PROTECTRAIL

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THE BACKGROUND

The events of September 11- 2001 could be really considered the moment when was dramatically brought to evidence that the need and the duty of civil society of enhancing security of citizens and protecting the critical infrastructures requires:

- The developing and deployment of common prevention and reaction strategies in a global asymmetric war against terrorism
- The commitment and involvement of all the responsible stakeholders:
  - Governments
  - Authorities
  - Intelligence
  - Operators of critical infrastructures and services
  - Technologies providers
  - Citizens

THE BACKGROUND

- Terrorism comes from far, but:
  - The targets were in the past (or were considered) limited to a national or local context, even if links and similarities between terrorist organizations existed.
  - The reactions and countermeasures adopted were mainly managed by the authorities of the country where the attacks were carried out.
  - No significant organizations in terms of security measures were set up at international levels.
  - The risk was probably considered low or locally manageable.

THE BACKGROUND AND EU STRATEGY

- In this scenario:
  - Europe has to play an important role
  - Europe was and still remains one of the main targets
  - Europe can deploy his potential resources in term of capability and knowledge in the global challenge of fighting terrorism

- EU Countries and the EU need a strong cooperation and a common approach to be implemented through “holistic security projects” carried out by all the main stakeholders
  - In December 2003 the European Council adopted a common EU security strategy, recognizing the need to further develop the capabilities to protect its citizens and contribute to a safer international environment.
  - R&D programmes could be a success key in finding efficient and affordable security solutions

The PASR and Railway Security

- Under PARS 2005, the European Commission decided to fund the research project TRIPS (TRansport Infrastructures Protection System) to design and demonstrate an anti-terrorist security system architecture to better detect terrorist threats and hence better protect railway passengers and infrastructures.
- The almost contemporary attacks in London Underground and in Madrid Atocha showed the high vulnerability of public transport systems.
- The TRIPS project investigated possibilities offered by technology and improved processes to consider innovative solutions increasing the effectiveness and reactivity for protection of passengers and infrastructure.
- A number of measures have been identified, e.g.:
  - improved design of trains, stations and other facilities;
  - increased (and more visible) presence of trained staff;
  - more controlled or restricted access to stations, track etc.
  - improved detection, surveillance and communications technologies.

TRIPS Project

- As final event of the TRIPS project, a demonstration took place the October 17 2007, hosted by the SNCF, in the maintenance and marshalling yard of Villeneuve-Prairie, south of Paris
- The objectives were to present some of existing technologies proposed by the project, and evaluate them in a real context for a possible adaptation to a railway environment.
- Scenarios simulating real events were performed in some workshops, in order to evaluate the devices developed by partners and the possible improvements for railway protection, in terms of detection capability and reaction.

PROTECTRAIL KEY DATES

The PROTECTRAIL project, submitted in the 1st Call, did not reach enough score to be funded.

PROTECRAIL was revised and approved in the Second Call.

- The proposal has been submitted on: 02/12/2008
- Hearing took place on: 17/02/2009
- The ESR distributed by EC on: 09/03/2009
- Negotiation started with REA on: 09/2009
- **Start date: 01/09/2010**

EU Project Officer: ***Andrej Grebenc REA (S3)***

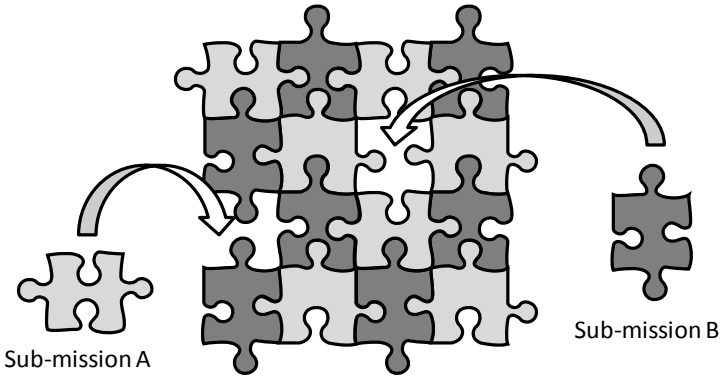
PROTECTRAIL starts where TRIPS ended

Toward making the railway system more secure

PROTECTRAIL APPROACH

The PROTECTRAIL challenge is to face the problem of making railway more secure by

- avoiding too ambitious systematic top-down approaches
- splitting the problem into smaller asset-specific security problems (missions) applicable and usable in different threat scenarios
- making interoperable the single asset-specific solutions
- conceiving and designing a modular architectural framework where each asset-specific solution can be “plugged”
- assuring a streamlined process of federation, integration and interoperability of respective solutions

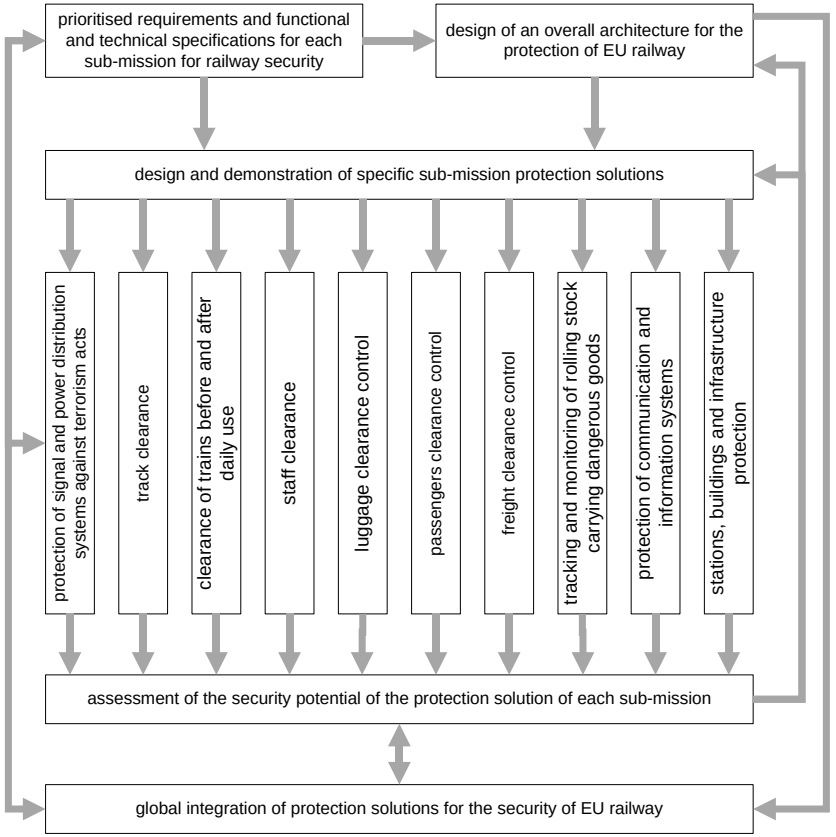


PROTECTRAIL OBJECTIVES

- PROTECTRAIL will address the following submissions:
  - protection of signal and power distribution systems against many known terrorism acts
  - 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

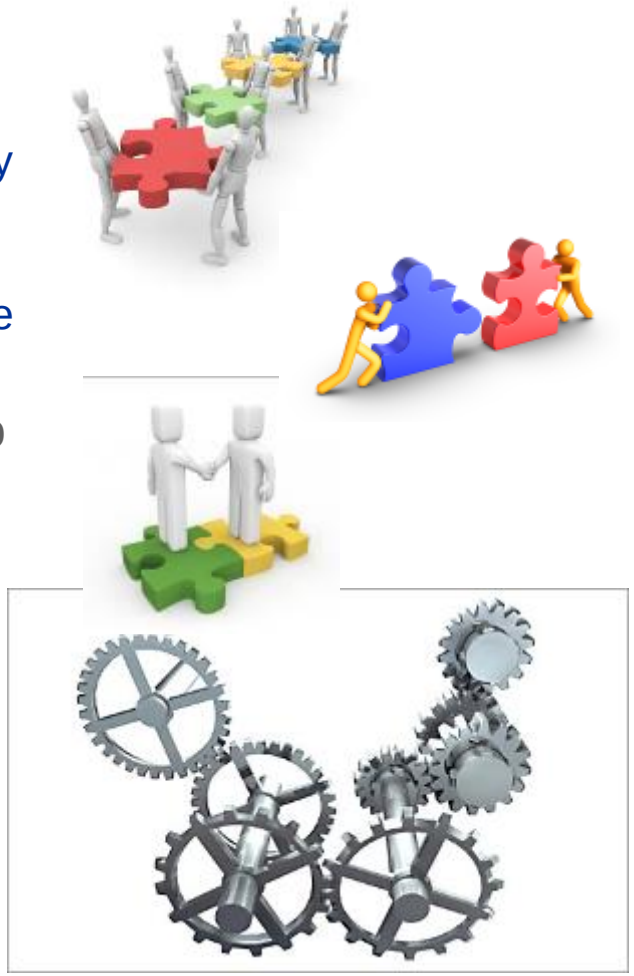
PROTECTRAIL OBJECTIVES

- Security sub-missions will:
  - evolve as a complex protection “capability” missions, specifically oriented to rail assets protection;
  - be developed in a common vision;
  - adopt the same “security design” criteria and consider the mutual dependency of function performed, using, the same or fully compatible “backbone” technologies,
  - ensure control of physical and functional interfaces with other security sub-missions and railway systems organization and structure
  - aim to performances, readiness, applicability, affordability, reliability, resilience.



PROTECTRAIL INTEGRATION PROCESS

- The integration process is based on the following activities:
  - to design an overall system architecture that will assure interfacing and interoperability between security sub-missions;
  - to design and demonstrate specific sub-system architectures by integrating the most suited and mature technologies
- The project will also provide approaches and tools to assess the security potential of a given security sub-mission in terms of:
  - performance, reliability, reaction speed,
  - Investment and Life Cycle (LC) costs
- The global level of integration will moreover:
  - allow a more efficient capability to threat intelligence and detection;
  - assure a coherent and homogeneous approach to actions to be managed to face the risk or crisis situation.



PROTECTRAIL GUIDELINES AND SCOPE

- The project will be carried out by:
  - Strictly monitoring **the impact of security measures on ethical issues and citizens rights;**
  - considering the positive impacts against **other forms of threats** and for mitigation of consequences of natural events.

- The main scientific and technological expected objectives are:
  - develop an exhaustive **common vision of actual and future risks** regarding many different assets and assessing disparity aspects;
  - implement **asset oriented integrated solutions** (sub-mission level) based mainly on mature technologies;
  - integrate the asset oriented solutions and **demonstrate a global architecture**, including modularity and interoperability;
  - derive from these results a **future design for homogenous security**.

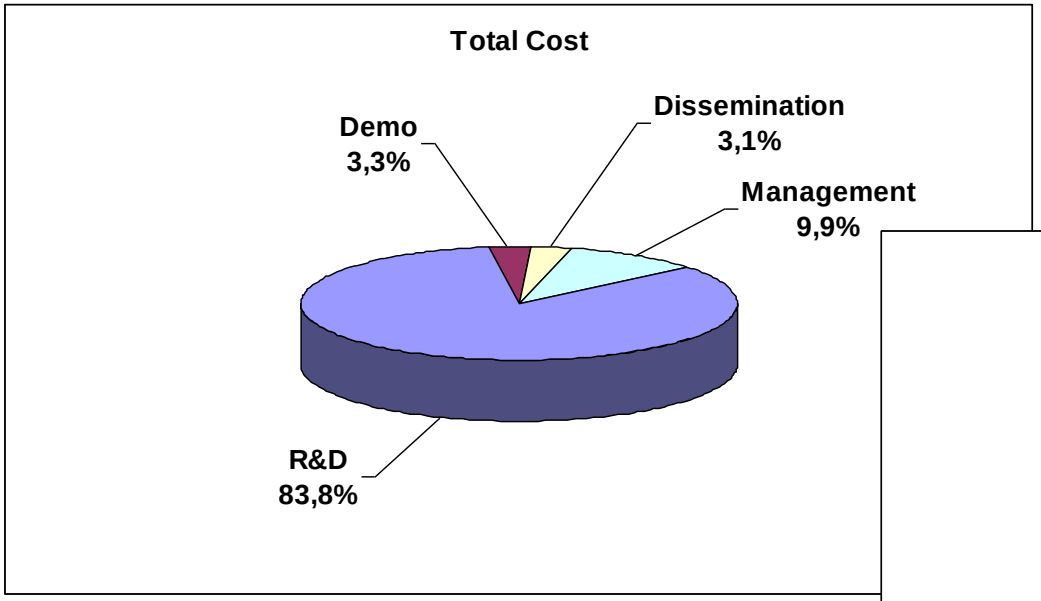
PROTECTRAIL KEY FACTS

Total Project Cost : 21,775,289 €

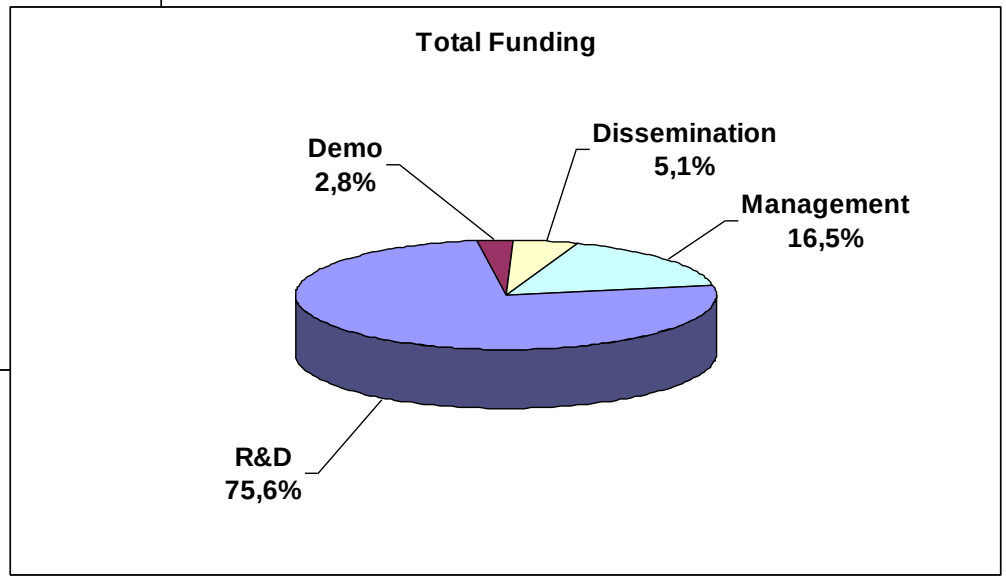
Total EU contribution : 13,115,064 €

Total Effort: 1330 man-months

Duration : 42 months



- RTD 18,201,123.80 €
- Demonstration 728,653.00 €
- Management 2,174,513.00 €
- Other 671,000.00 €



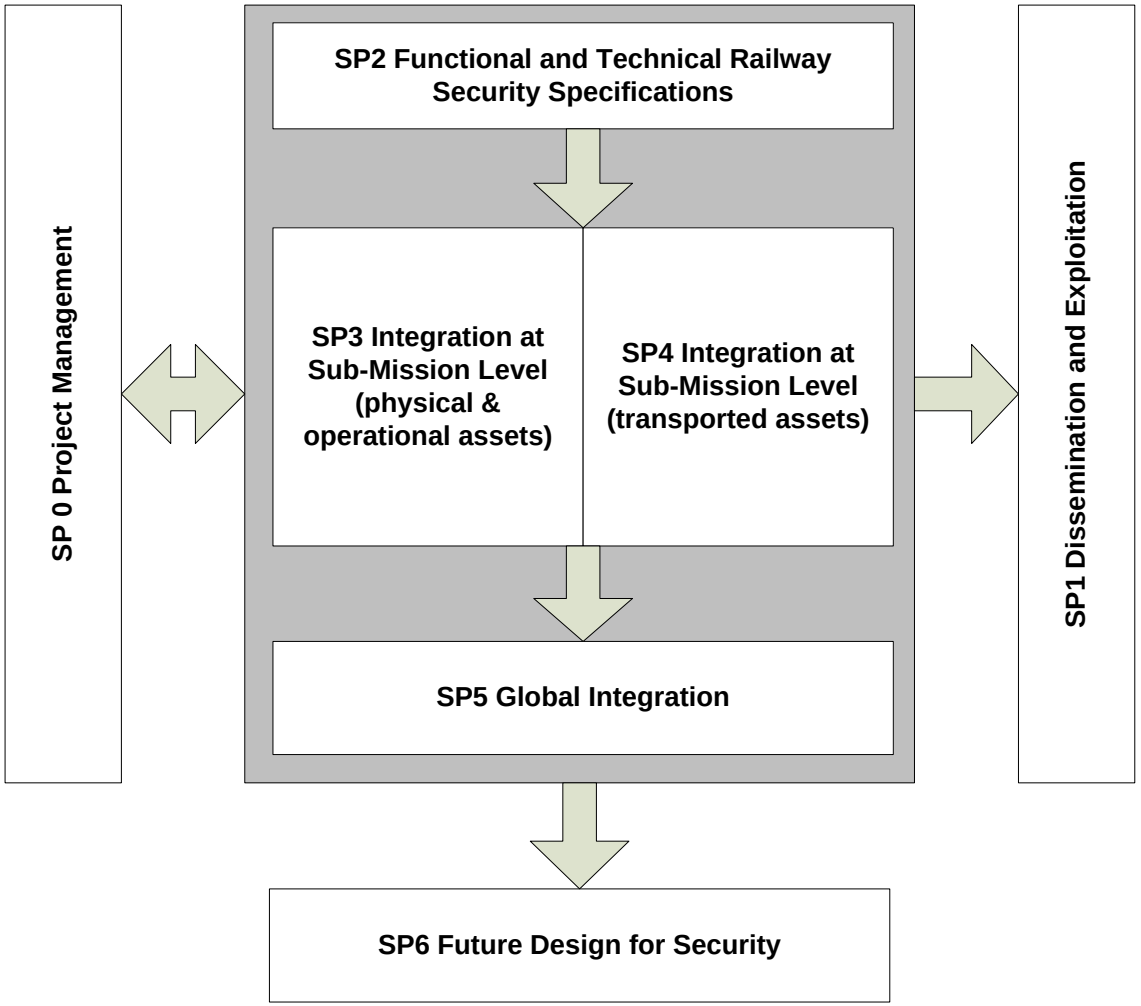
PARTNERSHIP

Part. no.	Participant name	Country	Short name
1	Ansaldo STS S.p.A.	IT	ASTS
2	Nederlandse Organisatie voor toegepast-natuurwetenschappelijk onderzoek TNO	NL	TNO
3	Elsag Datamat S.p.A.	IT	ED
4	Union Internationale Des Chemins De Fer	FR	UIC
5	Selex Sistemi Integrati S.p.A.	IT	SSI
6	Bombardier Transportation GMBH	DE	BT
7	Alstom Transport SA	FR	ALS
8	Thales Security Solutions & Services SA	FR	TTS
9	Sarad GmbH	DE	SARAD
10	UNIFE – The European Rail Industry	BE	UNIFE
11	MORPHO SA	FR	SAG
12	Ductis GmbH	DE	DUCTIS
13	Železničná spoločnosť Slovensko a.s.	SK	ZSSK
14	Joint Stock Company Lithuanian Railways	LT	LITRAIL
15	ItalCertifer S.c.p.a.	IT	ITCF

PARTNERSHIP (cont.)

Part. no.	Participant name	Country	Short name
16	PKP Polskie Linie Kolejowe SA	PL	PKPPLK
17	D'Appolonia S.p.A.	IT	DAPP
18	Elbit Systems Ltd.	IL	ESL
19	Facultés Universitaires Notre-Dame de la Paix	BE	FUNDP
20	EPPRA	FR	EPPRA
21	Kingston University Higher Education Corporation	UK	KU
22	SODERN	FR	SODERN
23	Smiths Heimann S.A.S.	FR	SMITHS
24	*Rail Cargo Austria*	*AT*	*RCA*
25	CEA Commissariat à l'Énergie Atomique	FR	CEA
26	Institut Franco-Allemand de Recherches de Saint-Louis	FR	ISL
27	Turkish Railways	TR	TCDD
28	MER MEC S.p.A.	IT	MERMEC
29	Société Nationale des Chemins de Fer	FR	SNCF

Project structure



THE PROJECT STRUCTURE

The project is structured in 7 Sub-Projects and 38 Work Packages.

- The technical SPs are supported by the **Project Management & Technical Coordination** (SP0) and **Dissemination and Exploitation** (SP1) subprojects.
- The **Functional & Technical specifications** for prevention, mitigation and crisis management will be defined (SP2) for the selected scenarios at the sub-mission and at global integration level.
- In SP3 and SP4, (for **Fixed assets** and **Transported assets**) will be demonstrated the feasibility of solving the identified railway protection submissions through an efficient and cost effective integration of technologies.
- SP5 will **integrate** the set of functional and technical results, developed in SP3 and SP4 **at system level,** taking into account security requirements defined in SP2.
- SP6 will describe the **Vision of the long term evolution** of the future railway security system as result of various influence factors and their mutual interactions.

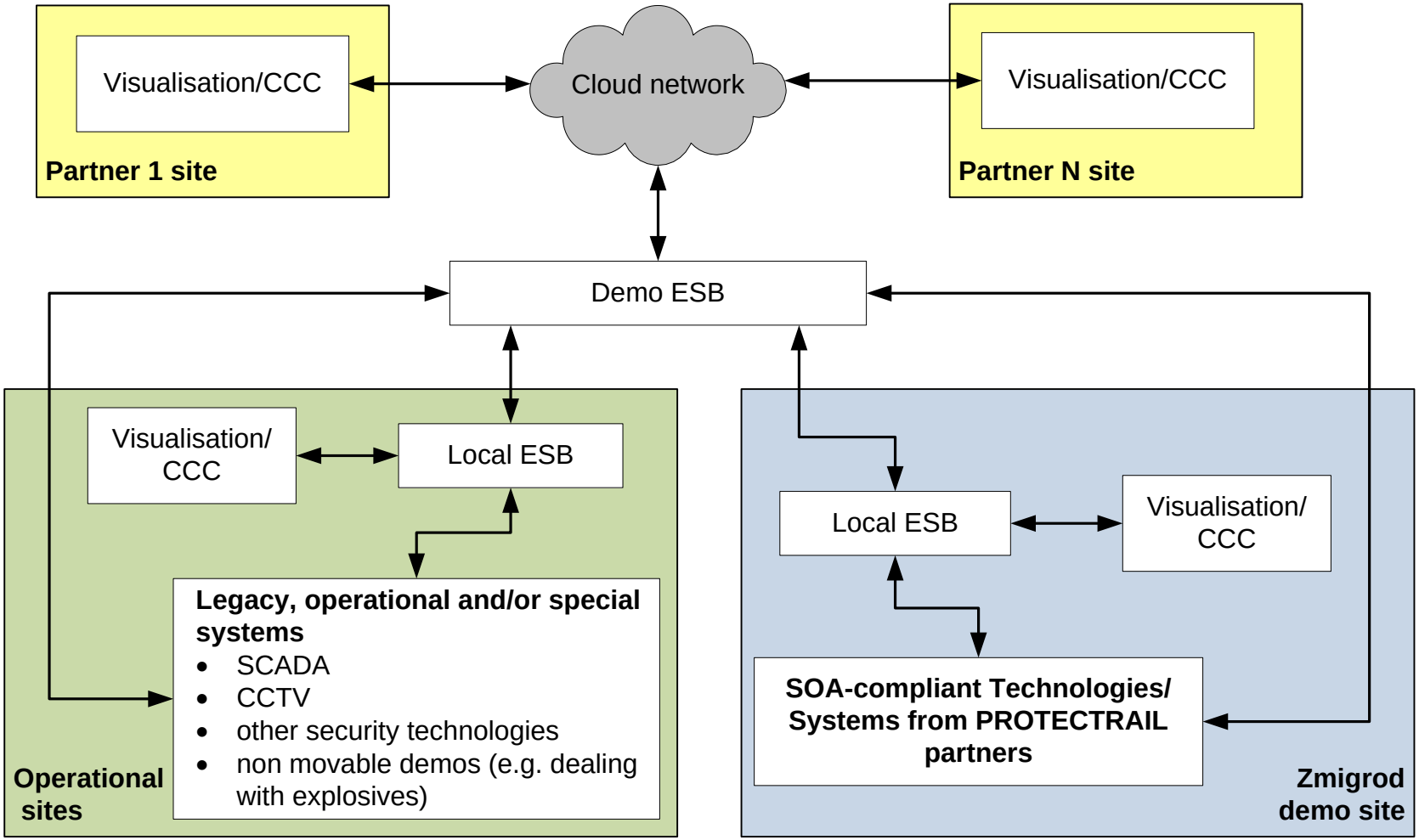
WHERE WE ARE

- We have
  - completed the User Requirement
  - prioritised the User Requirement and sketched the first scenarios
  - almost completed the Functional Specifications
- We are close to
  - complete the Technical Specifications
- We have started
  - the integration phase of SP3 and SP4
  - started to plan the SOA architecture and the demo site

THE DEMO SITE

- The demo site identified by PKPPLK is the test track facility near Zmigrod, 56 km from Wroclaw

A TENTATIVE DEMO CONCEPT



PROTECTRAIL

It’s a long way ...

… but ...

… we are really confident that during the project …

cooperation

competences and knowledge

commitment of all the actors

will be the key issues to reach the expected goals