Introduction to the NeTIRail-INFRA project and mid-term conference

David Fletcher
The NeTIRail-INFRA concept

NeTIRail - Needs Tailored Interoperable Railway

Developing and demonstrating technologies and best practice tailored to the needs of different categories of rail systems

- Modern solutions alongside aging infrastructure
- Unlocking capacity
- Maintaining economic viability of under utilised lines

Infrastructure tailored to needs
Improving productivity
Economic investment and operation
Whole society benefits

Lesser used lines
Underutilised capacity
Economic viability
Future growth
Supporting society outside the city

High capacity lines
Supporting expansion
High duty requirements
Short maintenance intervals
NeTIRail-INFRA – facts & figures

- Grant number – 636237
- Call topic MG-2.1-2014 – Intelligent infrastructure
- Total costs & EU Contribution 5.467M€

- June 2015 – May 2018
- 13 partners from eight different countries

1. University of Sheffield (USFD) - coordinator
2. University of Leeds (ULEEDS)
3. International Union of Railways (UIC)
4. ADS Electronics (ADS)
5. Romanian Railway Authority (AFER)
6. Technical University Delft (TUD)
7. Albert-Ludwigs-Universität, Freiburg (ALU)
8. French Institute of Science and Technology for Transport, Development and Networks (IFSTTAR)
9. Turkish State Railway (TCDD)
10. Intermodal Transportation and Logistics Research Association (INTADER)
11. Swedish National Road and Transport Research Institute (VTI)
12. Slovenian Railways, SZ-Infrastruktura, d.o.o. (SZ)
13. RCCF-TRANS (RCCF)
NeTIRail-INFRA WPs

- WP1: Contrasting market needs, and business case
- WP2: Tailored track infrastructure, design and maintenance
- WP3: Tailored overhead line power supply infrastructure
- WP4: Monitoring and smart technology
- WP5: Societal perspective
- WP6: Evaluation and decision support tools
- WP7: Dissemination, training needs and influence on guidelines and standards
NeTIRail-INFRA - outputs

- Tailored track infrastructure, design and maintenance

Drivers of rail corrugation:
Modelling rail vertical vibration

Understanding transition zone design – how to achieve smooth running without such extensive earthworks
NeTIRail-INFRA - outputs

• Overhead power lines: Low cost monitoring and smart technology

NetIRail has developed and tested a range of instrumentation:

• Contact wire accelerometers
• On-board voltage and current measurement
• High speed video capture of the catenary system and contact wire

These low cost options for measurement and monitoring were successfully trialled in Turkey, Slovenia and Romania
NeTIRail-INFRA - outputs

• Track: Low cost monitoring and smart technology

Solutions were developed for low cost accelerometer sensors for track

Tested on track in Romania, Slovenia and in Turkey.

These low cost sensors are designed to be deployed on track and S&C:

• Better understand the damage mechanisms
• Direct preventative maintenance strategies
• Detect damaging rolling stock
NeTIRail-INFRA - outputs

- Combining engineering, economic and social data from the project

A web based GIS (geographic information system) tool for use by railway infrastructure managers

Easily assess the impacts of the NeTIRail-INFRA innovations and identify the most appropriate technologies for different lines.

GIS map of climate zones to which lubrication recommendations can be mapped