



Tasks and Areas of Focus (TB) of BAST

Prof. Dr. Markus Oeser

President of the Federal Highway and Transport Research Institute

BAST = The scientific-technical research institution of the Federal Ministry for Transport (BMV) for road and transport research

- Department of Human Behavior and Safety in Traffic

Dr. Ingo Koßmann

▲ Active Mobility



- Department of Engineering Structures

Dr. Carl Richter

▲ Predictive Infrastructure Management



BAST = The scientific-technical research institution of the Federal Ministry for Transport (BMV) for road and transport research

- Department of Road Traffic Technology

Dr. Lutz Pinkofsky

▲ Sustainable Energy Use



- Department of Road Construction Technology

Prof. Dr. Ulf Zander

▲ Sustainable Construction



BAST = The scientific-technical research institution of the Federal Ministry for Transport (BMV) for road and transport research

- Department of Automotive Engineering

Andre Seeck

Automated and Connected
Driving



- Central Department

Dr. Kirstine Lamers



BASSt = The scientific-technical research institution of the Federal Ministry for Transport (BMV) for road and transport research

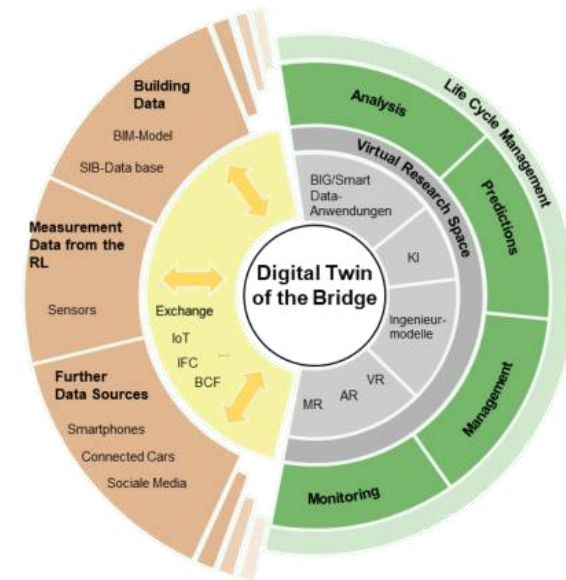
- Unit SD Digitalization of Transport Systems
- Unit SC Controlling, QM, International Cooperation
- Unit AK Academy for Securing Specialists in Road and Transport Sector
- Unit PK Public Relations and Communication

9 Areas of Focus

- TB 1 Infrastructure: Predictive Infrastructure Management
- TB 2 Construction: Sustainable Construction
- TB 3 Energy: Sustainable Energy Use
- TB 4 Environment: Environmentally Friendly Transport
- TB 5 Mobility: Active Mobility
- TB 6 Safety: Proactive Traffic Safety
- TB 7 Driving: Automated and Connected Driving
- TB 8 Digital: Digital Transport Sector
- TB 9 Skilled Labour: Securing Skilled Workers

TB 1 Predictive Infrastructure Management

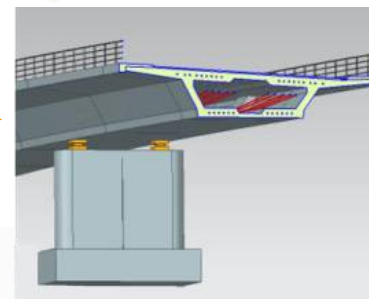
- The built infrastructure (roadway, structures) in the federal highway network shows deficits due to increased traffic loads, the high age of structures, a backlog of maintenance measures, and constructional deficiencies. These already partially lead to impairments in functionality and availability of roads.



- Reliability of road infrastructure
- Improvement of resilience
- Ensuring availability
- Digital condition monitoring and evaluation
- Innovative methods for maintenance, reinforcement, deconstruction, replacement construction, minimized traffic interference, resource conservation, energy efficiency



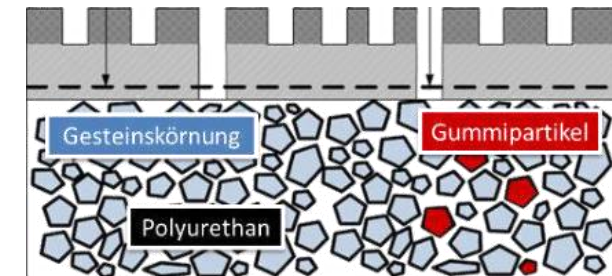
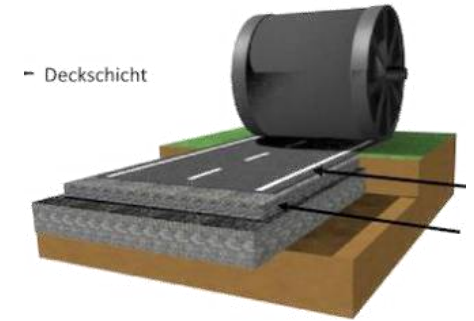
Living Lab



Digital Twin

TB 2 Sustainable Construction

- ▶ The creation and operation of the built environment are among the world's largest consumers of energy and raw materials and are thus significantly dependent on these resources. The ecological footprint and resource consumption must be reduced.
- ▶ New manufacturing processes with lower energy demand
- ▶ New materials with low CO2 footprint
- ▶ Performance and sustainability-oriented building
- ▶ Recycling and circular economy
- ▶ Promotion of innovations in road construction
- ▶ Serial and automated construction

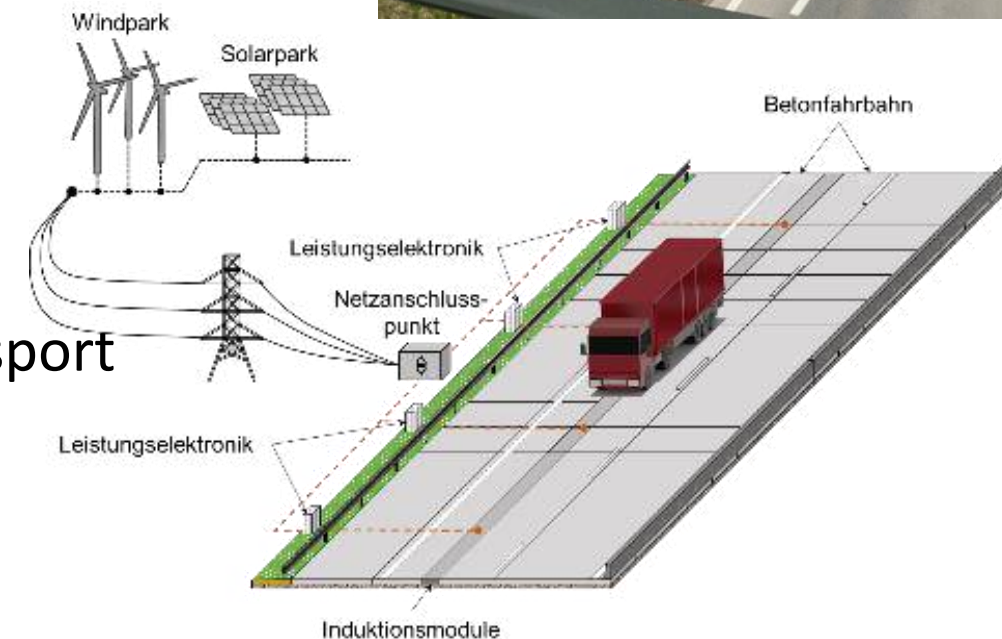


TB 3 Sustainable Energy Use

- ▶ A capable road infrastructure primarily ensures reliable transport of people and goods. In this context, the road traffic infrastructure must contribute to enabling energy-efficient and energy-sufficient (and thus sustainable) transport of people and goods. The generation of renewable energy in the road environment and its provision through road infrastructure can make a significant contribution to this.



- ▶ Energy generation in the road environment
- ▶ Coupling of energy and traffic sectors
- ▶ Charging technologies in passenger and freight transport
- ▶ Energy-efficient construction and operation



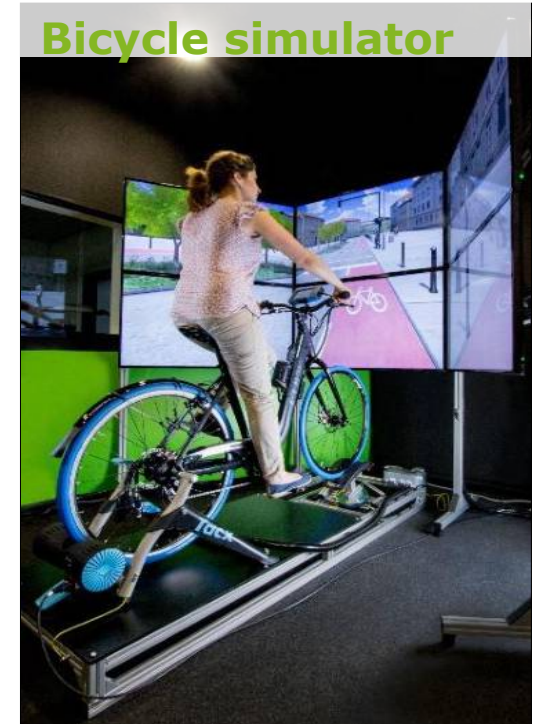
TB 4 Environmentally Friendly Traffic

- Forward-looking investigations and innovative approaches to reduce emissions and immissions of noise, air pollutants, and light help to make traffic and traffic infrastructure sustainable and safe, as well as to make roadside residential areas more liveable. Innovative management techniques can contribute to increasing biodiversity in the vicinity of traffic routes.
- Traffic and environmental protection
- Biodiversity in the roadside space and reconnecting spaces
- Innovative technology in greenspace management
- Natural design and management of retention basins



TB 5 Active Mobility

- Demographic change, increasing urbanization, and digitalization shape future mobility in Germany. Even today, cities in Germany are reaching their limits in coping with motorized individual traffic.
- Societal change and behavior in traffic
- Shifting traffic to active mobility forms
- Safety of pedestrians, cyclists, and physically weaker road users
- Creating space for active mobility forms
- Researching traffic interactions

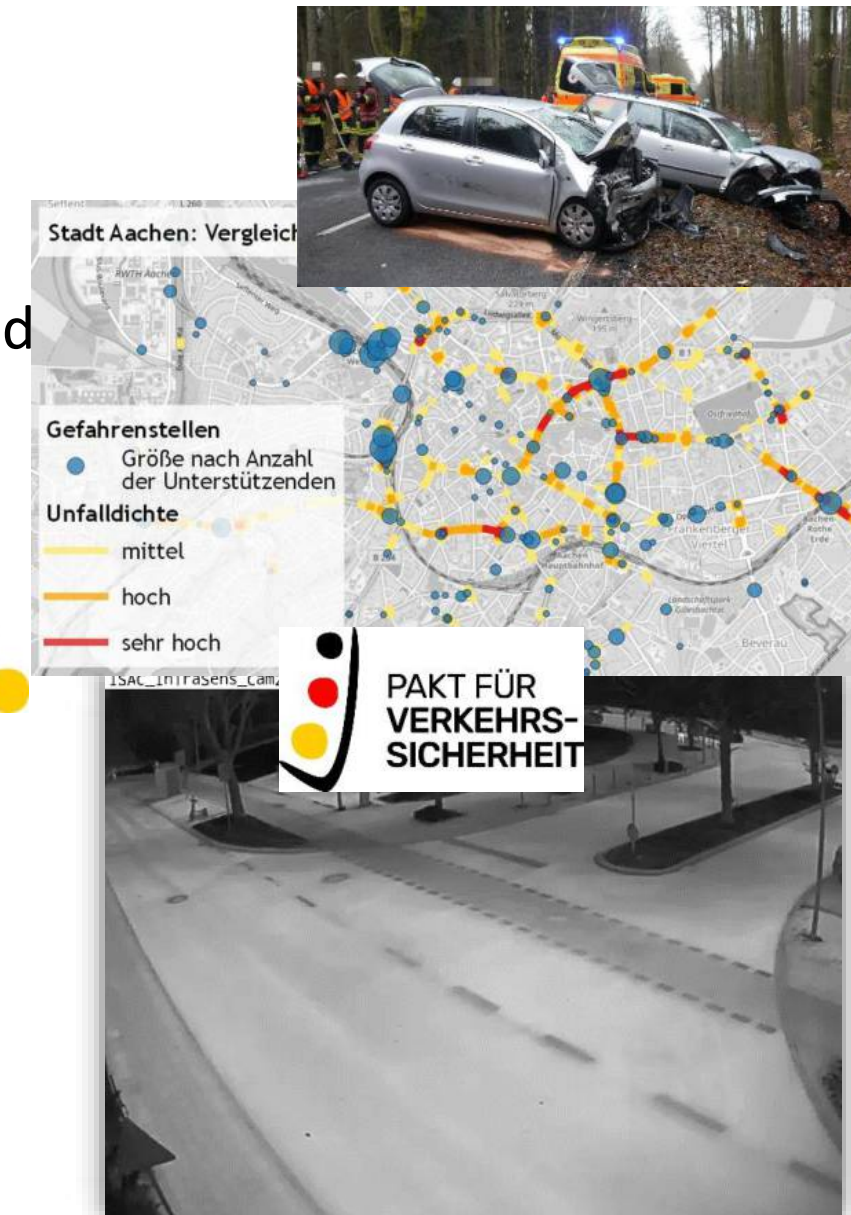


TB 6 Proactive Traffic Safety

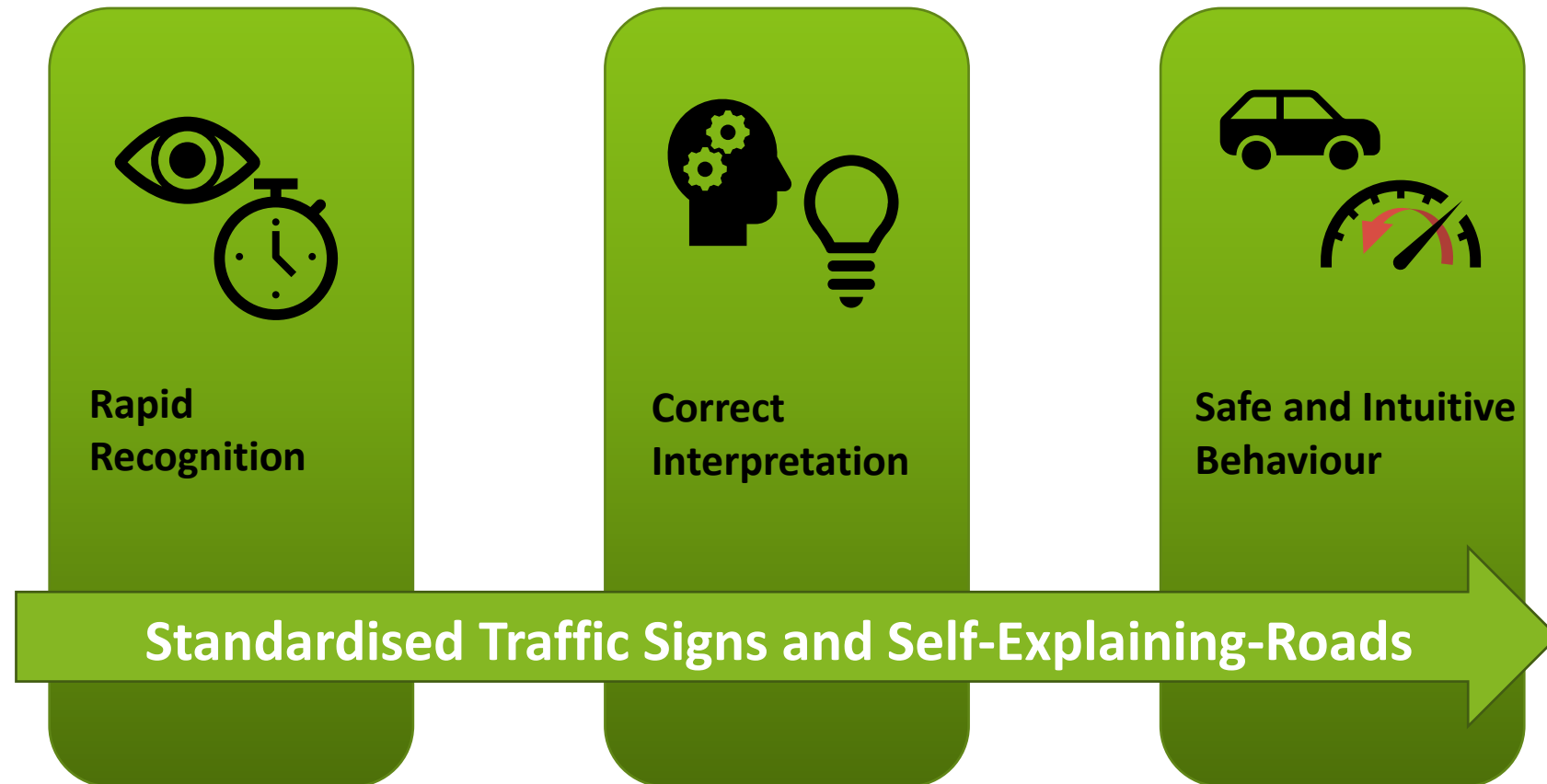
- Ensuring safe participation in traffic for everyone is a central goal of traffic policy. The successes achieved so far in traffic safety work must be maintained under changed conditions and new potentials must be exploited, arising from technological and societal developments as well as societal acceptance of measures.



- Design and equipment of safe roads
- Safety monitoring and early detection of hazards
- Improvement of vehicle safety
- Measures to influence behavior
- Use of digital methods to increase safety



TB 6 Proactive Traffic Safety



TB 6 Proactive Traffic Safety

Accredited test house for road markings

- ▶ Qualification testing by BAST
- ▶ Testing on wear simulator according to EN 13197 and EN 1436
- ▶ Confirmation of compliance with German national standard for road markings (ZTV M 13)
- ▶ Test certificates published by BAST help tendering and awarding of road markings
- ▶ Contact for further information: epm@bast.de



Foto: Zehntner



TB 6 Proactive Traffic Safety

Research, standardisation and assessment of VRS

- ▶ Research e.g. into the impact of modern vehicles (SUV, electric cars, extra long trucks)
- ▶ Digital approaches: computational simulations
- ▶ Assessment of non-CE-marked VRS
- ▶ Maintenance of a technical overview list for VRS
- ▶ Contributing in national and EU standardization groups, e.g. CEN/TC226/WG1
- ▶ One key focus: traffic safety on country roads



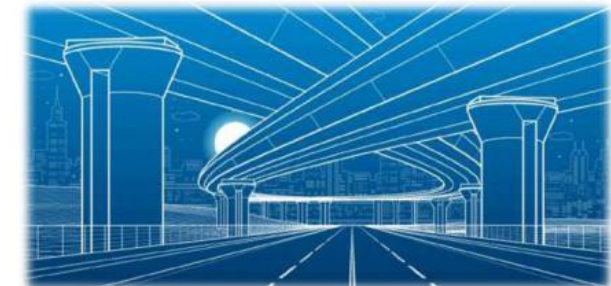
TB 7 Automated and Connected Driving

- The introduction of connected, cooperative, and automated mobility offers great potential for the sustainable securing of passenger and freight transport. The goal must always be to ensure safety in road traffic.
- Vehicle automation
- Connected mobility
- Systematic investigation of accidents with automated and autonomous vehicles
- Teleoperated driving
- Sustainability of new vehicle (drive) concepts



TB 8 Digital Transport Sector

- The digitalization and automation in traffic are essential for sustainable development of mobility. New (digital) methods of planning, building, operating, and maintaining the traffic infrastructure are being introduced. However, in many areas, paradigm shifts are necessary, which can only be realized with the help of continuous networking of relevant information.
- Data exchange, Mobility Data Space (MDS)
- Data acquisition, evaluation, and networking
 - using KI and ML
- Digital twin infrastructure/traffic as well as BIM



TB 9 Securing Skilled Workers

- Innovative solutions for sustainable transformation of the entire transport and mobility sector are urgently needed. For these future tasks, there is an increasing shortage of specialists! Especially in the disciplines of construction, environmental, and traffic engineering, as well as geodesy, there is a massive shortage of specialists: According to the current VDI Monitor, about 45,000 positions in the field of civil engineering were vacant in 2021.
- Coordinated junior programs together with universities – currently including an academy program
- (Re)qualifying career changers and returnees as well as international students and graduates



Many thanks for your attention!

I look forward to the
discussion.

