



Shift2Rail –

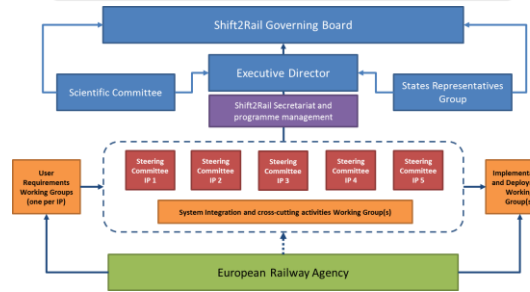
a joint Research & Innovation initiative by the rail sector and the Commission - state of play



Judit Sandor
Gerhard Troche



S2R Governance structure



2



JU establishment: milestones – 1

- Adoption of the **Council Regulation No 642/2014** on 16 June 2014 and entry into force on 7 July 2014.
- **Open stakeholder consultation** on the content of the draft Master Plan on 21 June 2014
- Nomination in July 2014 of an **Executive Director ad Interim** in accordance with the Regulation and launch of the recruitment of the Executive Director
- 30 July 2014: formal establishment of the **Shift2Rail Governing Board**
- From November 2014, entry into office of the **first staff** of the Joint Undertaking

3



JU establishment: milestones - 2

- Launch of the **call for Associated Members** on 6 October 2014, which is expected to be concluded after the Summer 2015
- Establishment of the **States Representatives Group (SRG)** following nominations from Member States and first SRG meeting on 21 October 2014
- Selection of members of the **Scientific Committee** of the Shift2Rail Joint Undertaking on 31 March 2015 (following a call for expression of interest)
- Final adoption by the Governing Board of the **S2R Master Plan** (following endorsement by the Council)

The S2R JU is expected to launch its first activities towards late 2015 / early 2016

The S2R JU is expected to reach its autonomy in the first semester of 2016



Master Plan: Objectives and approach



Key challenges

- Overall challenge: **strengthen the role of rail in the European transport system**
- **Quality of service challenge**: Poor customer satisfaction
- **Cost challenge**: Reliance on **public subsidies** & **low profitability** due to product customisation, capital-intensity of investments, long product lifecycles, and long and costly authorisation procedures
- **European challenge**: **Fragmentation of rail markets** and diversity of national standards
- **Competitiveness challenge**: increasing **global competition** in the rail industry
- **Know-how challenge**: Technical **know-how in decline** with 30% of sector workforce retiring within next 10 years

6



S2R Master Plan: state of play & process

- Starting point=EU transport **policy objectives** and 4th railway package
- Timeframe towards 2030
- Developed jointly by the Commission and the 8 founding members, building on:
 - **input from the Shift2Rail "promoters"**, who have been preparing a detailed technical programme for the past 3 years
 - broad **consultation** process with all relevant stakeholders (open consultation on 20 June 2014) and, in particular with **ERA and ERRAC**
- Living document, to be **endorsed by the Council** and further **updated by the JU**
- To be translated into **detailed multi-annual and annual work plans**



General objectives of Shift2Rail

- Achieve the **Single European Railway Area** through the removal of remaining technical obstacles holding back the rail sector in terms of interoperability;
- Radically enhance the **attractiveness and competitiveness of the European railway system** to ensure a modal shift towards rail;
- Help the European rail industry to retain and consolidate its **leadership on the global market** for rail products and services.

8



Specific objectives of Shift2Rail



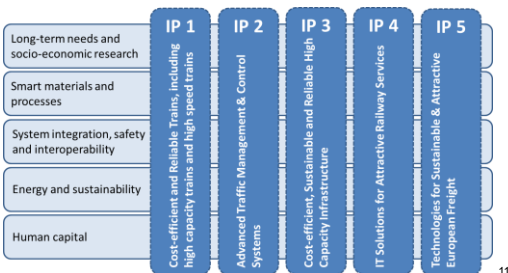
9



Master Plan: Priority research and innovation activities



Shift2Rail approach and themes



11



Shift2Rail - Cross-cutting themes



1. Long-term needs and socio-economic research

2. Smart materials and processes

3. System integration, safety and interoperability

4. Energy and sustainability

5. Human capital

13



Shift2Rail - Innovation Programmes



IP1: Cost-efficient and reliable trains



- Develop and demonstrate the **future generation of trains** that:
 - Are lighter, more energy and cost-efficient;
 - provide comfortable, safe and affordable travel experience across Member States
- Apply an **innovative systems approach** instead of traditional, incremental approach

15



Cost-efficient and reliable trains (IP1)

Priority R&I areas:

- Train **Interiors**
- **Doors** and intelligent access systems
- **Traction**
- Train Control and Monitoring System (**TCMS**)
- **Carbody shell**
- **Running Gear**
- **Brakes**

16



IP2: Advanced traffic management and control systems



- **Move beyond signalling**, towards a flexible, real-time, intelligent traffic management and decision support system
- Build on current **ERTMS**, to using **new technologies and practices** (satellite positioning technologies, high-speed, high-capacity data and voice communications systems, automation, etc)
- **Standardised interfaces**, common operational concepts, facilitation of migration from legacy systems

17



Traffic management & control (IP2)

Priority R&I areas:

- Smart, fail-safe **communications and positioning** systems
- **Traffic Management Evolution**
- **Automation**
- **Moving block and train integrity**
- **Smart procurement and testing**
- **Virtual coupling**
- **Cyber security**

18



IP3: Cost Efficient and Reliable High Capacity Infrastructure



- **New railway infrastructure** system that will radically improve performance, enhance capacity and reduce costs related to development, maintenance and renewals
- **elimination of network diversity** through a migration towards a common high-performing infrastructure system architecture
- **Upgrading of existing railway infrastructure** assets and step change in productivity

19



Railway infrastructure (IP3)

Priority R&I areas:

- New directions in **switches and crossings**
- Innovative **track** design and materials
- Cost effective **Tunnel & Bridge** solutions
- Intelligent system **maintenance**
- Improved **station** concepts
- **Energy** efficiency

20



IP4: IT Solutions for Attractive Railway Services



- Provide **passengers** with smart and personalised services for multimodal journey information and ticket purchase, together with entertainment and communication services, making railway services more attractive
- Achieve **interoperability** with other transport modes and mobility services

21



Innovative IT solutions (IP4)

Priority R&I areas:

- Improved **technical framework**
- Customer experience **applications**
- Multimodal **travel services**

22



IP5: Technologies for Sustainable and Attractive European Rail Freight



- Sustainable and attractive **freight solutions**, helping rail to (re-)enter into new/lost market segments and become an integrated part of advanced logistic solutions
- Focus on **intermodal** transport, **wagon load / block train** activity and transport of **dangerous goods**
- Speed, **productivity**, cost-competitiveness, reliability, last-mile considerations and noise reduction

23



Innovative freight solutions (IP5)

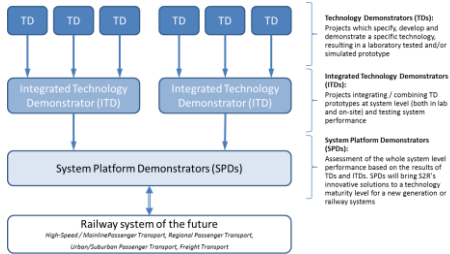
Priority R&I areas:

- **Implementation Strategies** and Business Analytics
- Freight **Electrification, Brake and Telematics**
- Access and **Operation**
- **Wagon** design
- Novel **Terminal, Hubs**, Marshalling yards, Sidings
- New Freight **Propulsion** Concepts
- Sustainable rail transport of **dangerous goods**
- Long-term vision for an **autonomous rail freight system**

24



Typology of activities



25



Why Technology Demonstrators?

- Close the gap in the innovation chain (from **ideas to market**)
- Support market **uptake and impact** by enabling the testing of innovative solutions under real-world conditions
- Ensure **strong involvement** of all stakeholders thanks to collaborative nature of demonstrators
- Strengthen the **European dimension** with cross-border demonstrators
- **Quantify** the impact of the introduction of each new technology and of different combinations of technologies
- Provide increased **visibility** and generate interest in the rail industry to attract top graduates from across Europe

26



Thank you for your attention !

