



Eisenbahn-Bundesamt

New Centre for Railway Traffic Research at Eisenbahn-Bundesamt

7th Regional ERA Workshop on the development of
railway safety and interoperability
2 October 2019, Budapest

Gerald Hörster, President of Eisenbahn-Bundesamt

Content



- Understanding the need for independent railway research
- Introduction of the New German Center for Railway Traffic Research
- Examples for research projects
- Perspective 2020/2021

Hughes efforts are done to strengthen the railway system, but:

- Scattered system with shifting roles and responsibilities; individual players, missing “responsibility/leader” for development of the railway system as a whole
- Railway sector acts mainly project related, no independent mid-term and long term considerations
- Funding of technological innovation did not lead to desired system - effects so far
- Increase of affects of other aspects to the railway system like: e.g. security, environmental requirements, economics, railway noise

Research as means to strengthen the railway system

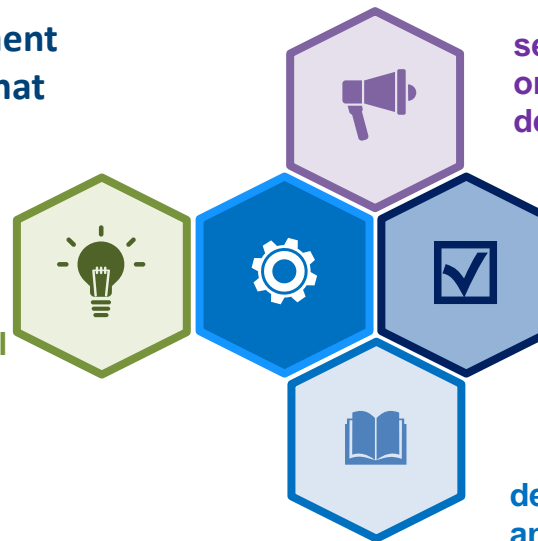


- **Technological innovations are essential, but in parallel complementary, independent analysis and research is necessary.**
- **Therefore Coordinated research is one vital means to strengthen the system**
- **Solution: Establishment of the “German Centre for Rail Traffic Research at EBA (DZSF)” in May 2019 as independent research institute**

What does **coordinated research by DZSF** mean?

... defined as the research and development activities of the federal administration that

bridge the gap between university and industry research and the practical implementation of innovations, new technologies



serve to prepare, support or implement political decisions

are connected to the exercise of public duties (i.e. tasks in the scope of EBA)

deliver independent analysis, results are made public

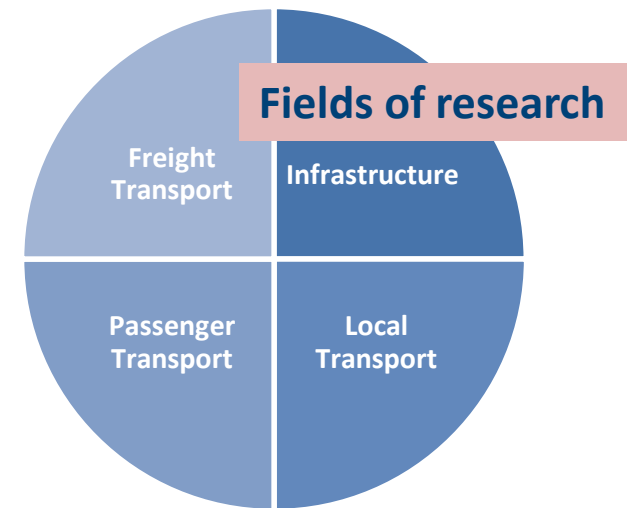
- **Independent body** acting at the interface between science, railway sector and policy
- **Independent , practical oriented und multidisciplinary research**
- **Scientific support** of the German Government, retain and develop the expertise of the sector and NSA
- **Implementation of the research results into practice:** e.g. support of the national and international standardization, transfer into the legal framework
- **Coordination and linking of existing national railway research activities:** efficient, demand oriented approach, avoiding parallel research activities and duplication

DZSF: Facts and Figures



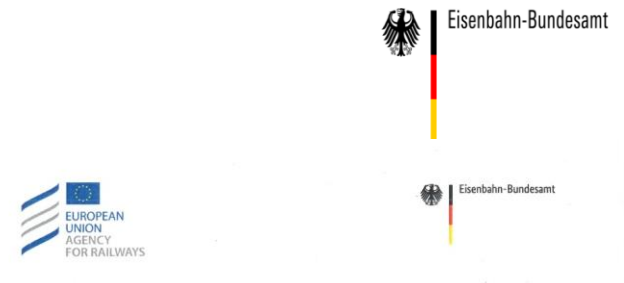
- **Employees: approx. 50 employees by 2022 planned, (actually 13)**
- **Located at EBA-offices in Dresden and Bonn**
- **Funding will be decided in the federal budget 2020**
- **Appointed Director: Prof. Corinna Salander**

- **Broad range of research topics:** economics, environment, sustainable mobility, safety and security, sociopolitical questions
- **Contract research**
- **Own research projects**
- **Funding of research and development projects**



DZSF: Way of working

- **National und international cooperation:** e.g. research and testing facilities, Shift2Rail, national research institutes, universities, NSAs
- **Research cooperation with ERA**
 - MoU signed July 12, 2019
 - Promote research activities in order to boost railway competitiveness and attractiveness
 - Regular exchange of information on research topics



Memorandum of Understanding

THE SIDES:

THE EISENBAHN-BUNDESAMT represented by its President and hereinafter referred to as "the EBA";

THE EUROPEAN UNION AGENCY FOR RAILWAYS, represented by its Executive Director, hereinafter referred to as "the Agency".

HAVING REGARD TO:

The Regulation (EU) 2016/796 of the European parliament and of Council of 11 May 2016 on the European Union Agency for Railways, and in particular Article 40 thereto,

The 2018 Agency Strategy for Research and Innovation,

The Decree Z 14/2215.12/35 of the German Federal Ministry of Transport and Digital Infrastructure of 29 November 2018.

WHEREAS:

The Agency and the EBA share the objective of promoting and facilitating research and innovation to play a role that boosts railway competitiveness and attractiveness.

The Agency on the one hand, and EBA on the other, have an interest to:

- › Support the railway as reliable part of the mobility chains;
- › Facilitate the completion of the single European railway area;
- › Develop and enhance the harmonisation of the European railway area by supporting the implementation of innovations;
- › Foster positive characteristics of the railways: safety, reliability and performance levels;
- › Reduce the environmental impact of transport;
- › Define an optimal level of technical harmonisation, balancing technical innovation and stable requirements;
- › Foster the compatibility and interconnection as a precondition for the commercial operation of trains running through the European rail network (according to recital 7 of Directive 2016/797/EU), and
- › Support the implementation of technical innovations into the market by adjoining independent research studies (covering: safety, performance, reliability, cost-efficiency, migration).

The advantages of the EBA research activities are amongst others:

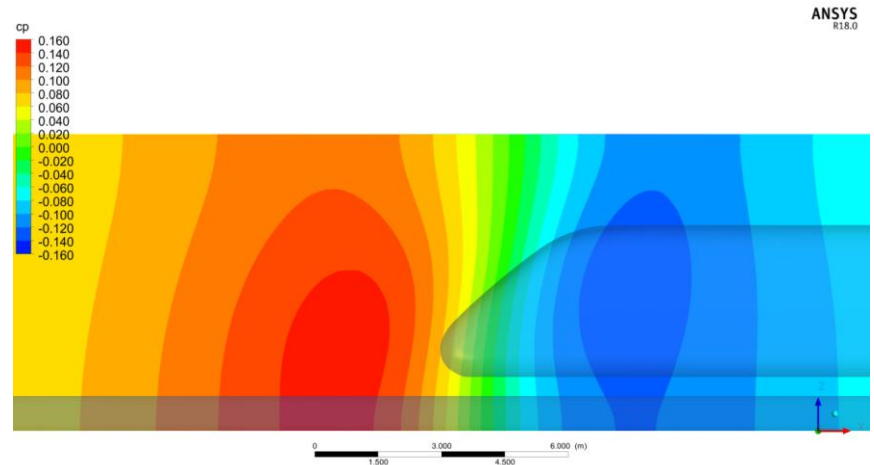
- › Very specific tasks, addressed by an independent governmental body (National Safety Authority);
- › Independent analysis, and
- › Results remain in hand of the public and are accessible (exemptions may apply e.g. critical infrastructures).

HAVE AGREED THIS MEMORANDUM OF UNDERSTANDING (hereinafter referred to as "MoU");

Examples

- Consideration of software development in the railway sector
- Development of (national) test cases for ERTMS
- Aero dynamical effects of trains (esp. high speed trains) on noise protection galleries

Reports are available online www.dzsf.bund.de.
Summaries (mostly) in English language available.



Examples

- Developing a Landslide Susceptibility Map of the German Railway Infrastructure
- Expected impacts of climate change, weak point analysis of relevant regulations

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Example: Noise Acceptance of brake blocks

Objectives:

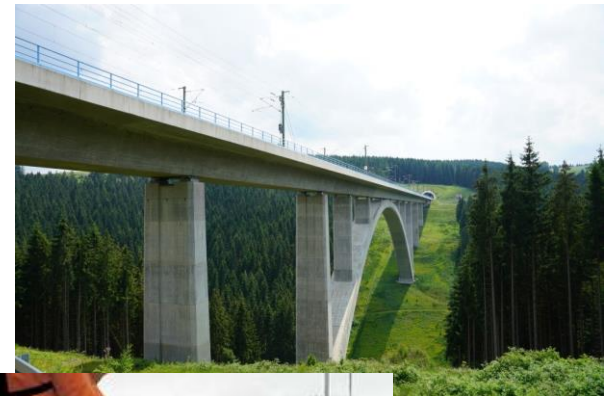
- Define an indirect and cost-efficient method to assess the noise performance of new brake blocks
- Investigate roughness acceptance values, using already homologated BB as a reference
- Check the feasibility of bench tests to assess the acoustic roughness created by BB under defined laboratory conditions
- Close open point in TSI NOISE

Status: Project to start in 2019, Research steering group planned: e.g. ERA, NSAs, SNCF, DB



Examples: Some projects in 2019

- Application of the CSM regulation 402/2013/EU for the subsystem operation management and traffic control
- Dynamical effects: Traffic load model(s) for railway bridges
- Development of an alternative procedure for chemical vegetation control of railway tracks (Development of an alternative to Glyphosat)



Organisational aspects

- Staff expansion 2020 - 2022
- Intensify departmental research
- Intensify knowledge sharing (workshops, publications)
- Research funding for freight transport projects 2020 onwards

Development of 2020/2021 research agenda

Priority research topics

- Supporting climate protection
- Security
- Automatisations
- Human and organizational factors
- Supporting sustainable mobility: suburban and regional railway transport

German Centre for Railway Traffic Research

- aims to **support interoperability**
- aims to fill existing gaps per **specific departmental research**
- aims to bring together existing testing facilities to **avoid parallel developments**
- aims to **retain and develop expertise of the sector and NSAs**
- makes **research findings accessible to the public**
- acts in a **transparent way** and is **open to others for participation.**

Thank you for your kind attendance.



Deutsches Zentrum für Schienenverkehrsforschung beim



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