intech

Setting the course for the future

Digitalization of rail vehicles.

Your Partner for rail vehicle development

Railway transportation has alway been related to safety, reliability, quality, and environmental friendliness. Digitalization opens up many new possibilities for accessability, availability, and travel comfort.

Software, networking, and integration are gaining importance. New propulsion concepts reduce energy consumption, noise and pollutant emissions. At the same time, the development of rail vehicles is characterized by numerous rules, laws, and standards that guarantee safety and quality, and safeguard the operation of the railway system.

As a development partner for rail operators, rail vehicle manufacturers and system suppliers, we manage and support entire projects or provide selective support in development and homologation. We offer flexible digitalization solutions for vehicles or complete trains based on our many years of experience with rail system engineering combined with in-depth software expertise.

Cluster Bahntechnik

DIE BAHNINDUSTRIE.
VDB VERBAND DER BAHNINDUSTRIE IN DEUTSCHLAND E.V.

Systems Engineering

We support you in the functional development of trams, light rail vehicles, Metros, Rail cars or locomotives according to the relevant standards and manage the development of complete subsystems.

- Preparation and evaluation of product specifications
- Concepts and system architecture
- System and software requirements
- Interfaces and vehicle control architectures
- System design and component selection
- Wiring diagrams

Software & IT solutions

We offer tailored solutions for mobile applications, comfort and maintenance. We specify and implement vehicle functions in your vehicle control unit in accordance with the applicable standards.

- Software development according to IEC61131
- Development of safety-critical software according to EN 50657
- Usability and User Experience Engineering
- HMI solutions and information systems
- Cloud-based IoT solutions

Test-bench & HiL development

We create the prerequisites for early functional testing, from the component to virtual vehicle integration, we advise you and offer flexible and modular testing solutions.

- Test strategy and concept
- Selection and adaptation of tool chains
- Test bench concepts, setup and support
- Simulation and modelling
- Test automation

Verification & validation

As your independent partner, we use functional tests to ensure quality and reliability. We support you in test management and optimize your test processes.

- Process consulting and norm compliance
- Test strategies and methods
- System and software test specifications
- Test execution (lab and vehicle)
- Software and vehicle validation

Safety

We support you in safety engineering and management according to current standards and norms such as CSM, CENELEC, EN50657, EN5012x and EN61508.

- Safety management
- Hazard and risk analyses
- Definition of safety functions/architectures
- Fault Trees (FTA) and FMECA
- Verification management

Homologation support

We accompany you on the way to approval and monitor and control all necessary activities for a successful certification based on the homologation plan.

- Tender documents
- Conformity tests
- Coordination with assessors/authorities
- Project management and coordination

Modernization

You need to replace a control unit or extend its functionality? We analyse your existing system, modernize it and accompany the approval process.

- Functional analysis of existing system
- Technical modernization concept
- Hardware and software specification
- Component selection
- Electrical engineering
- Integration, test and approval support

ETCS - integration

With our extensive experience in specification, design, implementation and validation, we integrate ETCS on-board equipment into your rail vehicles.

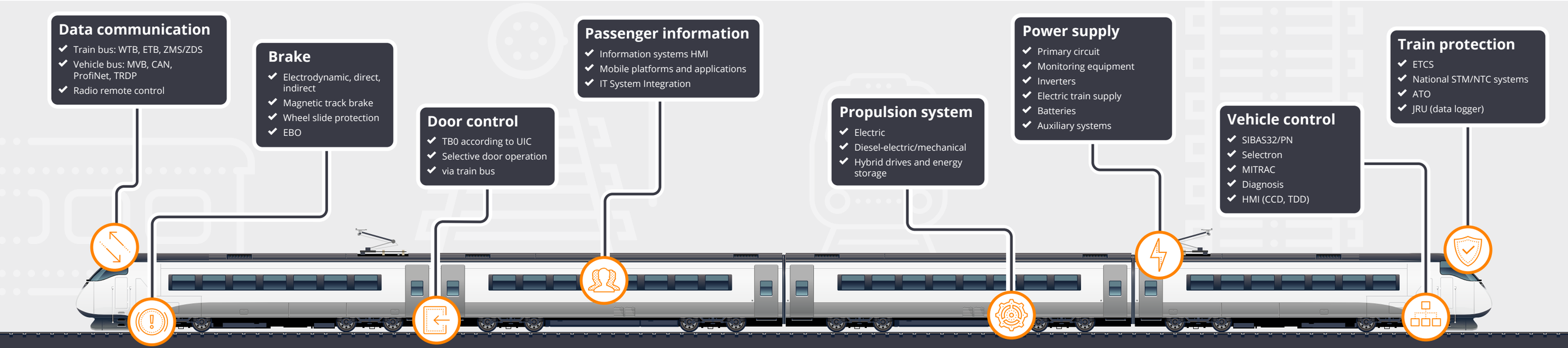
- Specification and supplier management
- Integration concept and installation planning
- Prototype modification and commissioning
- Verification, validation and approval support
- Test concept, integration test and field test
- Fleet equipping

Model-based development

Using tool-based modelling (MBSE) we enable integrative system development across all disciplines and projects. We increase your quality and efficiency - consistently and in compliance with standards.

- Method definition and implementation
- Tool chains, tool selection and customizing
- Functional analysis and decomposition
- Functional, logical and technical architectures
- Training and coaching

Our competencies in rail vehicle technology



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