

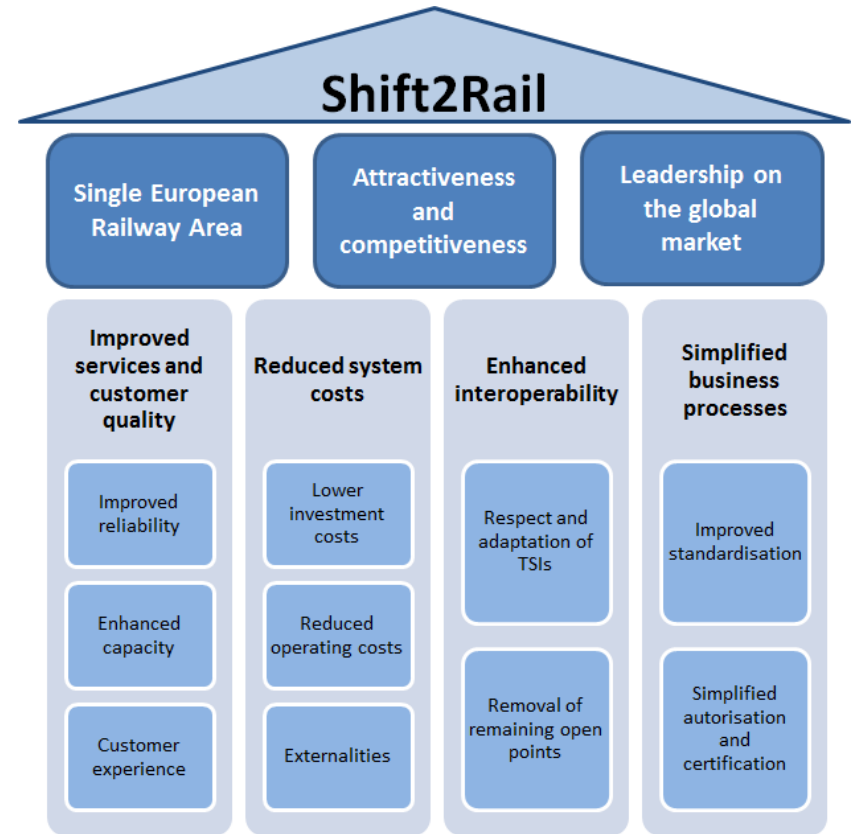


High Speed Rail as a solution to the increasing demand for Mobility

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key objectives

- **Single European Railway Area**
- **attractiveness and competitiveness of the European railway system**
- **leadership on the global market**



A public-private partnership, a platform for the rail sector as a whole to work together to drive innovation in the years to come ... 2024... to achieve

- a **50 % reduction** of the **life-cycle cost of the railway transport system** (i.e. costs of building, operating, maintaining and renewing infrastructure and rolling stock);
- a **100 % increase** in the **capacity of the railway transport system**;
- a **50 % increase** in the **reliability and punctuality** of rail services (measured as a 50 % decrease in unreliability and late arrivals).

reference framework



programme financials

IPs 777 M

IKAA
163M

IP1
225M

IP2
195M

IP3
153M

IP4
86M

IP5
83M

CCA
35M

Other
27M

Programme 967M

S2R (H2020)
Co-Fin 450M

Railway Sector Net
Contribution 517M

a new approach to R&I



R&I for future High Speed Systems

Railway High Speed

- a **very successful** and **innovative** rail market segment for several decades
- often the **preferred choice** for “long” distance national and intra-EU travel
- technological **challenges**
 - comfortable transportation **capacity** for increasing numbers of passengers
 - **safe** and **efficient** operation through
 - infrastructure design
 - enhanced traffic control and management systems

R&I for more **cost-efficient and reliable trains**

- **Lightweight & Energy Efficient:** Light, hybrid composite carbody-shells & light and efficient full SiC traction systems
- **User Friendly:** Modular and flexible train interiors.
- **Safe, Reliable & Connected:** Drive-by-data and wireless TCMS functions & low noise, friction independent brakes.
- **Cost-Effective Rail System:** Track friendly running gear & advance Monitoring of sub-systems

R&I for more **advanced traffic management and control systems**

- **Improve line capacity:** Moving block Signalling Systems which defines train detection without existing constrains
- **Automatic Train Operation:** Developing and validating a standard ATO up to Grade of Automation 4
- **Cyber Security:** Optimising the level of protection against any significant threat to the signalling and telecom systems

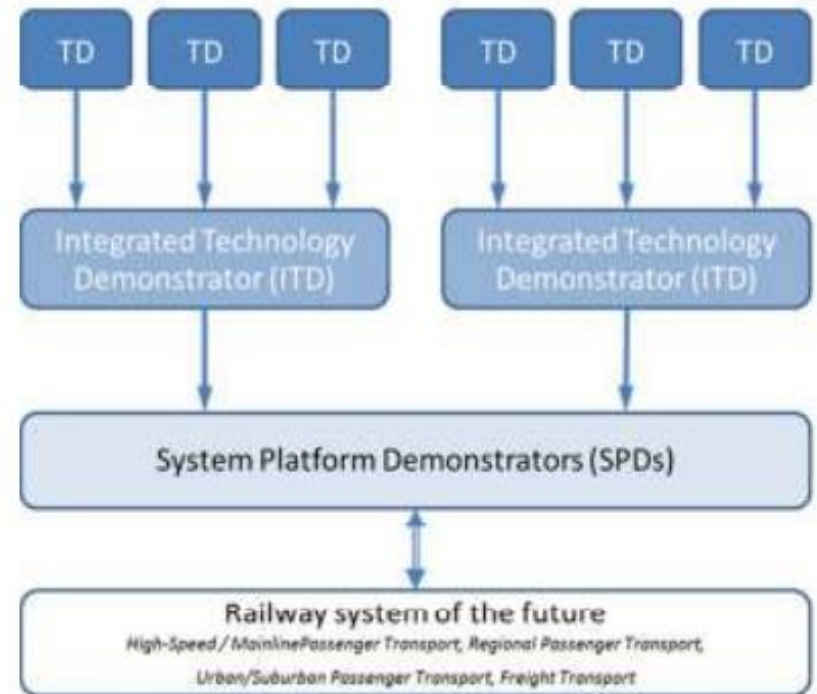
R&I for more **cost-efficient and reliable high-capacity** infrastructure:

- **Smart AC Power Supply:** Applying Smart power supply in an overall interconnected and communicating system at existing high speed lines
- **Future Stations:** Improving capacity and security, reducing whole life costs, standardising design and improving accessibility
- **Switch & Crossing System:** Improving the operational performance of existing S&C designs with enhanced reliability, availability, maintainability and safety, life-cycle costs...

R&I for innovative IT solutions to increase the **attractiveness of the railway services:**

- **Multimodal journey:** Develop new services for comprehensive door-to-door information allowing for well-informed digital travel decisions
- **Customer experience applications:** Providing a comprehensive digital shopping application with all relevant trip offers, all operators and all geographies

- **cross-fertilisation** among IPs is crucial
- **cooperation** between its Members and the Open Calls' Projects
- moving towards **Integrated Technology Demonstrators**



High speed will benefit from the S2R programme through

- LCC reduction
- predictability
- digitalization
- artificial intelligence in infrastructure, maintenance, asset management
- an integrated holistic system approach



THANK YOU



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