Shift2Rail

TRAFIKVERKET

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Vad är Shift2Rail?

- Ett stort FoI program för järnvägssektorn i Europa
- Fokus på innovation, provning and implementering av forskningsresultat.
- Syftar till “Single European Rail Arena”
- Referens: Clean Sky

Vad är **inte** Shift2Rail?

- Kortsiktiga lösningar
- Lösning på akuta problem
- Småskaliga förbättringar
- Lösning på alla problem
- En enstaka händelse
- Det enda EU – finansierade järnvägsprojektet
- En sluten värld
- Stängt för partnerskap

EU - H2020

- H2020 budgeten är 79 271 M€ i 2011 års priser
- H2020 stödjer PPP i form av en JU
- Shift2Rail JU är en PPP

Current preparatory phase vs Future operational phase

(for R&D activities)

Signature of a specific **MoU** with the commitment to bring **expertise** in the phase of technical preparation

- **Founding Members**

ALSTOM, AnsaldoSTS, BOMBARDIER, CAF, Network Rail, SIEMENS, THALES, TRAFIKVERKET

- **Associated Members**
- **Partners**
- **Subcontractors**

To be selected through future open calls

21

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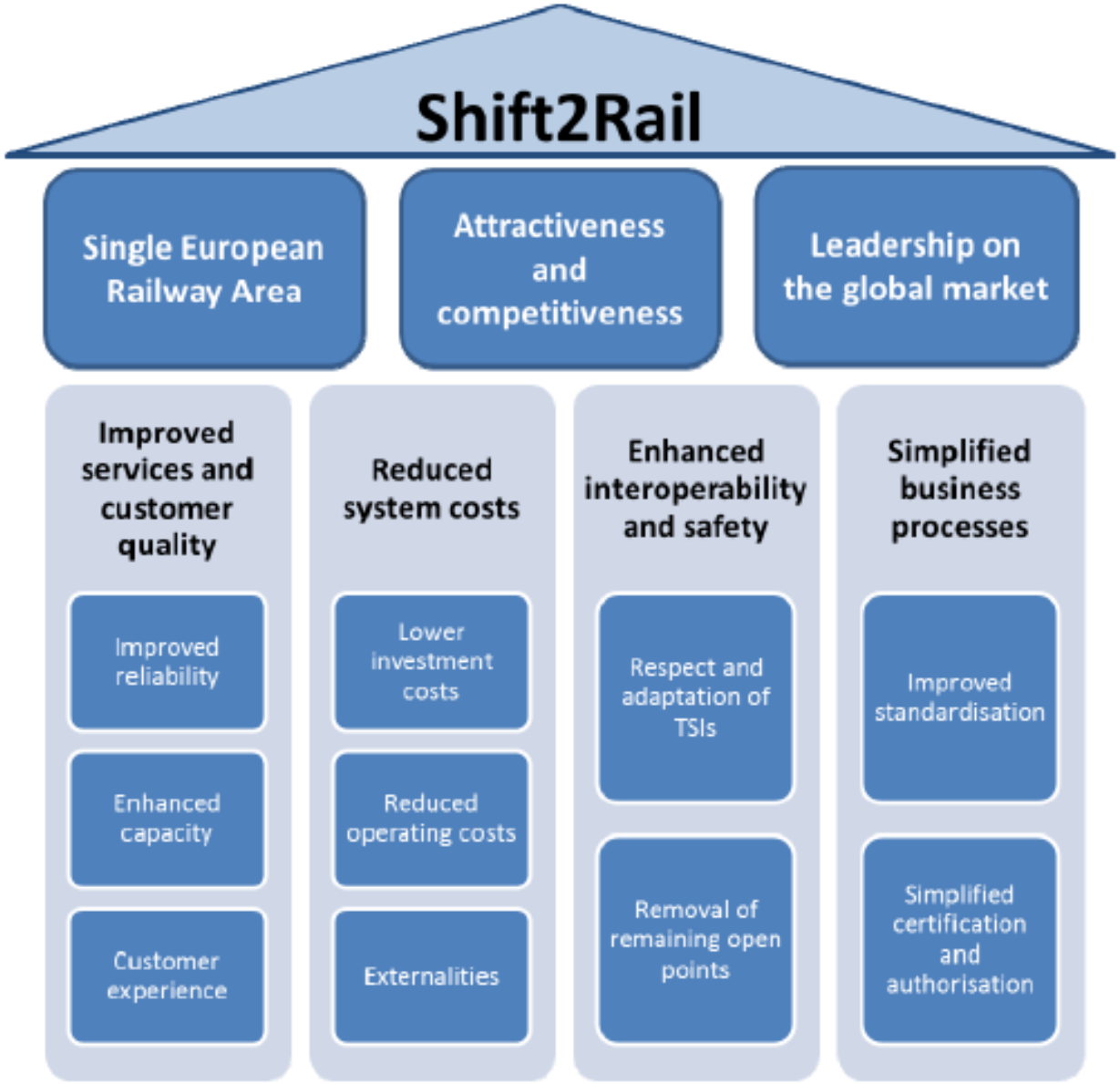
Projektvolym

- Totalt 800 M€, av initialt 1300 M€
  Ytterligare finansiering via Connecting Europe Facility (CEF)?
  S2R II ?

- Grundarmedlemmar (FM)
  - Totalt 380 M€
  - **Varav Trafikverket 40.7 M€**

- Associerade medlemmar(AM)
  - Totalt 285 M€
  - Minst 4.75 % i en IP

- Öppna utlysningar
  - 135 M€ (inklusive en första utlysning på 52 M€)



TSI - Technical Specifications for Interoperability

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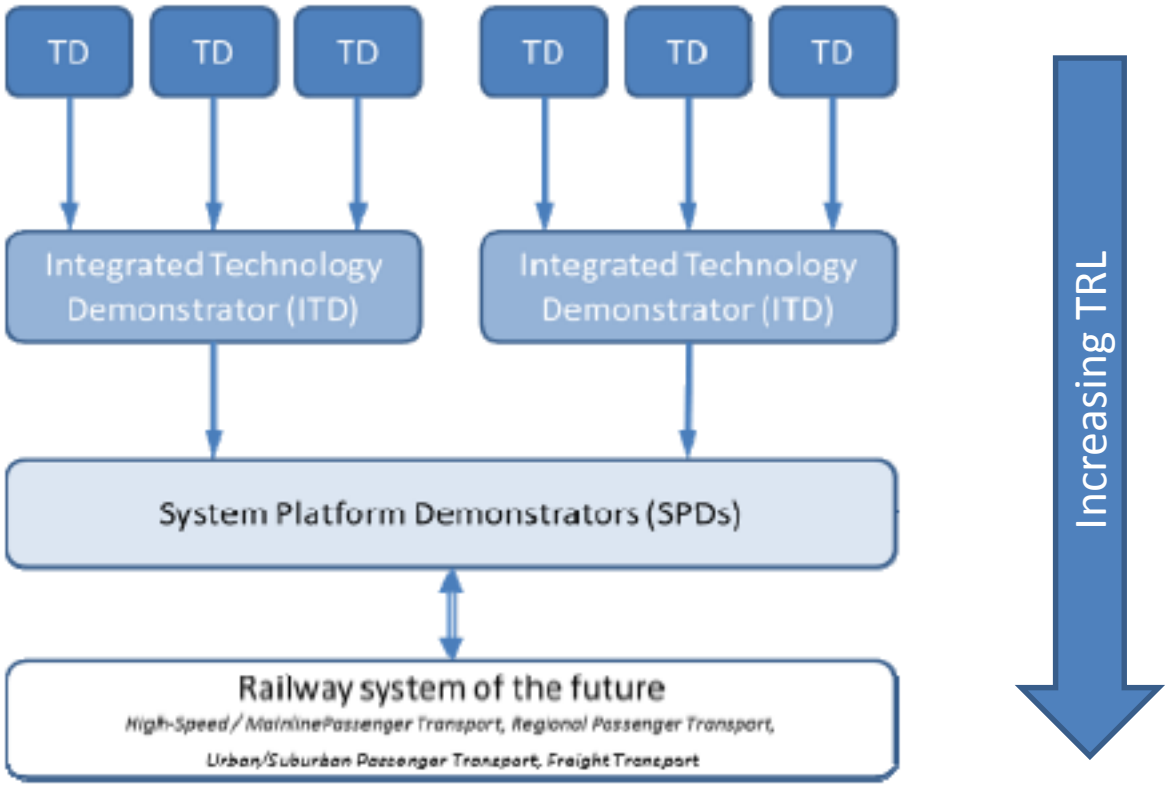
Ambitious goals

KPIs:

- a 50% reduction of the life-cycle cost of railway transport, through a reduction of the costs of developing, building, maintaining, operating and renewing infrastructure and rolling stock, as well as through increased energy efficiency;
- a 100% increase in the capacity of the railway transport system to meet increased demand for passenger and freight railway services;
- a 50% increase in the reliability and punctuality of rail services; measured as 50 % reduction of unreliability and late arrivals
- Removal of remaining technical obstacles (close TSÍs)
- Reduce negative externalities

System approach



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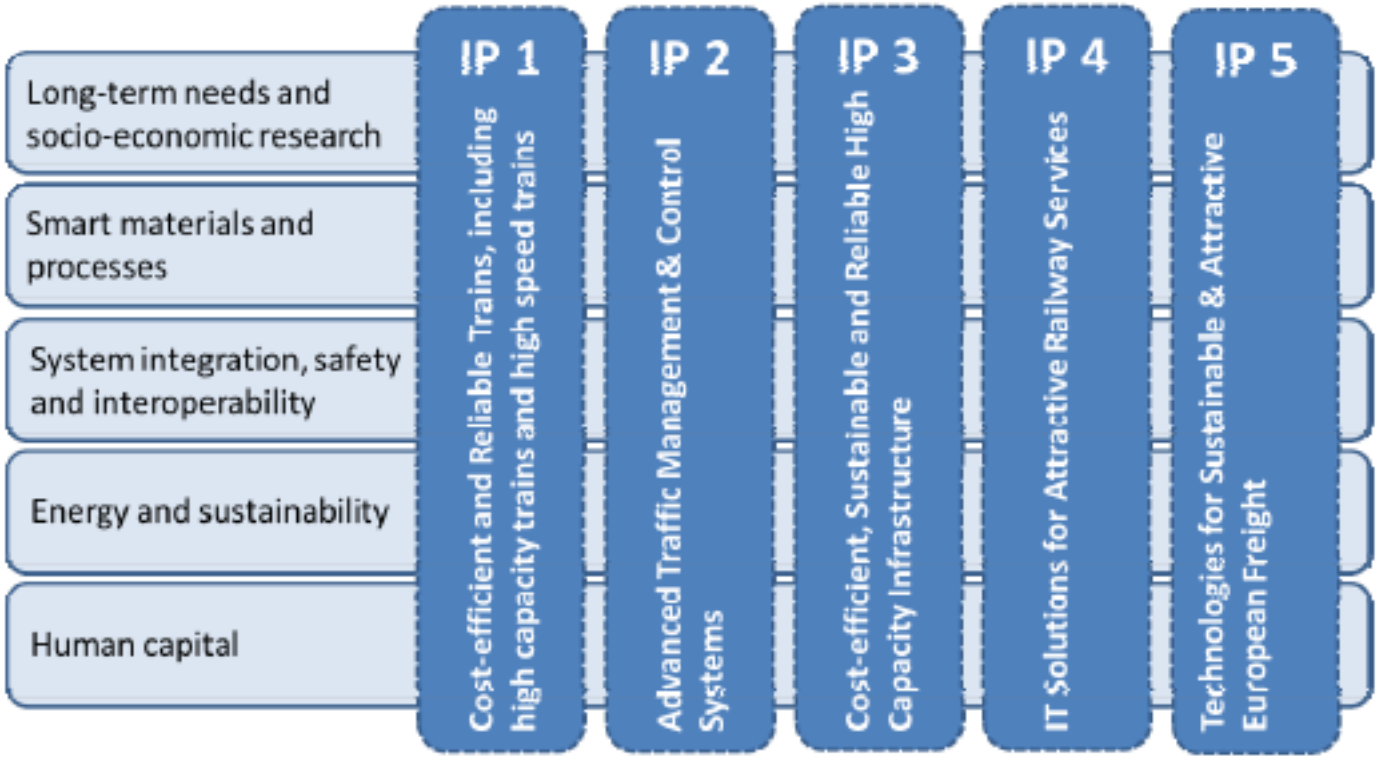
Innovation programs & CCAs



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Trafikverket S2R Focus

Focus areas IP 1:

TD1 - TRACTION

TD2 - TCMS

TD3 - CARBODYSHELL

TD4 - RUNNING GEAR

TD5 - BRAKES

TD6 - HVAC

TD7 - DOORS

Trafikverket S2R Focus

Focus areas IP 2:

TD1: Adaptable communication

TD2: Capacity increase, ATO

TD3: Capacity-Fluid Moving Block

TD4: Satellite positioning

TD5: Train integrity

TD6: Zero on site testing

TD7: Formal methods

TD8: Virtual coupling, smart S/C

TD 9: Traffic Management Systems

TD10: Radio link wayside objects

TD11: Cyber security, Key Management Systems

Trafikverket S2R Focus

Focus areas IP 3:

TD3.1 short medium term Switch & Crossing
TD3.2 Long term radical Switch & Crossing
TD3.3 Short medium term Track
TD 3.4 Long term Track
TD3.5 Cost effective Tunnel & Bridge replacements
TD3.6 Intelligent Maintenance-Dynamic Railway Information Management (DRIMMS)
TD3.7 Intelligent Maintenance- Railway Integrated Measuring and Monitoring System (RIMMS)
TD3.8 IntelligentSystem Maintenance Engineering and Strategies (ISMES)
TD3.9 Integrated power supply system
TD3.10 Smart Metering for Railway Distributed Energy Resource Management System
TD3.11 Stations

IP3 content

<u>New directions in switches & crossings</u>

- **performance, reliability, maintenance**
- **high speed, high axle load**
- **sensors and smart structures**

<u>Innovative track design and materials</u>

- **improving existing track design (performance, reliability, maintenance)**
- **climate resilience**
- **monitoring**

- **novel track design (concept & components)**
- **track foundation solutions**
- **durability, stability & safety**
- **increased loading capacity**
- **sensors and smart structures**

IP3 content

<u>Cost effective tunnel & bridge solutions</u>

- **advanced prediction of infrastructure performance**
- **novel construction and maintenance approaches**
- **rapid repair, maintenance, retrofitting and upgrading**
- **enhanced durability and life-time extension**
- **zero-intrusive maintenance**
- **sensors and smart structures**
- **novel design concepts for high speeds and high loads**

<u>Intelligent system maintenance</u>

- **rapid and non-destructive methods for routine performance checks**
- **condition based strategy**
- **vehicle – structure interaction**
- **multi-dimensional approach**

IP3 content

<u>Improved station concepts</u>

- **novel station concepts**
- **new demands on accessibility and information for e.g. an ageing society**
- **multi-modal travel**
- **safety & security**
- **passenger centered design**
- **integrate ICT for passengers**

<u>Energy efficiency</u>

- **smart metering.**
- **optimize energy supply**

Trafikverket S2R Focus

Focus areas IP 4:

- TD4.1 Interoperability Framework
- TD4.2 Travel Shopping
- TD4.3 “Booking & Ticketing
- **TD4.4 “Trip Tracker**
- TD4.5 “Travel Companion
- **TD4.6 “Business Analytics**

Trafikverket S2R Focus

Focus areas IP 5:

TD1 - Freight Electrification, Brake and Telematics,

TD2 - Access and Operation,

TD3 - Right Wagon design,

TD4 - The Novel Terminal

TD5 - New Freight Propulsion Concepts

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Trafikverket S2R Focus

Focus areas IP 6/CCA:

TD1 – Noise and Vibrations

TD2 – Integrated Mobility Management

TD3 - Energy

TD4 – Integration Action: KPI and System Platform Demonstrator

Sammanfattning

- **S2R är Trafikverkets huvudsatsning på järnvägs FoI**
- **Trafikverket arbetar även med andra delar av H2020**
- **Samarbete utanför Sverige är nödvändigt**
- **Samarbete med FoI-aktörer och industri**
- **Tekniköverföring från andra sektorer**
- **Effektivare innovationsprocess, TRL 7**
- **Höga TRL-nivåer hjälper till i industrialiseringsprocessen**

- **Samarbete med andra (AM-FM) är nödvändigt för framgång**

Tack för visat intresse!

Här hittar du mer information:

www.shift2rail.org

www.trafikverket.se/Om-Trafikverket/Forskning-och-innovation/Pagaende-projekt/Shift2rail/