

PROJECT

## **SAMRAIL**

### **Safety management in railways**

**Funding:** European (5th RTD Framework Programme)

**Duration:** Feb 2003 - Jul 2004

**Status:** Complete with results



#### **Background & policy context:**

The variety of Community legislations on railways have produced a myriad of safety requirements which it is often difficult to comply with. Moreover, there have been different national rules. Hence, safety approval evolved into one of the biggest hurdles for an open market.

The EC's Safety Directive has now set the legal framework for safety approval of a service or operation. Implementation issues of the Safety Directive are now to be addressed in a study allowing to propose a course of actions to be undertaken through SAMNET and other initiatives.

#### **Objectives:**

SAMRAIL proposes to develop a safety management approach for the EU's railways for implementing the European Railway safety Directive. Its objective is to develop an approach for ensuring safety on the European Union's railways by taking into consideration the social and economic needs of the community, diversities in their legal and regulatory systems, and cost effective technical and scientific innovations. Its output will be a common safety management system for the European railways with guidance for setting safety and performance targets, for assessing risks, and for specifying duties, rules and regulations.

The main aims of this approach are to develop a comprehensive and consistent safety management programme for the European railways which could provide a basis for:

- Developing and implementing the European Railway Safety Directive and interoperability requirements for high speed and conventional railways;
- prescribing and implementing a common safety policy in Europe;
- establishing a consistent and common set of criteria for safety performance;
- planning and establishing safety management systems to assure that the common safety policy is deployed and help in monitoring its effectiveness in achieving target levels of safety; and
- preparing the framework for harmonisation of safety assessment and hazard mitigation approaches, including those for rulebooks, safety reporting and monitoring processes, and risk management approaches.

#### **Methodology:**

The SAMRAIL work packages were planned to address the implementation issues of the Safety Directive, namely:

- The analysis of existing methods addressing the proposed common regulatory framework for railway safety;
- the implementation of the safety management system clause from the Directive;
- a risk analysis approach addressing the gradual introduction of CST and CSM tools;
- assessing acceptable risk levels through drafting of CSTs;
- safety approval and certification;
- accident and incident reporting and organisational learning;
- standards and best practice in national safety rules, which are often based on national technical standards; and
- the roles of regulations.

#### **Related Projects:**

- SAMNET (Safety management and interoperability thematic network for railway systems);
- ACRUDA (FP4);
- CASCADE (FP4).

### **Parent Programmes:**

[FP5-GROWTH KA2 - Sustainable Mobility and Intermodality](#)

**Institute type:** Public institution

**Institute name:** European Commission, Directorate-General for Energy and Transport (DG TREN)

**Funding type:** Public (EU)

### **Partners:**

- Atkins Rail Ltd. (UK);
- TÜV Intertraffic GmbH (DE);
- Eisenbahn-CERT - EBC (DE);
- Deutsche Bahn AG (DE);
- NS Railinfrabeheer B.V. - RIB (NL);
- Red Nacional de los Ferrocarriles Espanoles - TIFSA/RENFE (ES);
- Société Nationale des Chemins de fer Français - SNCF (FR);
- IFSTTAR (FR);
- European Rail Research Institute - ERRI (NL);
- Danish Transport Research Institute - DTF (DK);
- Technical University of Dresden (DE);
- Technical University of Delft (NL);
- Alstom Belgium SA (BE);
- Siemens Transportation Systems (DE).

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### **Key Results:**

SAMRAIL has:

- Carried out a survey of current practices which found
  - the Safety Directive to be suitably formulated, addressing all the important safety issues that an open, vertically separated and horizontally integrated railway of the EU could face, and
  - there is a sufficient baseline to elaborate on Common Safety Methods (CSM), Common Safety Targets (CST), and Common Safety Indicators (CSI), and for safety certification and approval issues;
- proposed a commonly agreed structure for the Safety Management System (SMS) comprising of a number of different elements, specifies requirements and guidance for each element;
- recommended that the proposed guidelines, approaches and processes be further developed through tests and trials;
- identified the steps which could be taken by the EC and the European Railway Agency to develop a SMS certification standard from the guidelines;
- proposed a risk management approach along with a definition of the railway system and accident scenarios;
- proposed two types of safety targets, i.e. global targets for measuring member states' performance, and safety levels for measuring performance of individual railway functions;
- identified four categories of safety certification and approval processes, i.e. at
  - component level,
  - subsystem level,
  - integrated module level,
  - service level; and
- proposed a Safety Approval Process with dedicated assessment methods.

### **Policy implications**

The national safety rules are based on national standards and practice, and provide the basis for achieving the national safety targets. They are also rooted in the respective safety culture, however, can pose technical barriers to open market at the same time. The Safety Directive recognises that the Technical Specifications for Interoperability (TSI) are insufficient to provide definitions of all aspects of systems and operation, therefore recommending that - where necessary - complementary national safety standards could be applied.

Under the Interoperability Directives the notification of all such standards are required. The Safety Directive also requires notification of national safety rules. So far, notification of national rules has yet to commence, and identification of national standards associated with the TSI implementation has been carried out by only a few member state railways. It is very difficult to evaluate which national standards have been notified.

SAMRAIL proposed an approach to develop common technical standards from the existing practices and through consultation with the stakeholders so that migration to these from national standards could be easily achieved. Furthermore, it proposed a rule management framework which could be used to improve the rule writing and implementation process.

Documents:

 [SAMRAIL\\_Final\\_Report.pdf \(Final report\)](#)

**STRIA Roadmaps:** Network and traffic management systems

**Transport mode:** Rail transport

**Transport sectors:** Passenger transport, Freight transport  
Societal/Economic issues,

**Transport policies:** Safety/Security

**Geo-spatial type:** Network corridors