Your challenges

Like most industries, railway technologies have become increasingly complex over time. These developments have made safety and reliability assessments more necessary and more challenging to achieve overall. While this is generally true for all subsystems, it is particularly the case for large railway infrastructure projects. The complexity of a complete railway system makes it difficult to accurately analyse and ensure system safety. Authorities, train operating companies and infrastructure managers need to understand the dependencies and interfaces between the subsystems in order to understand the system as a whole. This requires a holistic in-depth knowledge of the entire railway system, including all subsystems, as well as relevant experience in operation and maintenance.

What are Independent Safety Assessments?

An independent safety assessor (ISA) accompanies subsystem and component suppliers as well as system integrators and operators in all lifecycle phases to ensure the definition and implementation of the RAMS (Reliability, Availability, Maintainability and Safety) concept is thorough and adequate. Early involvement from the planning stage is especially important to ensure reliability and prevent failures before they occur. Furthermore, this provides planning reliability by ensuring an efficient and effective system assurance process. Beyond technical safety, additional aspects such as operational safety and cyber security must be understood to safeguard overall safety. TÜV SÜD rail safety experts are increasingly appointed as ISA by virtue of their strong knowledge and experience in all disciplines and at all technical levels of brownfield and greenfield projects, ranging from computer chip evaluation to complete railway systems.

Why are ISAs important to your business?

Railway systems comprise a number of subsystems including infrastructure, rolling stock, signalling and energy. Each subsystem must function independently and as part of a complete system. Safety standards and
practical experience must be systematically applied throughout the lifecycle of a railway application to develop and achieve compliance with railway-specific RAMS requirements. An ISA of a complete system assesses RAMS interactions between elements of complex railway applications, supporting manufacturers, integrators and operators to achieve the optimal combination of RAMS and cost.

How can we help you?
As an ISA, TÜV SÜD provides services tailored to your specific needs by identifying the approaches most suited to your project from the onset. We support clients with assessment services in compliance with global and regional regulations, and based on best practices. Drawing on extensive experience in multidisciplinary fields, our qualified experts assess the adequacy of new and refurbished railway equipment, highlight key problem areas to be addressed, and provide recommended solutions.

Our Independent Safety Assessment services
TÜV SÜD offers an end-to-end assessment covering the entire technical spectrum of a complete railway system. This includes all safety-critical subsystems such as rolling stock, signalling, infrastructure and energy as well as the integration of these subsystems to a complete system. Our experts can assess your system’s safety, reliability and operational performance with an ISA and certification service portfolio that includes:
- Infrastructure (including understructure, superstructure, civil works and energy)
- Earthworks (geological and geotechnical)
- Civil works (including static calculation)
- Track components and measurement cars
- Vehicles and components
- Generic signalling products as well as generic and specific signalling applications according to EN and IEC standards
- AC and DC energy systems
- Interfaces (including track/civil works, track/understructure, track/rolling stock, rolling stock/catenary, track/energy, track/signalling, signalling/track, signalling/rolling stock and signalling/energy)
- Fire protection, emergency and rescue concepts (including railway stations, tunnels and vehicles)
- Operational safety
- Maintenance procedures and workshops
- Security management and processes

Your business benefits
- **Save time and money** – by avoiding costly and time-consuming rework through the use of integrated management planning from the onset of your project.
- **Minimise risk** – of downtime and damage through early identification of quality and safety issues, as well as the development of suitable measures to address them.
- **Achieve planning certainty** – with interdisciplinary support that gives you efficient single-source control, ensuring your project runs on schedule.
- **Assure quality** – with an experienced, international team of rail experts who ensure your systems and processes meet your needs and regulatory requirements.

Why choose TÜV SÜD?
TÜV SÜD is recognised as an independent, impartial third-party technical service provider. We’ve collaborated with numerous leading manufacturers, operators, infrastructure managers and authorities of both mainline and urban transit. To support you throughout your system’s lifecycle, from planning to approval and commissioning, we provide multidisciplinary engineering expertise based on our comprehensive understanding of stakeholder needs and decades of experience. Furthermore, our familiarity with railway regulators in different countries enables us to support you in planning and starting your railway operations on time.

Choose certainty. Add value.
TÜV SÜD is a premium quality, safety, and sustainability solutions provider that specialises in testing, inspection, auditing, certification, training, and knowledge services. Represented in over 850 locations worldwide, we hold accreditations in Europe, the Americas, the Middle East, Asia, and Africa. By delivering objective solutions to our customers, we add tangible value to businesses, consumers, and the environment.

Related services
TÜV SÜD provides the following related services:
- Signalling services
- Rolling stock services
- Rail infrastructure services
- Railway energy services