

**EURNEX**



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**EURNEX**

**EU**ropean **R**ail research  
**N**etwork of **EX**cellence

SIXTH FRAMEWORK PROGRAMME

PRIORITY 1.6.2: SUSTAINABLE SURFACE TRANSPORT

## **Pole Action Plan**

### **Pole 9: Human Factors**

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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

### Pole 9: Human Factors

#### 1 Objectives of the pole

- Are there amendments to be made towards the available description of the poles?

Most of the early sections of the pole objectives document have been revised and these revisions have largely been agreed amongst all the members. The new second version of the objectives and content now read as follows.

##### 1.1.1 Objective

To understand the roles, capabilities and needs of all stakeholders in the rail system and to use such understanding to centrally contribute to human centred design and implementation of railway technical and organisational systems.

##### 1.1.2 Content

This pole should cover the following aspects:

- Integration of human factors within rail research and development
- Holistic approach embracing cognitive, physical and organisational human factors
- Promote systems ergonomics within a systems engineering philosophy
- Develop or adapt appropriate human factors theories and models
- Develop or adapt appropriate human factors methods and techniques
- Consider all stakeholders, staff and public and including accidental or non-users
- Integrate and develop new directions with other poles, especially poles 1, 2, 5, 6, 7, 8

##### 1.1.3 Necessary capabilities of pole members

The pole members shall cover a range of capabilities:

- Human factors integration
- Cognitive ergonomics
- Physical/biomechanical ergonomics
- Organizational/social ergonomics
- Understanding of human factors of rail engineering and design, operations and maintenance, environment and public issues

#### 1.1.4 Outcome

- Systems that fit the needs of human performance and human well-being,
- Improve the reliability of the rail system including the people within it
- Improve the quality of the rail service for all customers and end users
- Maximise the safety of the rail system and decrease risk as low as reasonably practicable
- Support maximisation of use of capacity of the rail system
- Ergonomics knowledge, guidelines, standards and regulations
- Integrated network of human factors excellence working with the other rail research communities

Sections 1.1.5 and 1.1.6 on evaluation criteria and activities will be agreed over time as the pole gets established.

## 2 Projects towards Business Case

*Project approaches and ideas, incl.*

- Short description of objectives and expected results
- Pole members to be involved
- Expected necessary partners from the rail sector (supply industry & operators)
- Need for cross-pole collaboration?
- Timing and estimated budget
- Preparation steps to implement the project
- Please make use of the Acquisition table template attached also

Project research approaches and ideas have been discussed in outline terms, but Human Factors is a broad church and priorities and ideas range from medico-physical studies of train cab design to psychosocial studies of cognitive task performance in signallers and controllers to systems ergonomics studies of the wider distributed rail sociotechnical system. Priorities will be addressed off-line amongst the members and especially within discussions with Poles 1,2, 5, 6 and 8. Expected partners will be from anywhere in the rail industry (design, manufacturing, operating, infrastructure, maintenance) and also across the social partners of public, passengers, local communities etc

In terms of establishing our priorities to go forward and setting a research agenda we could do this by contribution to the: stages in the rail system life cycle (design, operation, maintenance etc); various rail functions (driving, signalling, control, trackside etc); supporting needs of different stakeholders (public, passengers, train operating companies, infrastructure provider etc); human factors topic area (workload, stress, fatigue, design fit etc); technical and organisational implementation challenge (ERTMS, GSM/R, inter-operability, automation etc); or business driver (use of capacity, safety, reliability, quality of service). Ideally our plans will make a case in terms of all of these.

### **3 Other actions supporting the establishment of the pole**

- E.g. periodic seminar / conference to support pole's visibility and business
- Scientific service towards the rail sector supporting pole's durable business

Ideas for workshops on specific scientific topics will be generated by pole members, together with offers to host the workshops. A first suggestion is a workshop on rail human factors methodology. The 2<sup>nd</sup> European Conference on Rail Human Factors, in London November 21<sup>st</sup>-23<sup>rd</sup> 2005, will be organised as part of the activities of Rail Research UK (a regional partner in EURNEX) and of Pole 9, with information to be made available on EURNEX at the meeting.

### **4 Pole development and Milestone planning**

*Concluding plan derived from the topics above covering:*

- Schedule
- Steps and milestones
- Intermediate results
- Organisation of sustainable contacts to supply industry and operators
- Selection / election of pole leader
- Expected support / resources "on demand" from EURENEX WP's for pole development – to be justified by the targeted activities
- Please focus on the activities supporting the future pole business
- Detailed for the months to come
- More strategic outlook of the time beyond July 2005.

Plans are in outline form at present. Discussed at the meeting in Berlin were:  
 •Agree by email on pole objectives, content, capabilities, outcomes, evaluation

criteria

- Pole triggers Pedro Mondelo and John Wilson
- John Wilson elected pole leader for first period, and this is the recommendation to Council
- Preliminary plan for (series of) topic workshops (methodology based)
- Invitations to 2<sup>nd</sup> Rail HF conference, London, November 21-23 2005
- Hold initial (electronic) discussions with key other poles; this is a two-way process
- Search EURNEX database to find the other HF experts in network; possibly start to establish a state of the art?
- Agree (and accept diversity of) HF priorities: within pole
- Plan and assess feasibility of writing a position paper which clearly emphasises importance of HF to future of European rail business
- Attend and promote HF at meetings involving producers and operators
- Investigate content of next Commission Calls and produce ideas for joint projects