PROTECTRAIL

The Railway-Industry Partnership for Integrated Security of Rail Transport

**Funding:** European (7th RTD Framework Programme)

**Duration:** Sep 2010 - Jun 2014

**Status:** Complete with results

**Total project cost:** €21,644,417

**EU contribution:** €13,115,064

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**Objectives:**

Facing the problem of enhancing the railway security with a systematic top-down approach (i.e. to search for an all-inclusive solution valid for all the conceivable threat scenarios) is judged by PROTECTRAIL members too ambitious even if it could generate potential economies of scale and effort rationalisation.

The proposed PROTECTRAIL approach is therefore to split the problem of making the railway more secure into smaller asset-specific security problems (missions) for which it is easier to reach satisfactory solutions applicable and usable in different threat scenarios. Each sub-mission could be therefore better oriented to particularly significant areas of interest, resulting from risk analysis or from rail operator priorities. In a clear view of scope and performance goals, for each sub mission it will be easier to define, research and develop solutions in terms of architectures, technology deployment, as well as the necessary procedures, organizations to manage the specific issue. The PROTECTRAIL challenge is therefore to make interoperable the single asset-specific solutions and to conceive and design a modular architectural framework where each asset-specific solution can be "plugged", that is the basis to assure a streamlined process of federation, integration and interoperability of respective solutions.

The PROTECTRAIL project will address the following security sub-missions: protection of signal and power distribution systems against any terrorism act, track clearance, clearance of trains before and after daily use, staff clearance, luggage clearance control, passenger clearance control, freight clearance control, tracking and monitoring of rolling stock carrying dangerous goods, protection of communication and information systems, stations, buildings and infrastructure protection.

**Parent Programmes:**

[FP7-SECURITY - Security](#)

**Institute type:** Public institution

**Institute name:** European Commission

**Funding type:** Public (EU)

**Partners:**

- SELEX ELSAG SPA, Italy
- NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK TNO, Netherlands
- SELEX ES SPA, Italy
- UNION INTERNATIONALE DES CHEMINS DE FER, France
- SELEX SISTEMI INTEGRATI SPA, Italy
- BOMBARDIER TRANSPORTATION GMBH, Germany
- ALSTOM TRANSPORT S.A., France
- THALES COMMUNICATIONS & SECURITY SAS, France
- SARAD GMBH, Germany
- UNION DES INDUSTRIES FERROVIAIRES EUROPEENNES - UNIFE, Belgium
- MORPHO, France
- Ductis GmbH, Germany
Achieving better interoperability in rail operation and security is seen as key. An EU initiative addressed various aspects of railway security under one integrated system to help rail operators and security authorities ensure safety for travellers.

Ensuring railway security involves many different tasks and components. With this in mind, the EU-funded PROTECTRAIL (Railway-industry partnership for integrated security of rail transport) project dealt with railway security from the perspective of a layered integrated system. It sought to divide the overall mission of security into smaller sub-tasks.

Work within the project involved designing a system that interfaces seamlessly between security sub-missions, a set of realistic issues regarding protection needs and requirements in rail transport systems.

To achieve its aims, PROTECTRAIL provided tools and strategies for evaluating the security potential of a given security sub-mission in terms of performance, reliability, speed and costs. It outlined user requirements and defined the main mechanisms of the required system architecture.

Demonstrations were carried out in France, Italy and Poland that focused on architecture, network communications, video management and security technology.

All these achievements led to the design of an integrated system that stands to radically improve the security of rail transportation. It enables operators and infrastructure managers to constantly adapt their security systems to shifting security requirements with minimal engineering costs. The system consists of a set of rules and standards that facilitate the integration and communication between different security technologies.

Political, economic and sociocultural characteristics were considered in laying down future design for security strategies. A long-term vision spanning the next two decades was also defined for the system.

In addition to supporting performance, reliability, speed and cost efficiency, the new system will help product and service developers to improve and validate related technologies. This will bring an important boost to European industry and support governments in implementing security policies. Most importantly, it will make Europe's rail system safer for travellers from every perspective.
STRIA Roadmaps: Other specified
Transport mode: Rail transport
Transport sectors: Passenger transport, Freight transport
Transport policies: Safety/Security
Geo-spatial type: Other