International Seminar

Conclusions and implementation of the Foster Rail project

WP3 - SRRIA - Strategy Rail Research and Innovation Agenda

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EVROPSKÁ UNIE
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NÁRODNÍ TECHNOLOGICKÁ PLATFORMA
Interoperabilita železniční infrastruktury
CZECH TECHNOLOGY PLATFORM
Interoperability of Railway Infrastructure

Introduction

- **Strategic Rail Research and Innovation Agenda (SRRIA)** specifically addresses the European efforts required for **research and innovation to achieve the ambitious goal set** out by the European Commission in the **Transport White Paper** published in 2011 where it is recognised that European transport is at a crossroads, and that old challenges remain but new ones have arisen.
- Building on the 2007 **Strategic Rail Research Agenda (SRRA**), following the publication of **"RAILROUTE 2050"** and **Rail Business Scenario.**
- Strategic Rail Research and Innovation Agenda, a step change in research and innovation **(SRRIA-2014)**.
- **Increasing** of **the attractiveness**, **high capacity**, **environmentally friendly** and **cost efficient railway** in Europe will underpin economic growth and societal development.

SRRIA research and innovation priorities

- **SRRIA-2014 sets out research and innovation priorities structured around three sets of themes.** The first addresses the attractiveness of rail and public transport and the future demand that the rail sector aims to meet. The second set includes three critical themes within a sector-wide framework and finally the third set covers five well-established asset-related themes:

1. **Attractiveness of rail and public transport**
   Customer experience
   Strategy and economics

2. **A whole system approach**
   Capacity, performance and competitiveness
   Energy and environment
   Safety (including certification) and security

3. **Assets**
   Control, command, communication and signalling
   Infrastructure
   Rolling stock
   IT and other enabling technologies
   Training and education

Attractiveness of rail and public transport

- This cluster covers two themes (customer experience and strategy and economics) which are targeting the same vision and priorities:

– **Passengers enjoy seamless multimodal journeys** that are easy to plan, select and book
– Business analytics facilitate **more customer driven services**
– Significant improvements in **operational reliability, the cost of rail travel** and appreciation of the **security of the railway system** contribute to the overall attractiveness of the system
– **The rail system is accessible and attractive to all passengers**
– **Integration of the databases across transport modes offers door-to-door freight transport** including a rail link with fast and accurate service pricing
– Rail freight customers benefit from regularly updated **Estimated Time of Arrival (ETA)**
– **Longer trains optimise the use of network capacity**
– **Improved braking systems enable freight trains** to access more efficient and reliable paths
– The European rail manufacturing industry has technological and industrial leadership worldwide. New technologies for trains, infrastructures and **ICT enable much faster, reliable and consistent services**

Whole system approach

- Rail is a service business oriented system which must be designed, constructed, operated and maintained holistically, taking into account the important interfaces between its constituent parts. **No part of the rail system should therefore be developed without considering the effect on other parts of the system.**
- This holistic approach is also needed to:

– **address environmental issues (e.g. noise and vibration, energy)**
– **achieve resource-efficient technologies**
– **share the benefits of innovation**
– **reduce whole life cycle costs**

- **The sector's costs can also be reduced by faster, transparent and efficient authorisation and certification processes** for the interoperable European railway. They should be undertaken in an economic manner and harmonised across the EU member states.
- Research should target the adoption of a sector-wide framework supporting the implementation of change and subsequent **improvement to reliability, availability, maintainability and safety (RAMS).**

Assets (selected priorities for development)

Control, command, communication

- **Real time traffic management capabilities for increased capacity, energy efficiency and sustainability**
- Robust and cost effective standard **design, test, installation and maintenance of signalling infrastructures**

Infrastructure

- Improved design and **materials to increase track resilience and cost efficiency**
- Non-disruptive inspection and targeted **timely maintenance** interventions to reduce costs and maximise track availability
- New infrastructure technologies. This will include **new track forms, switches and crossings,** and their potential for commercial development
- Modelling tools to analyse whole-life whole-system **energy and carbon impacts**

Assets (selected priorities for development)

Rolling stock

- **Promoting the increase of capacity by creating more space for passengers and reducing the weight of vehicles through smaller and lighter sub-systems and components**
- **Improving vehicle performance through enhanced braking and flexible coupling** and by addressing technologies for better accessibility in order to reduce dwell times
- Extending the benefits of LCC reduction to the infrastructure through the development of **track-friendly rolling stock technologies**
- Developments that **reduce vehicle energy consumption by the** combination of **more energy efficient equipment and lighter vehicles**
- Environmentally friendly rolling stock with special emphasis in the **reduction of the emission of noise and vibrations**

IT and other enabling technologies

- **User-centric services**, adapted to the mobility of the citizen, which put the passenger at the heart of innovative solutions: easy accessible business services on **mobile applications, personalised journey information** and whole journey **integration** and information in conjunction **with other transport modes**
- Technologies to manage the **transmission, capture, storage and communication** from new sources such as sensors, video cameras, **tablets and other hand held devices**
- **High performance systems for train control**

Assets

Training and education

- **Forecasts of the skills that railway will need and analysis of gaps in skills**
- Enhancement and **expansion of educational access to railway courses**
- Enhancement of **educational quality in the railway area**
- Creation of mechanisms to put forward courses not offered by existing institutions
- **Development of e-learning** based courses and promote the production of course materials
- Promotion of joint PhDs using bilateral and multilateral programs
- Promotion of joint international MSc programs in different rail related areas
- Development and delivery of short training courses (STC)

Thank you for your attention!