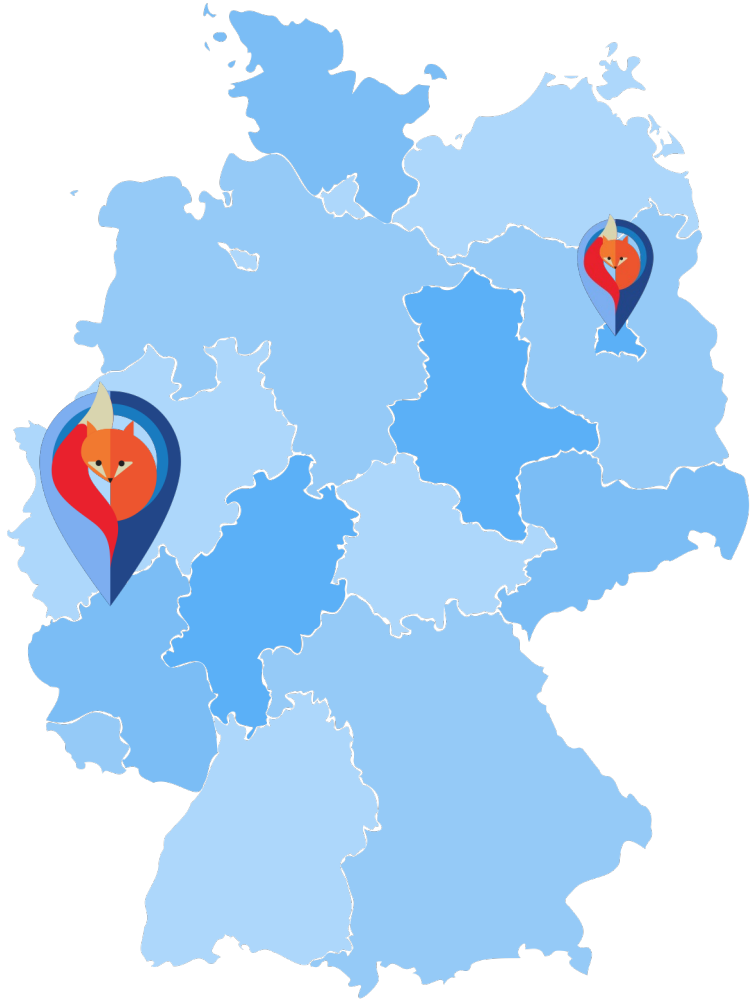
– Kurt Tucholsky

CISS TDI GmbH

Established: 1982

HQ: Sinzig / Rhein

Employees: ~37



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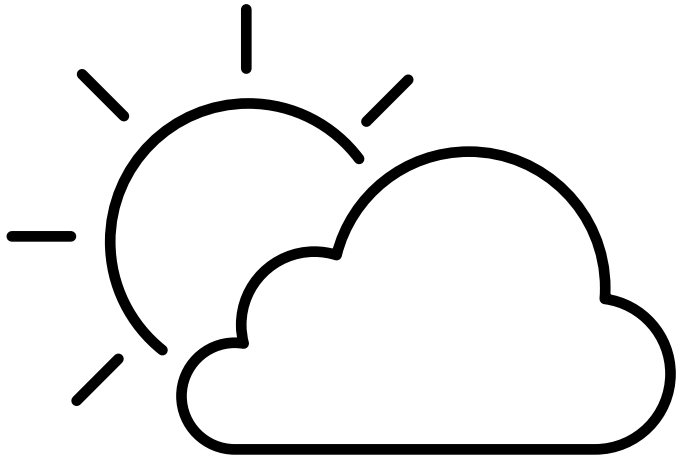
motivation

Why to talk about weather?

*It's the #1 topic for small talk.**

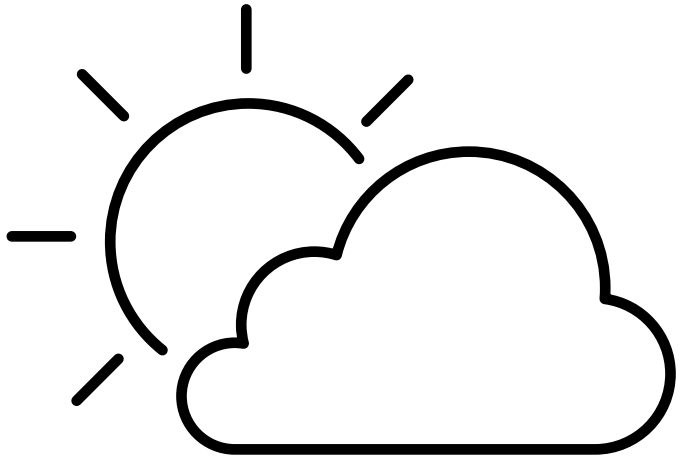


So, after this presentation, let's talk about weather ;)

* citation needed

Why to talk about weather?

*Around 80% of the world-wide economy depends on weather conditions (and the climate).**



* https://www.op-online.de/offenbach/wenn-stuerme-gewitter-bilanzen-verhageln-2295582.html

Why to talk about data?

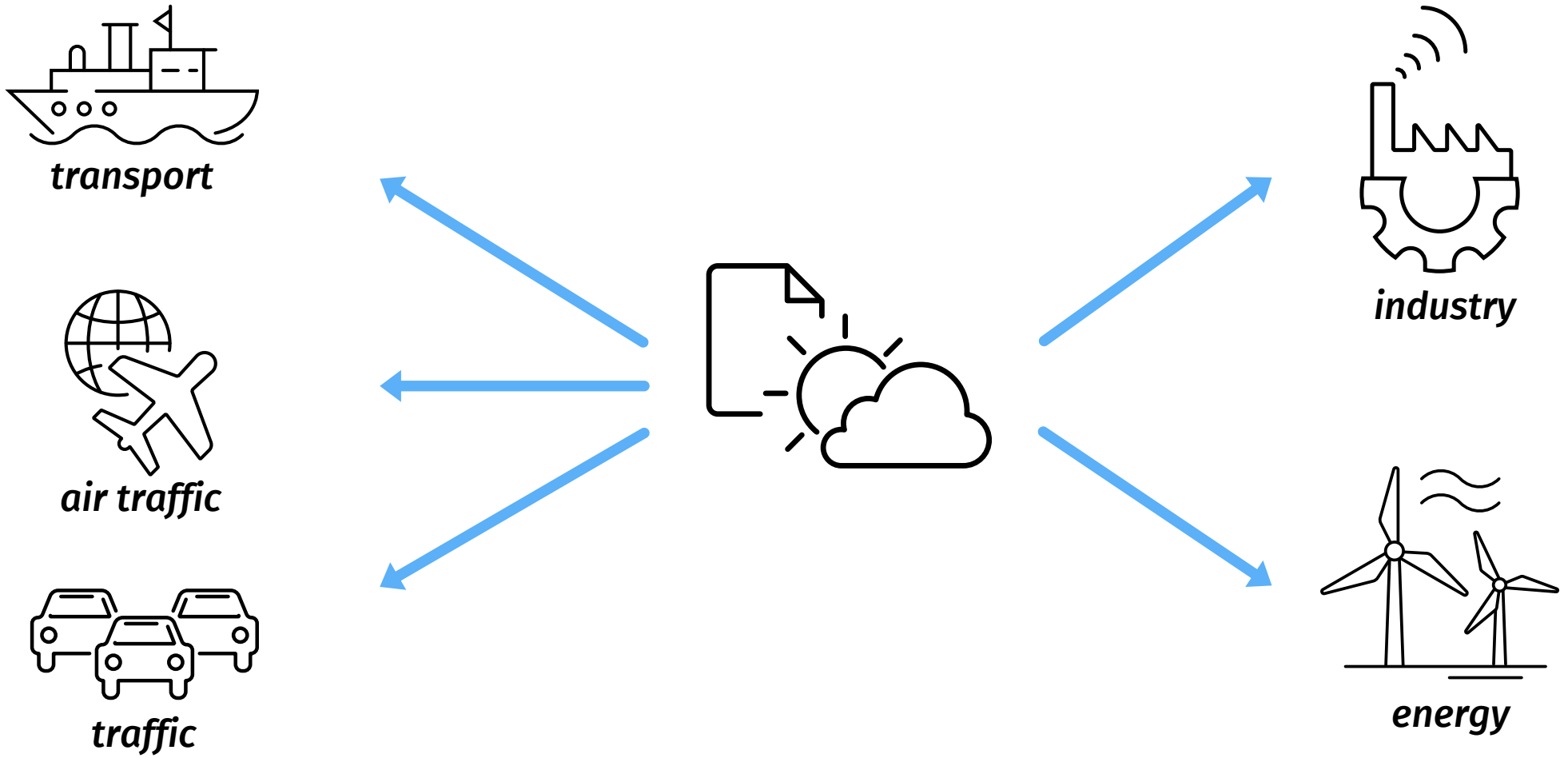
Open data is the basis for new business ideas,

allow for economic growth

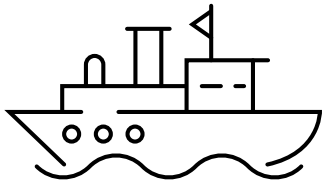
*and support innovation in business, administration and society.**

*http://datenwirken.de

Where is the data coming from?



What is the task of the German weather service?



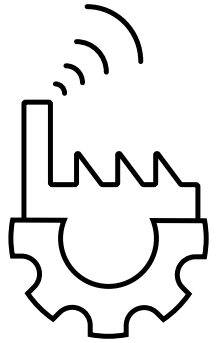
transport

air traffic

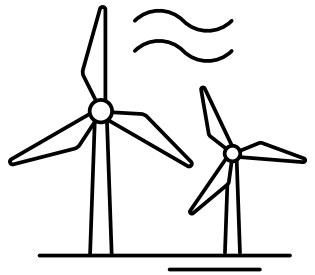
traffic

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

DWD



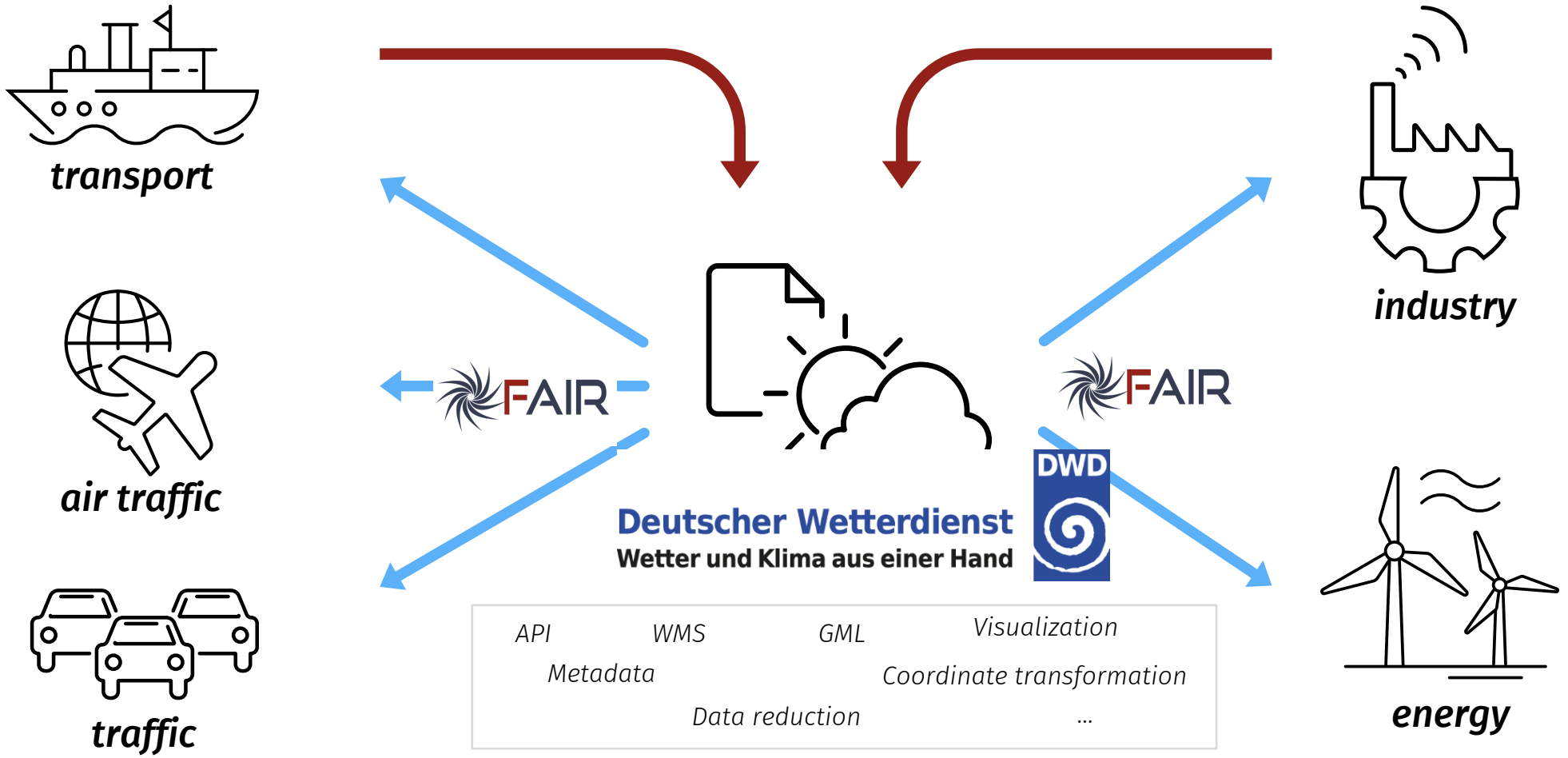
industry



energy

Offer open geo data and allow usage for third parties.

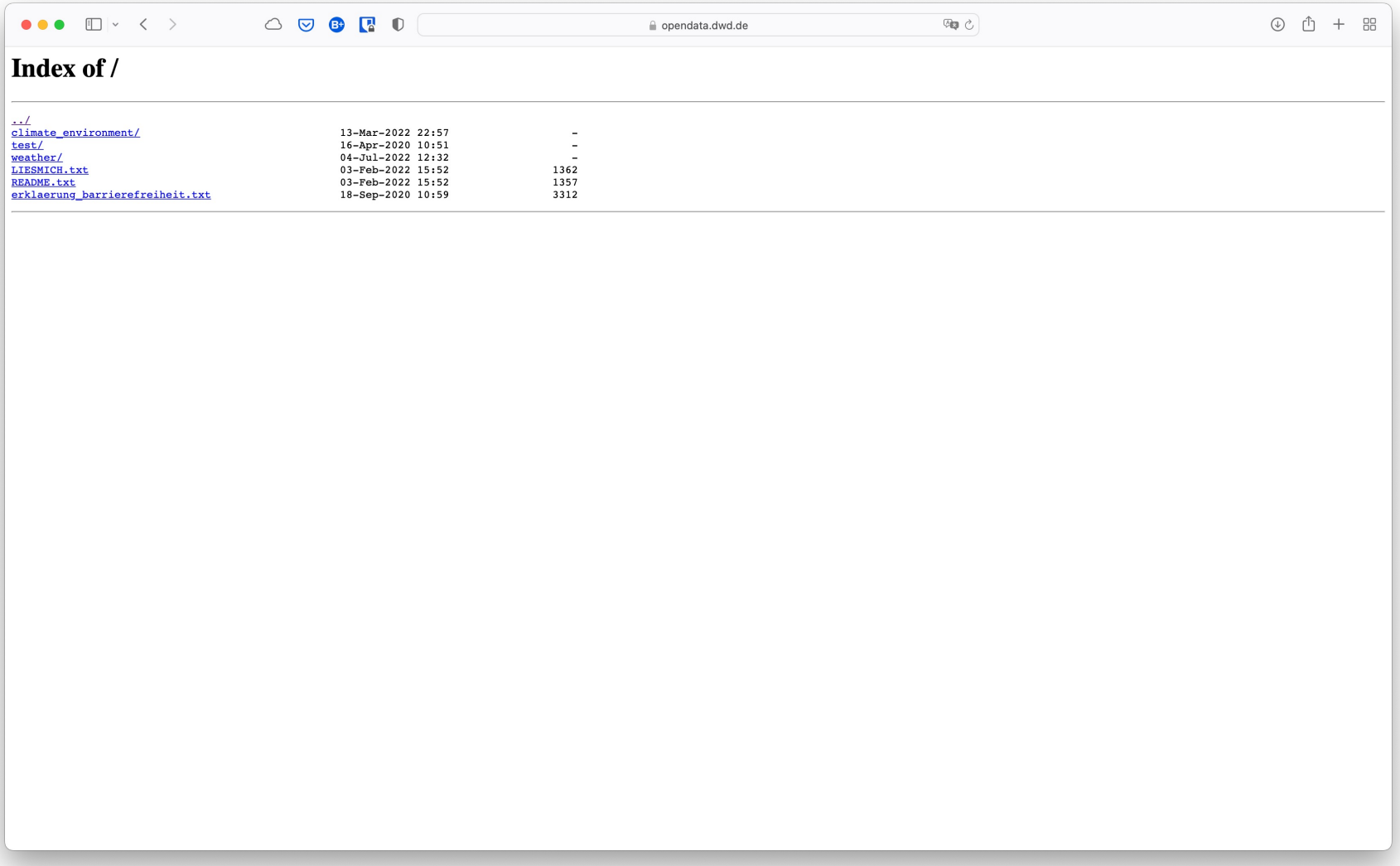
What is the goal of the project?



Target: Make weather information of the DWD more usable

current situation

Access open data via https://opendata.dwd.de



Access open data via https://opendata.dwd.de

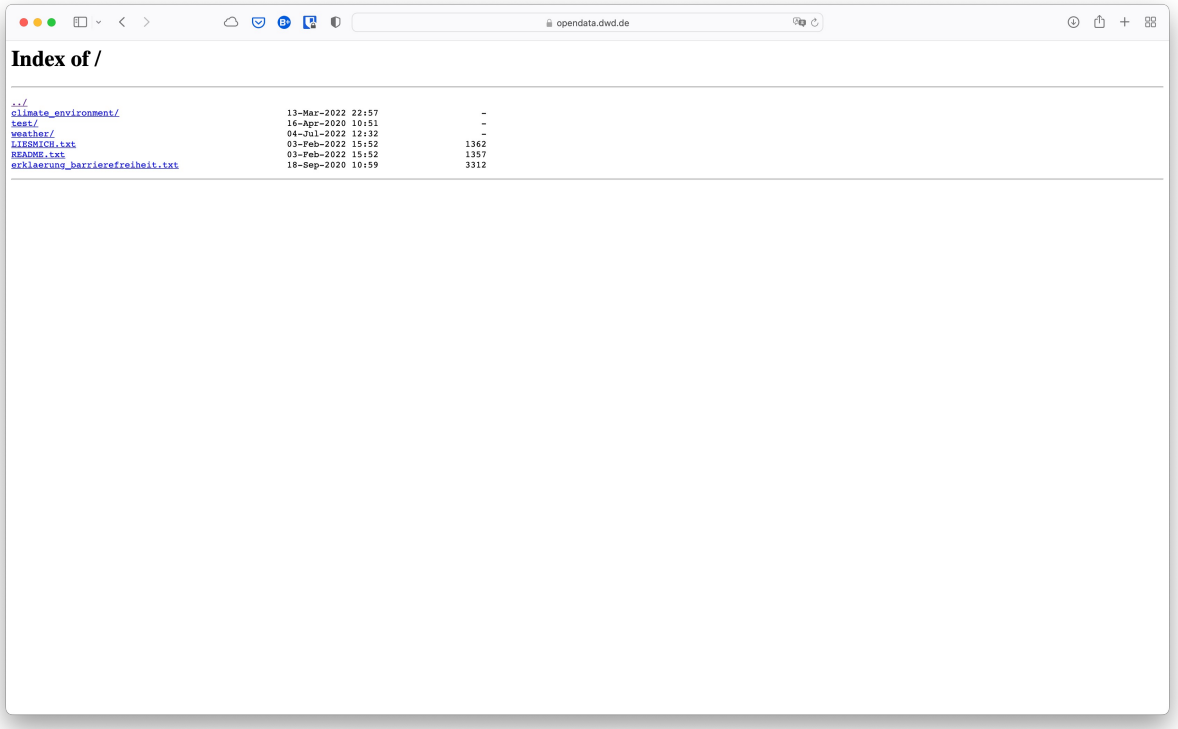
so we‘re done, aren‘t we?

(I think next on the agenda is lunch anyways)

Current situation in Germany

Nice: Open weather data is available!

Not so nice: Just a part of the data is handy to use



Most data is published at https://opendata.dwd.de/

Still challenging

- Little Metadata
- Few Interfaces
- Huge Data files
- No (on demand) pre-processing

→ Additional resources are required for processing and integration of the provided data

FAIR approach

The FAIR-enrichment process

https://opendata.dwd.de/

Aquire

- Automatic download
- Automatic updating

Process

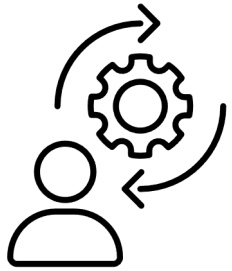
- Coordinate transformation
- Remove redundancy and unneeded data
- Enrichment (e.g., wind speed and direction) with further sources
- Import to PostGRES for accessing, filtering, …

Provide

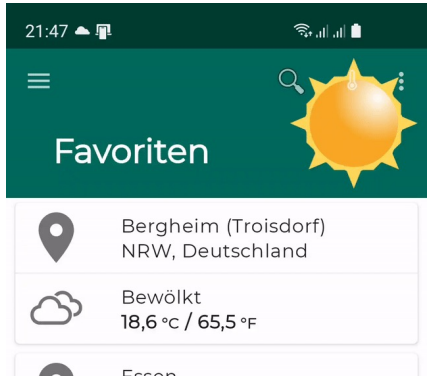
- FAIR-Portal
- API
- Apps

The FAIR applications

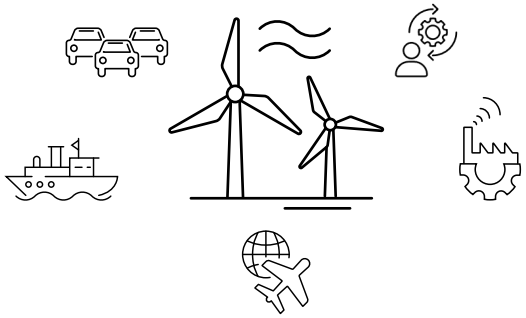
Event management



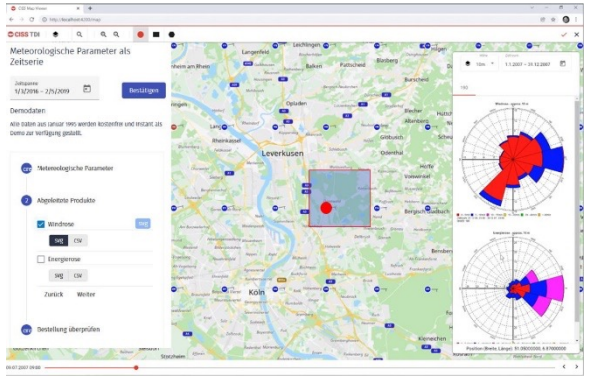
- Enriched weather information
- Weather-App



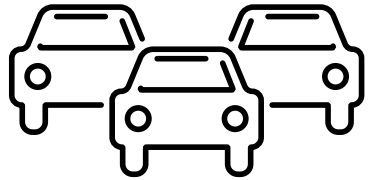
Energy industry



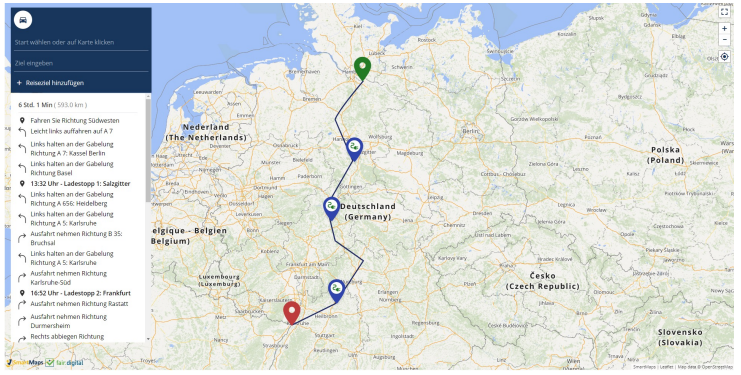
- **Enriched weather information**
- **FAIR-Portal**



Traffic



- Weather along route (SmartMaps)
- E-Range (API)

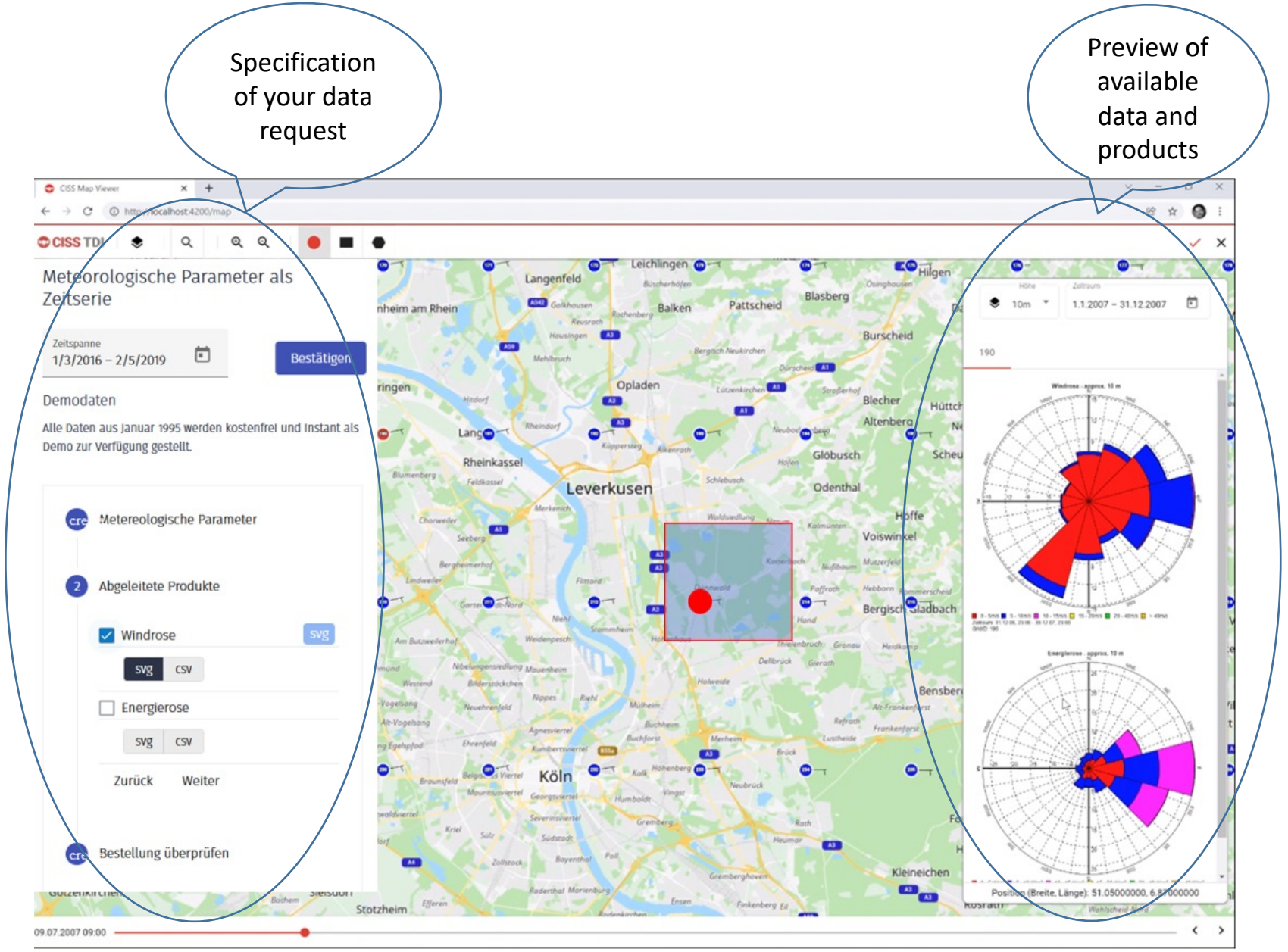


FAIR-Portal

Example: COSMO-REA6

Points of interest:

- Shopping cart
- Filtering
- Convert in formats
- Derived products
- Planned payment for services



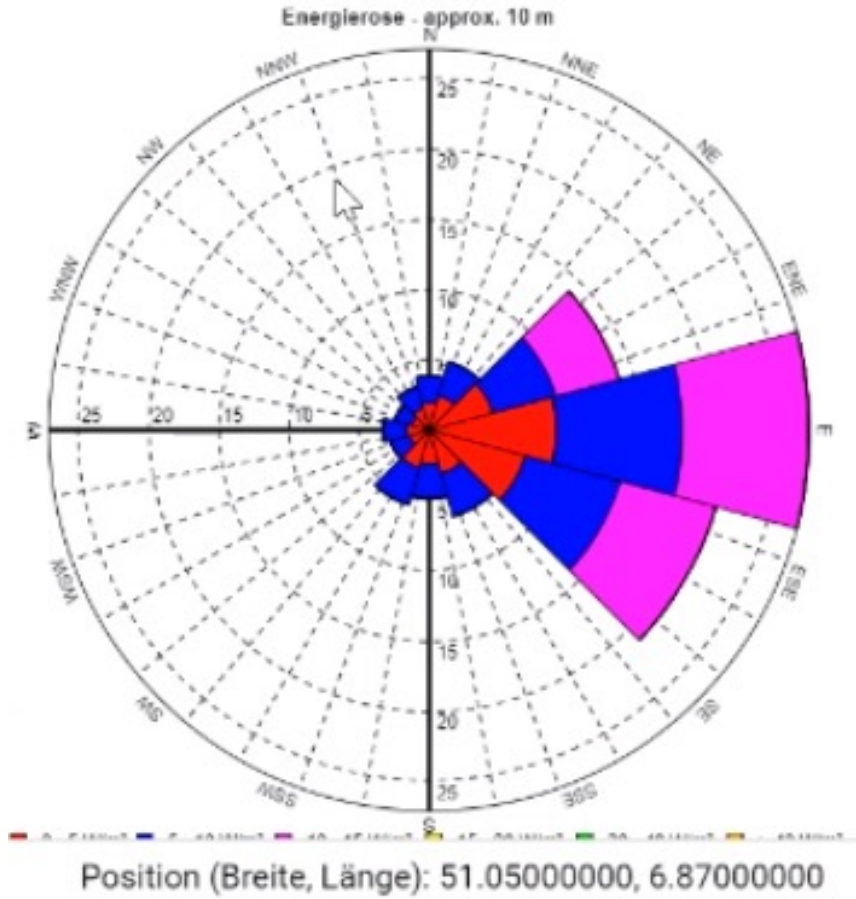
Example: energy rose API

To generate an energy rose

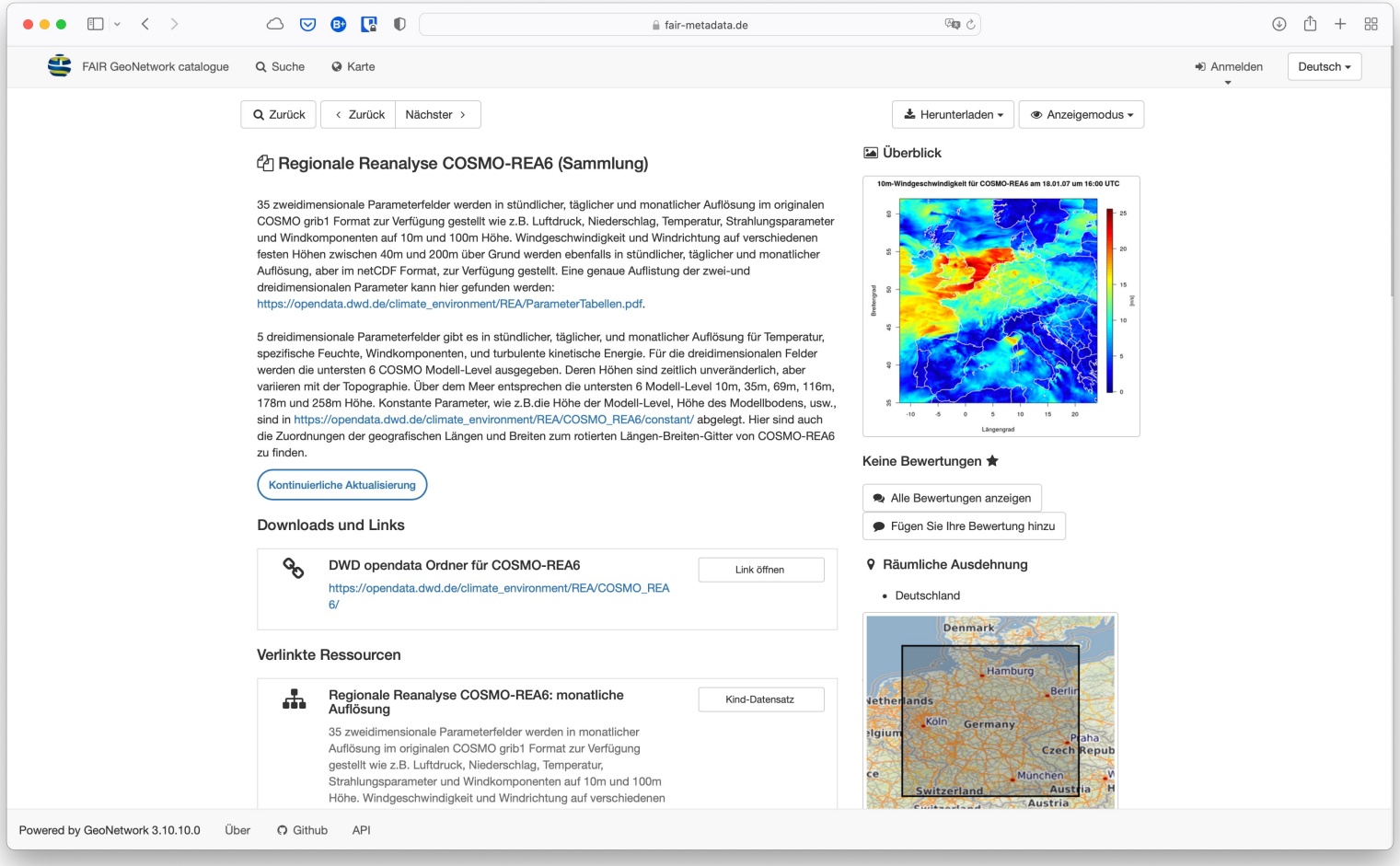
- Visualization of the energy contained in the wind in W/m^2

- Delivery as vector graphic in SVG

- Delivery of the data in CSV



Integration into a GeoNetwork Catalog at https://fair-metadata.de/geonetwork



meta data service

For metadata-based search of meteorlogical data

- *Fast findability*
- *Clear data description*
- *Link to source and other submitting agencies (FAIR portal)*

summary

Summary in three points

1

Weather information is difficult to assess

2

FAIR makes weather data easy to assess

3

FAIR enriches raw data and provides easy-to-use formats

Architecture