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**EURNEX**  
**EUropean Rail research Network of**  
**EXcellence**

SIXTH FRAMEWORK PROGRAMME

PRIORITY 1.6.2: SUSTAINABLE SURFACE TRANSPORT

## **Pole Action Plan**

### **Pole 6: Safety and security**

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Originator: El miloudi El Koursi [INRETS]

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## Introduction

Based on the workshop discussions during the 2<sup>nd</sup> EURNEX Integration Conference each pole of excellence has to prepare an *action plan* to develop and to consolidate the pole within the next critical months. The Action Plan is therefore the “short-term precision” of the mid-term/long-term pole strategy. In order to ensure consistency within EURNEX a template for the action plan had been prepared (see following pages). It is divided into sections with boxes indicating the expected content for the section concerned.

As emphasised on the Integration Conference again, the European Commission expects from EURNEX the more efficient use of the rail research resources. In essence, for our preliminary poles this means:

- Concentration and specialisation
- Integration of research
- Interdependency among pole members

The action plan therefore has to reflect the steps on how to achieve this. Moreover, the contribution of each pole to the durable, long lasting EURNEX business case must be addressed, in particular by the project acquisition planning.

With the aim to cover the relevant items for short-term pole development, the action plan template covers the following sections:

- ❖ Objectives of pole
- ❖ Capabilities involved
- ❖ Collaboration opportunities identified
- ❖ Capability gaps still existing
- ❖ Projects towards Business Case
- ❖ Other actions supporting the establishment of the pole
- ❖ Pole development and milestone planning

It is apparently not necessary to prepare a comprehensive report. The focus should be on understandable and verifiable statements providing the ideas on how to move forward with pole development. Even if not every detail can be described or anticipated today the first issue of the action plan should be prepared as soon as possible, because its submission is the condition to achieve support from the EURNEX WP's.

Due to its importance to achieve support for pole development, the draft of the action plan should be prepared as soon as possible, but not later than **31 March 2005**.

The action plan shall be a “living document” to be periodically updated.

## Pole Action Plan

### Pole6: Safety and security

#### 1 Objectives of the pole 6

The objective of pole 6 “ safety and security” are to monitor safety, develop new technology and to promote safe and secure systems of operation that reduce risks with diminishing costs.

This pole will cover the following content:

- Safety and security management including philosophy and culture
- Active safety (control/command, level crossing...)
- Passive safety requirements and assessment
- Incident/accident database and learning
- Risk analysis and assessment
- Technical and operational safety
- Occupational Health and Safety
- Safety impact of maintenance
- New technology for security
- Psychological aspects of security
- Prevention of terrorism

The outcome of this pole can be summarised as follow:

- Safe systems for operation and maintenance
- Safety and security requirements, standards and protocols
- Incident detection technology and transmission
- Methodology for safety and risk assessment
- Harmonised incident/accident data base (definition, structure...)
- Systems to enhance security

- Scale for security level (similar to SIL)
- Common education and training (see WP7 activities)

This pole could have a significant impact on ‘Operation and Interoperability’ and also on “Economics and Strategy”. Safety standards can influence costs and security will influence policy.

## 2 Capabilities involved in the pole

No	Institution	Short	Safety and security
1	Forschungs- und Anwendungsverbund Verkehrssystemtechnik Berlin	FAV*	T.Meisner
3	French National Institute for Transport and Safety Research	INRETS	Dr. El Koursi
7	UNIFE	Siemens	E.Renner
8	UIC	UIC	L.Tordai
	UITP	UITP	Y.Amsler
11	Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung	FhG/IVI	I.Shütte
17	Deutsches Zentrum für Luft- und Raumfahrt e.V.	DLR	S. Schwartz
25	Moscow State University of Railway Engineering	MIIT	Dr.Sc.V.M. Kruglov
26	Centrum Naukowo-Techniczne Kolejnictwa	CNTK	M.Sc. W.Olpinski
28	University of Zilina	UNIZA	Prof. Dvorak
37	Imperial College London	ICL	A.Evans
38	Delft University of Technology	TUD	A.Hale
41	Université des Sciences et Technologies de Lille	USTL	J.-G.Postaire
42	Université de Technologie de Compiègne	UTC	Dr. JM Bouglar
44	École Centrale de Lille	EC Lille	Pascal Yim
45	Institut National Polytechnique de Grenoble	INPG	Dr. Aktouf
47	Multitel ASBL	Multitel	F Meers
48	Centre for Research and Technology Hellas/ Hellenic Institute of T	CERTH/	C.Pyrgidis
49	Instituto de Engenharia Mecanica	IDMEC	Prof. P.Tavares de
50	Centro Estudios Envestigaciones Técnicas de Gipuzkoa	CEIT	Dr. J.Vinolas
51	Universidad Politécnica de Madrid	UPM.ETS	M.Mera
54	Tecnología e Investigación Ferroviaria S.A.	TIFSA	J.G. Velarde
60	Danish Transport Research Institute	DTF	L.Larsen
62	Uppsala University, Department of Information Technology/ Hum	UU-IT/ H	Dr. A.Jansson
64	Valtion teknillinen tutkimuskeskus (VTT Technical Research Cen	VTT	H.Kanner

### **3 Collaboration opportunities**

#### **Existing collaborations:**

TU-Braunschweig, DLR, DITS, UTC, TU-Delft, DTF, INRETS and CERTH

#### **Collaboration opporunities:**

ICL, VTT, VTI, UPM and EC-Lille.

#### **Collaboration with other pole's members**

- There is a strong links with the poles: Operation and system performance,
- The link is expected from: Strategy and conomics, Human factors and applied ergonomics and infrastructure and signalling.
- In addition, the safety and security pole is committed to contribute to the training and education (pole 10)

## 4 Projects towards Business Case

### 4.1 Projects submitted to EURNEX advisory board

Five projects were submitted to advisory board. Two are related to security and three are dealing with safety.

#### 4.1.1 IVST – Intelligent video technologies for on-board train passenger security

Demonstration train equipped with on-board video and audio sensors. The main aim of IVST project is to provide automatic detection of dangerous situations onboard trains.

- **Proposed by: INRETS and other partners**

#### 4.1.2 SENSOR – Sensing the environment for safe operations and response.

A train equipped with on-board sensors and also a site with cameras; output will be the demonstration on a suburban line of the feasibility of the functionalities proposed: detection, reliability, accuracy, integrity of data transmission, etc.

- **Proposed by: INRETS and other partners**

#### 4.1.3 MARRAS: METHODS AND PROCEDURES FOR RAILWAY SAFETY

Within the EUROPEAN legislative and institutional framework, the national experiences evidenced at least three levels of railway safety problems to be faced: the quantitative analysis related to the safety of the global railway system; the process of updating, upgrading and/or planning of rules and regulations and the systematic investigations on critical situation arising from the daily operation.

- **Proposed by: DITS and other partners**

#### 4.1.4 INSAFE: An integrated system for the monitoring and evaluation of the safety level of a railway transportation system

The attempts of a railway company are focused on the improvement of its production procedures, with safety and productivity conditions. In this framework, the railway companies must dispose and apply a concrete system of monitoring and evaluation of the safety level, which they supply to their customers. The second of the above activities (evaluation of the safety level) involves the completion of the first activity (monitoring).

- **Proposed by: CERTH and other partners**

#### 4.1.5 CROS: Common rules for operational safety (Safety Interoperability)

Complex systems and operational cases can not be handled by experience only. Therefore the use and the application of formal technologies is a specific aspect to be addressed in this project. A common mean of description and a common method including suitable tools and formats for the exchange of information are

needed to ensure a consistent level of quality all over Europe. The resulting set of rules needs an adaptation for ERTMS to ensure that not only the current situation is covered but also the new system ensures safety.

- **Proposed by: INRETS and other partners**

## 5 Other actions supporting the establishment of the pole

- Knowledge management system (link with WP6)
- PR material for the pole (e.g. brochure about the seminar, work and results about specific aspects) cooperation with WP6
- Regular pole workshops (2-3 per year) to bring together the researchers with different research areas, with representatives of the manufacturing and the supply industry
- Pole leaflet and web page on the EURNEX site
- Develop a specific research areas

## 6 Pole development and Milestone planning

### 6.1 Way forward

- Promote safety, but focus on security: scientific support/tools necessary to counter threats; look for additional competences not yet involved (inside/outside EURNEX)
- Focus on cost reduction for safety and security

### 6.2 Next months activities to consolidate the pole => June/July 2005

- 20 March by FAV; pole members and further contribution from members by end March
- 31 March by INRETS, draft plan on how to operate the pole based on member presentations, incl. Schedule for relevant seminars/conferences
- 30 May by TU-BS; Establish of periodic seminars making the pole visible (level crossings; safety management, security)
- 30 May by VTT, draft plan to exchange PhD students (part of the plan, how to operate“) => close cooperation with pole 10
- 30 June by INRETS/FAV contribution to FP 7 meeting with EC (based on research project catalogue) and contribution to implement ERRAC priority “safety & security“
- 30 June, FAV, Approach advisory board (with WP 3 support) for prioritisation, feed back, identification of potential supply industry & operator partners

- Next meeting depending on how to approach call 3B
- 08 June pole meeting , merged with SAMNET user group meeting, DTF at Copenhaguen
  - Elect the pole chair person
  - Review of pole strategy

13<sup>th</sup> July, Level crossing workshop at TU Braunschweig, Germany.