International Seminar

Conclusions and implementation

of the Foster Rail project

WP3 - SRRIA - Strategy Rail Research and Innovation Agenda

Date: 2016-06-21
Venue: Congress Centre - U Hájků, hotel Grandior,
Na Poříčí 42, Prague 1

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NÁRODNÍ TECHNOLOGICKÁ PLATFORMA
Interoperabilita železniční infrastruktury
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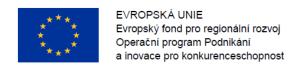Interoperability of Railway Infrastructure

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.

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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
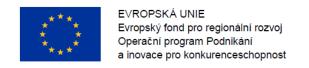Strategy and economics

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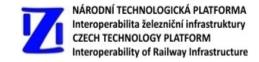Energy and environment
Safety (including certification) and security

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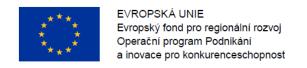IT and other enabling technologies
Training and education

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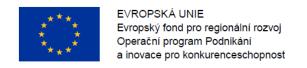Interoperability of Railway Infrastructure

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**

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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).**

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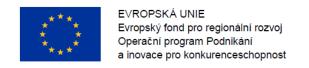
Assets (selected priorities for development)
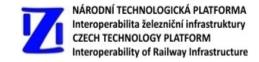
Control, command, communication

- **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**

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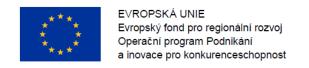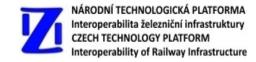
Assets (selected priorities for development)

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** i**nformatio**n and whole journey i**ntegratio**n 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**

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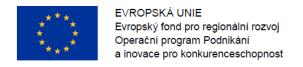CZECH TECHNOLOGY PLATFORM
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Assets

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)

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Thank you for your attention!