

Adapting transport and infrastructure to climate change and extreme weather events



Transport Infrastructure in Germany



51.866 km Highways*
39.500 Bridges

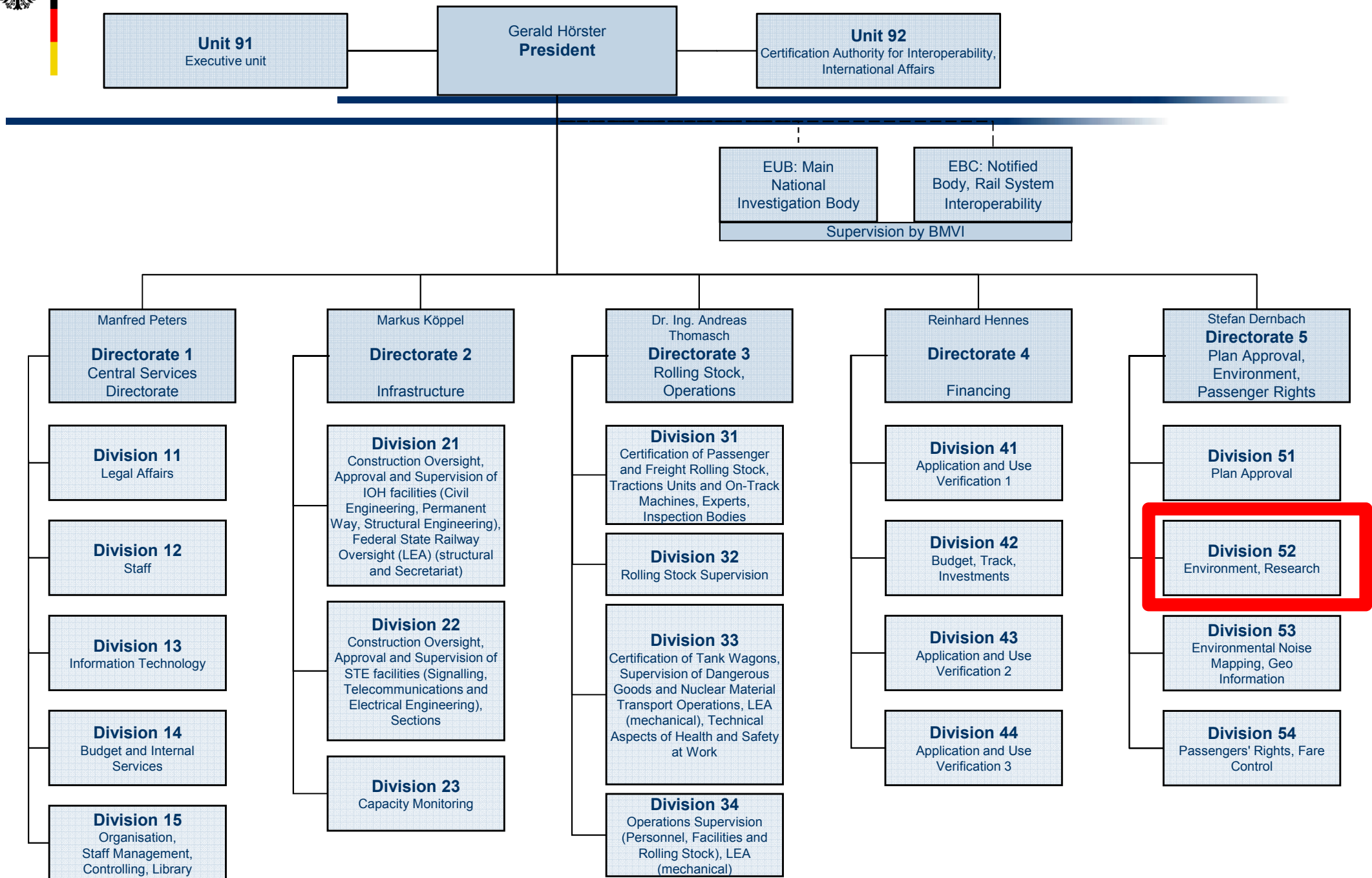
*Federal Highways



~33.400 km Railroads
25.000 Bridges



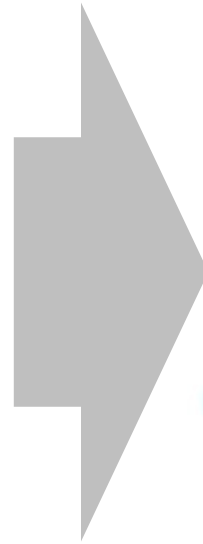
23.000 km² Seaway
7.300 km
Inland Waterways



BMVI-Network of Experts

Challenges for mobility and traffic in the 21st century:

- Climate change and extreme weather events
- Environmentally sound development of traffic and traffic infrastructure
- Energy transition and digitalisation
- Aging infrastructure
- Increasing economic interdependency and steadily growing mobility requirements



A resilient and environmental sound traffic system needs an interdisciplinary and inter-modal approach



The BMVI-Network of Experts is a new format in public authority research (German: Ressortforschung)



Eisenbahn-Bundesamt

Who is involved?



BMVI Network of Experts
Knowledge Ability Action

an initiative of the



Federal Ministry
of Transport and
Digital Infrastructure



Bundesamt
für Güterverkehr



Federal Highway Research Institute



Bundesanstalt für Wasserbau
Federal Waterways Engineering and Research Institute

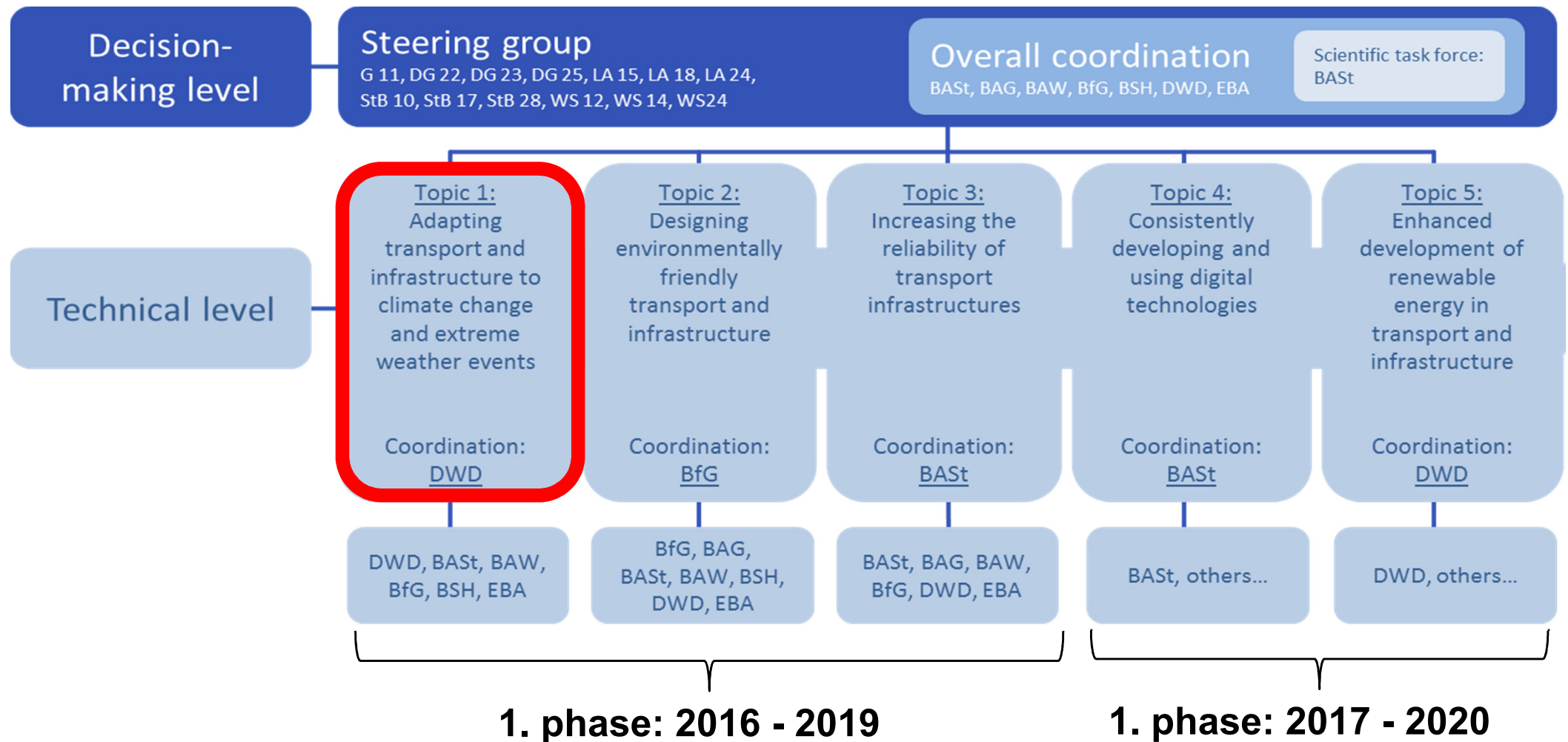


BUNDESAMT FÜR
SEESCHIFFFAHRT
UND
HYDROGRAPHIE

Deutscher Wetterdienst
Wetter und Klima aus einer Hand



Federal Railway Authority



Scenario development (SP-101)

Dr. Andreas Walter (DWD)

Coastal focus areas (SP-108)

Dr. Hartmut Heinrich, Dr. Sabine Hüttl-Kabus (both BSH)



delivering meteorological / oceanographic / hydrological data (observations and projections)

Flooding hazards (SP-103)

Dr. Monika Rauthe, Christoph Brendel (both DWD)



Storm hazards (SP-104)

Markus Forbriger (EBA)



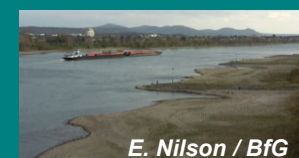
Landslides (SP-105)

Jens Kirsten (BAST)



Navigability and water quality (SP-106)

Dr. Enno Nilson (BfG)



Inland focus area (SP-109)

Jan Ork (BAST)



Risk analysis (SP-102)

Dr. Martin Klose (BAST)

Adaptation options (SP-107)

Carina Herrmann (EBA)
Elise Lifschiz (BAW)

Input data

- Infrastructure data (DB AG)
- DEM, DLM, Geology, ... (Open-Geodata Germany)
- Meteorological & climate data (DWD)
- Data at local scale level e.g. Vegetation, high resolution DEMs, soils, ... (state authorities in Germany)
- Damage data (DB AG, state authorities,...)
- ...



Durch extreme Hochwasser gefährdete Abschnitte des Schienennetzes



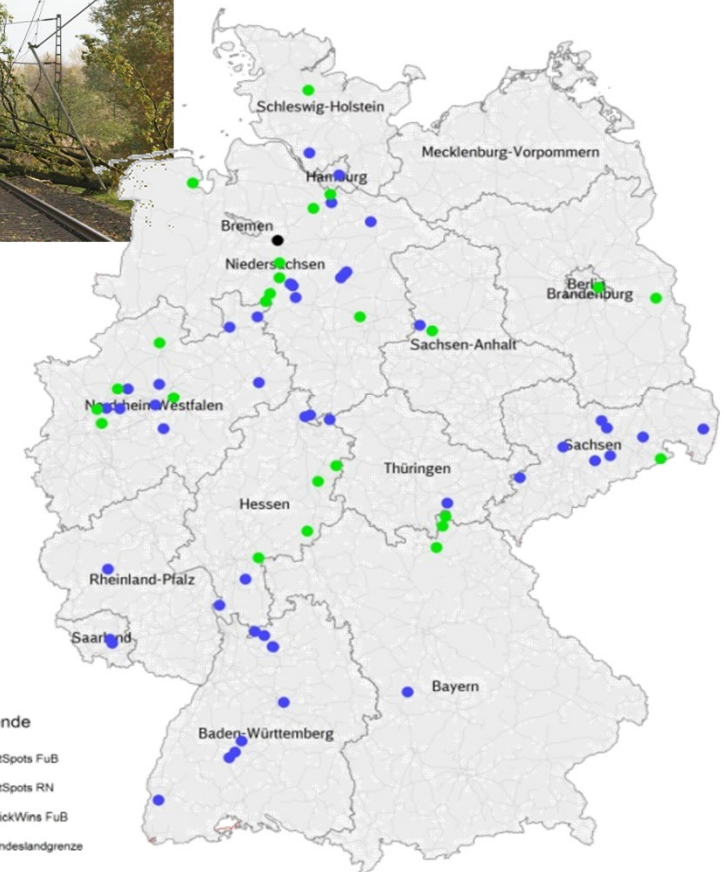
Flooding hazards

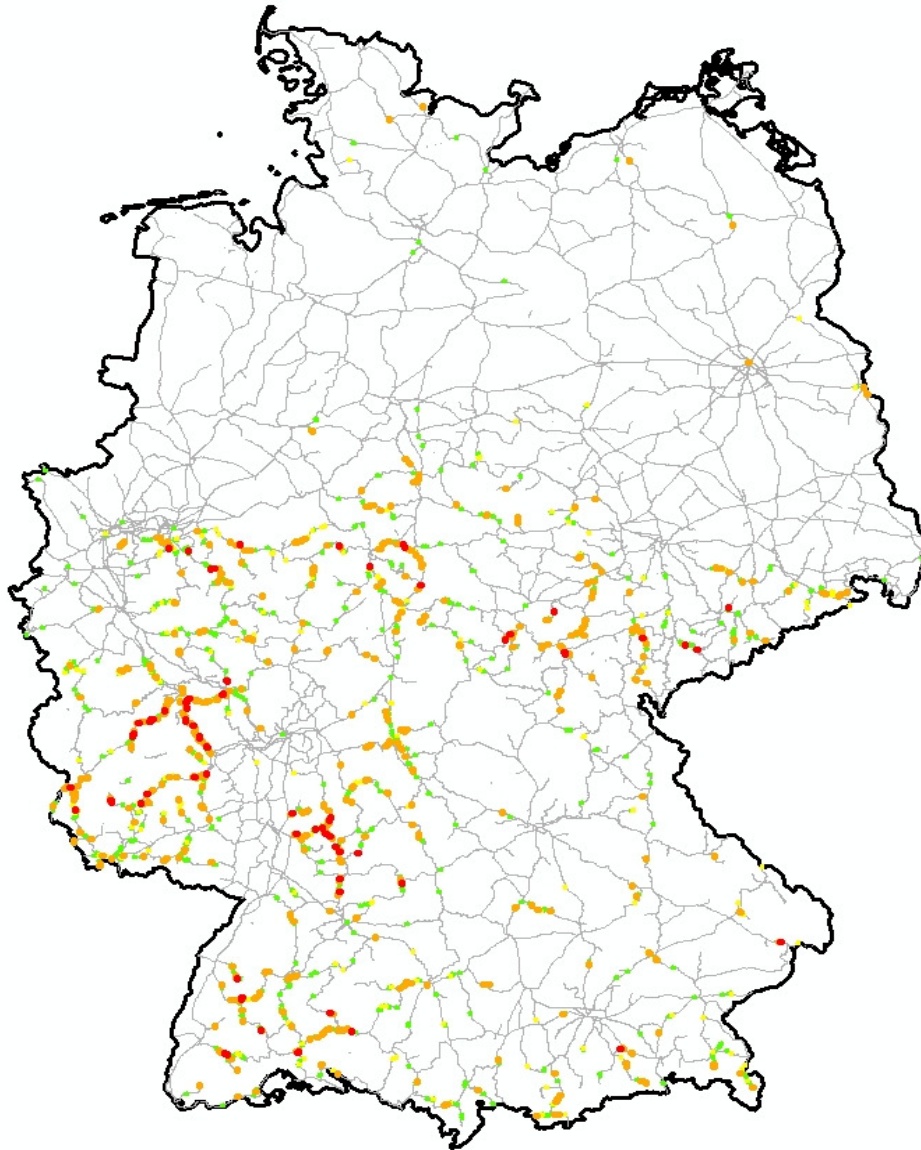


© Barby; Deutsche Bahn AG

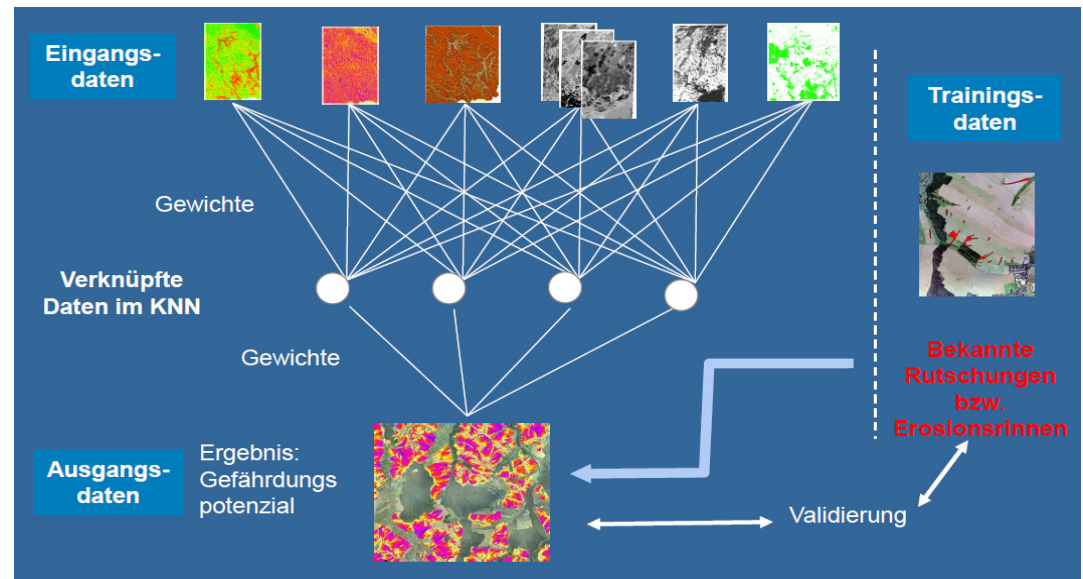
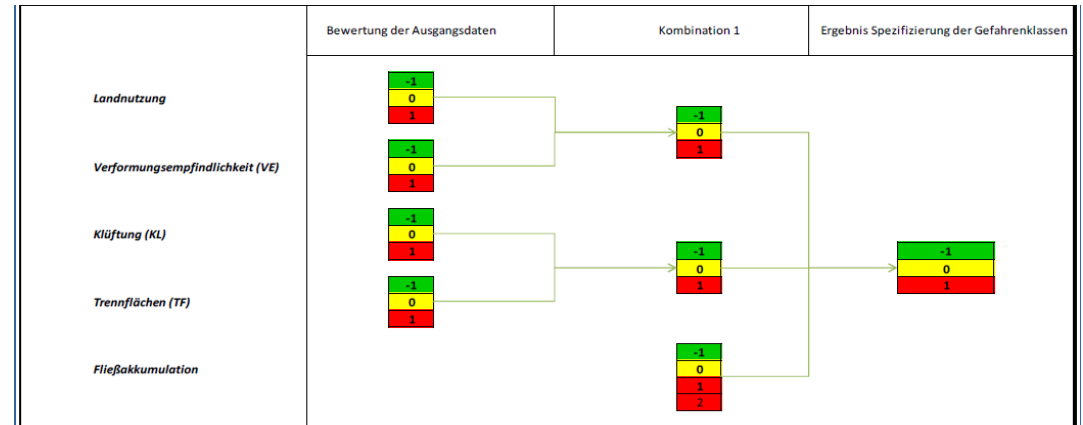
Storm hazards

HotSpots vegetationsbedingte Störungen
Stand: 14.06.2016





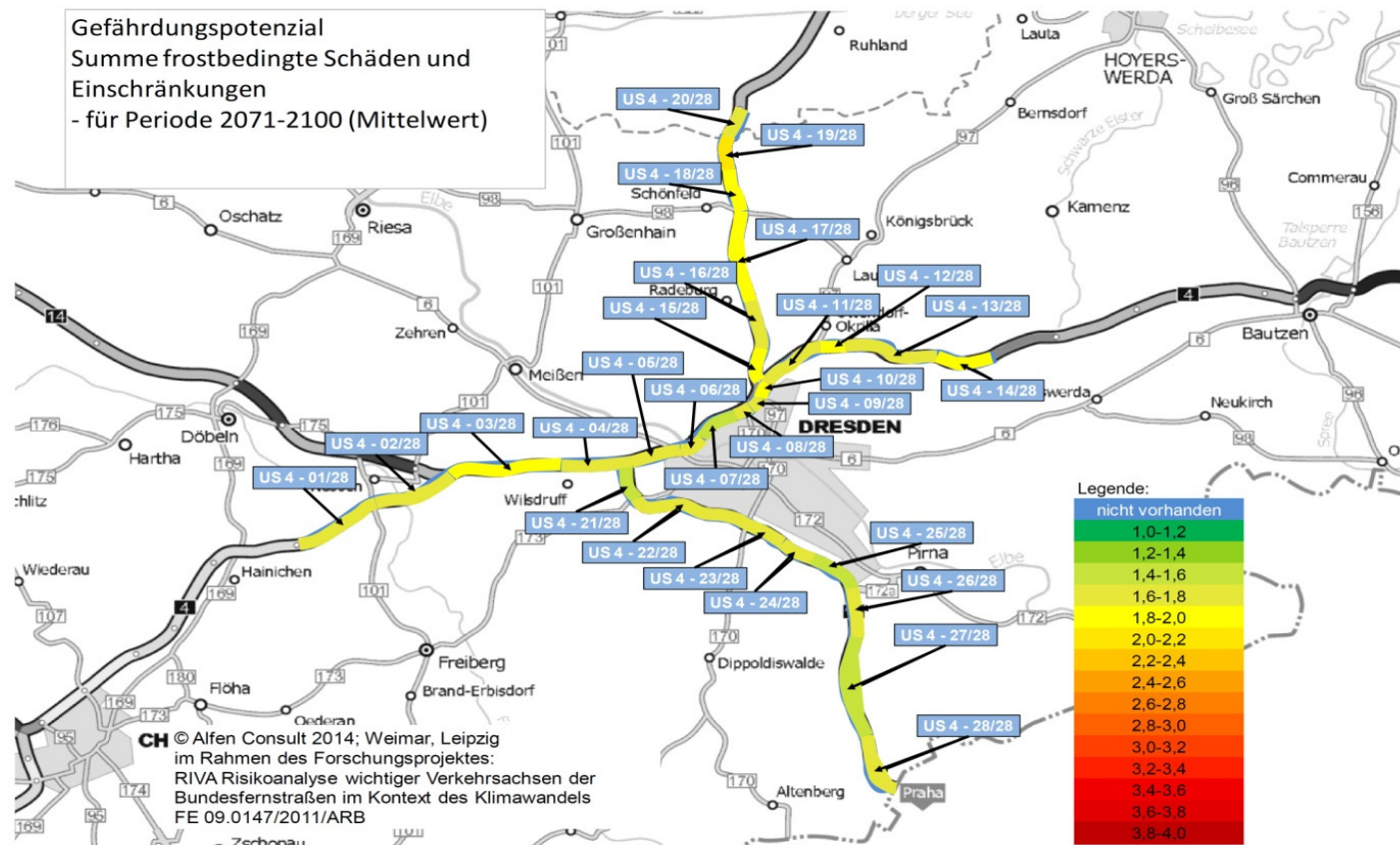
Developing a Landslide Susceptibility Map of the German Railway Infrastructure



Risk analysis

Goal: Multimodal, GIS-based risk analysis tool with attached Gedatabase

Example: Risk of frost caused damages on motorways in Germany





Josefine Dogs

Ressort Technik & Qualität
DB Umwelt (TU)
Nature conservation, species
protection, climate change adap-
tation and water protection (TUN)

Deutsche Bahn AG
Caroline-Michaelis-Straße 5-11
10115 Berlin

Tel.: +49 30 297-56517
Mail: Josefine.Dogs@deutschebahn.com

Markus Forbriger

Division 52
Environment & Research

Federal Railway Authority
Heinemannstraße 6
53175 Bonn

Tel.: ++49 228 9826-594
Mail: ForbrigerM@eba.bund.de
Ref52@eba.bund.de

www.bmvi-expertennetzwerk.de
(english version coming soon)