

Shift2Rail, moving together to 2030

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Head of Research & Innovation

S2R Joint Undertaking

@Shift2Rail_JU
#Horizon2020



S2R OBJECTIVES



INCREASE RELIABILITY & PUNCTUALITY **BY 50%**



DOUBLE RAILWAY CAPACITY



HALVE LIFE-CYCLE COSTS OF RAILWAY TRANSPORTS



CONTRIBUTE TO **REDUCTION OF NEGATIVE EXTERNALITIES**, SUCH AS NOISE, VIBRATIONS, EMISSIONS & OTHER ENVIRONMENTAL IMPACTS



CONTRIBUTE TO THE **ACHIEVEMENT OF THE SINGLE EUROPEAN RAILWAY AREA**

S2R PROGRAMME, ABOUT € 1BLN and A NEW APPROACH TO R&I IN RAILWAY

working together & driving innovation



 **28**
MEMBERS

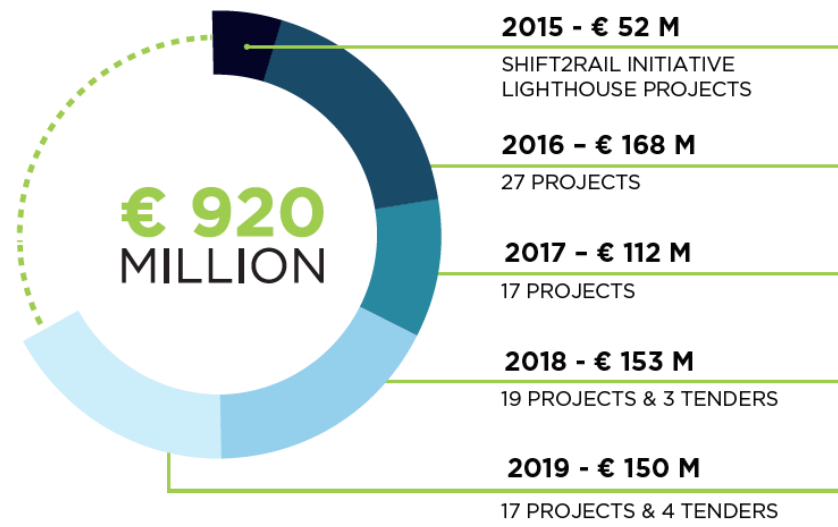
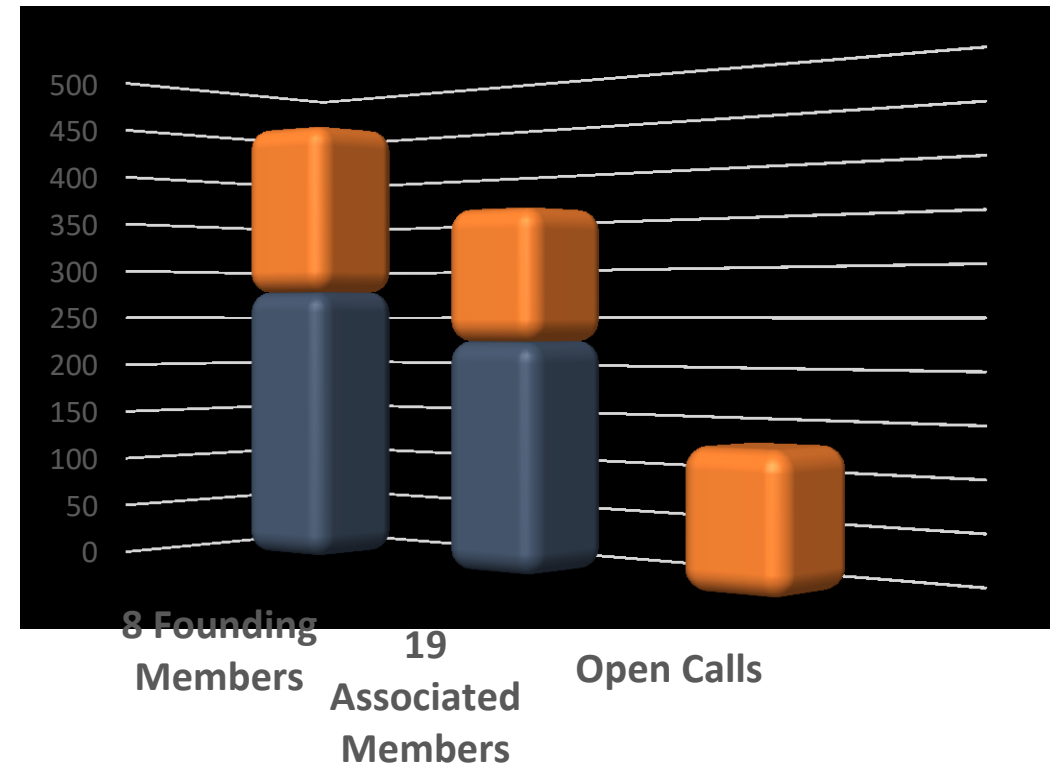
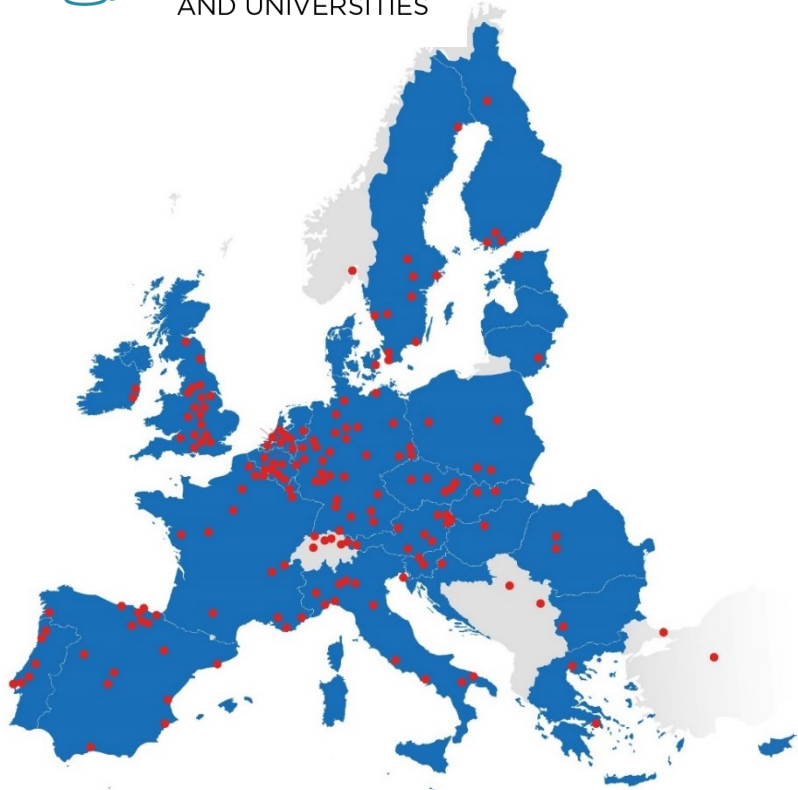
 **412**
PARTICIPANTS

 **29**
COUNTRIES

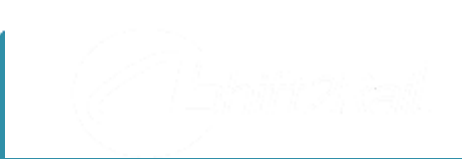
 **109**
SMEs

 **113**
RESEARCH CENTRES
AND UNIVERSITIES

AN OPEN and ACTIVE ORGANISATION

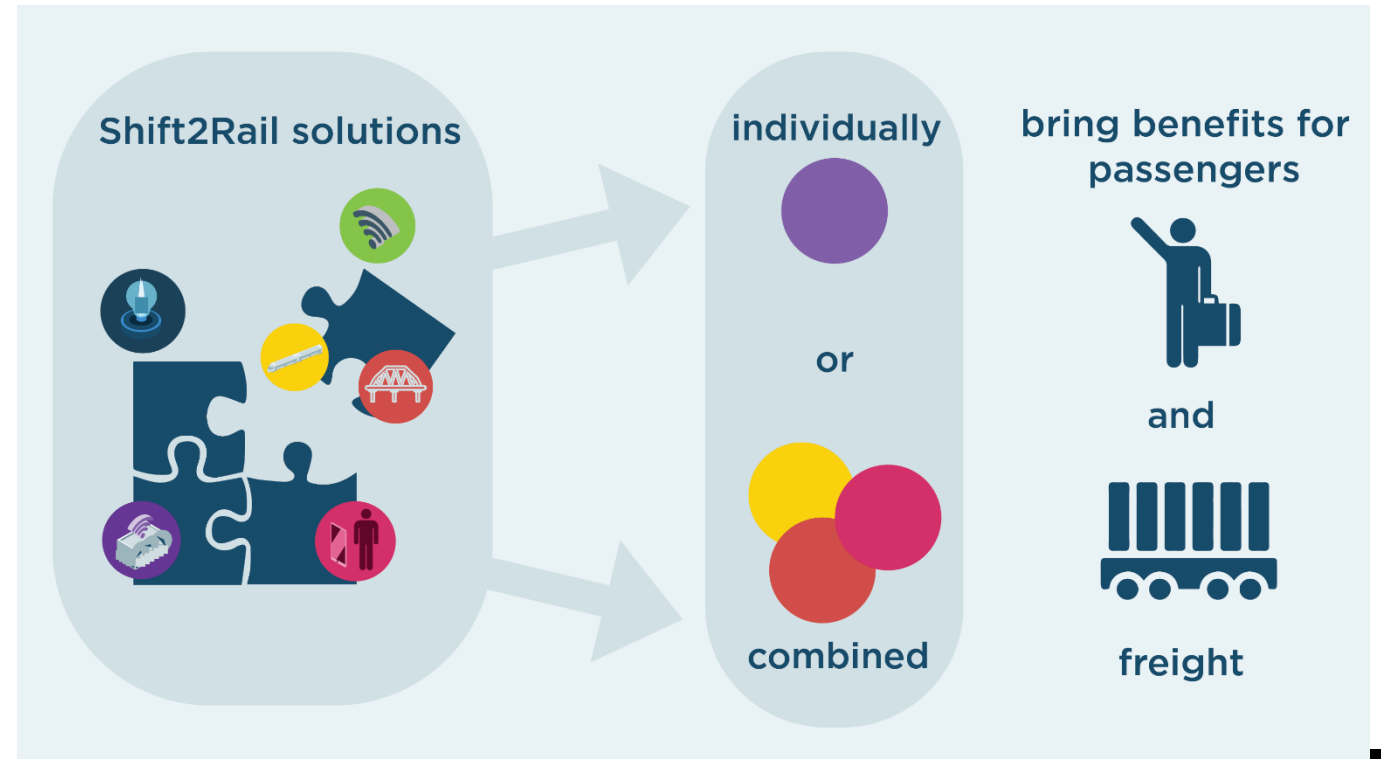


*incl. at least 120M€ of additional activities



S2R JU Catalogue of solutions

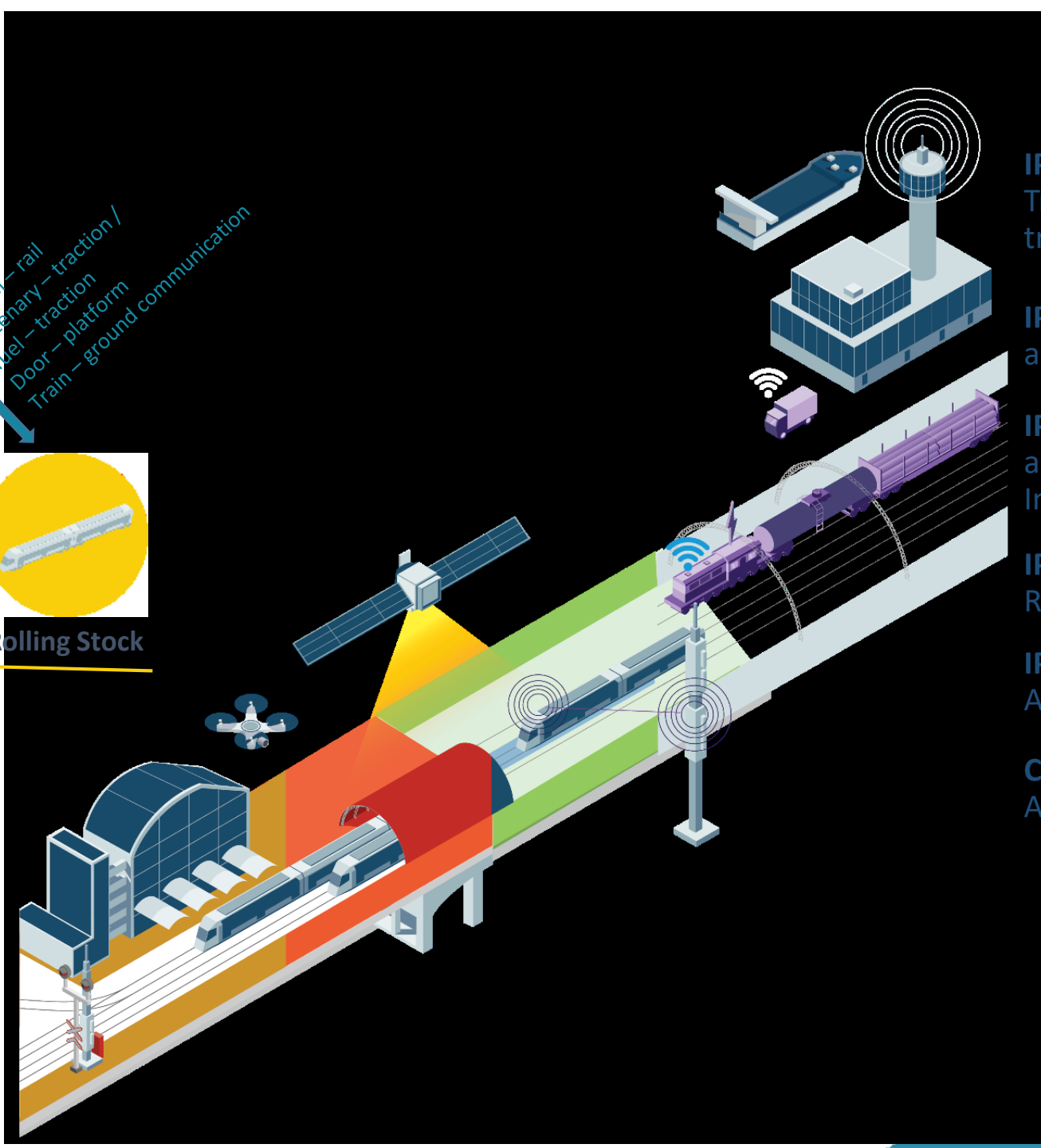
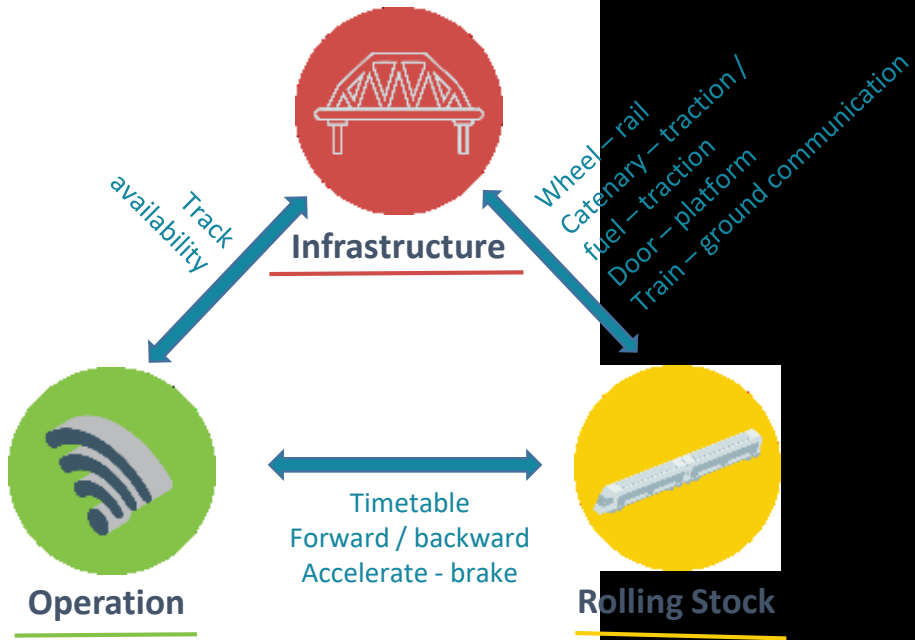
- What R&I investments generate as innovative solutions for market uptake
- To explain **successful results in term of possible products/solutions** with a clear timetable
- **To show Benefits for “customers”**: final users, operators, infrastructure managers and/or suppliers
- To highlight the **advantages** of integrating the demonstrators into **market solutions**
- **To deliver the Innovation Capabilities**



**Available in our website, update and new Demos
in InnoTrans 2020 (22 - 25 September 2020, Berlin)**



Railway -



IP1 Cost-efficient and Reliable Trains, including high-capacity trains and high speed trains

IP2 Advanced Traffic Management and Control System

IP3 Cost-efficient, Sustainable and Reliable High Capacity Infrastructure

IP4 IT Solutions for Attractive Railways Services

IP5 Technology for Sustainable and Attractive European Rail Freight

CCA Cross Cutting Activities





#1
AUTOMATED
TRAIN OPERATION



#2
MOBILITY
AS A SERVICE



#3
LOGISTICS
ON DEMAND



#4
MORE VALUE
FROM DATA



#5
OPTIMUM
ENERGY USE



#6
SERVICE TIMED
TO THE SECOND



#7
LOW COST
RAILWAY



#8
GUARANTEED ASSET
HEALTH & AVAILABILITY



#9
INTELLIGENT
TRAINS



#10
STATIONS & "SMART"
CITY MOBILITY



#11
ENVIRONMENTAL &
SOCIAL SUSTAINABILITY



#12
RAPID & RELIABLE
R&D DELIVERY

...opening up new
Capabilities coming
from emerging
technologies or
concepts!



USER FIRST



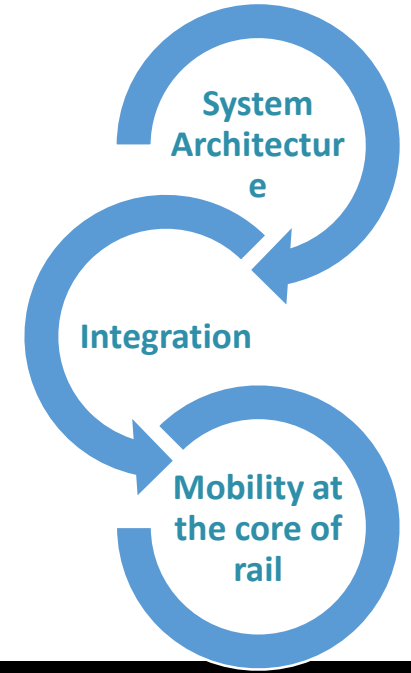
→ *teleporting
capability?*



Achieving the rail integration, digital is key:

A structure of components, their relationships, and the principles and guidelines governing their design functional evolution over times:

- Integration of the S2R Innovative Solutions for the ERTMS Game Changers (*ATO GoA2, GoA3/4, Adaptable Communication System, Moving Block, Train Positioning*) together with sectorial initiatives (*RCA, OCORA*)
- Integration of S2R interoperable solutions as *Intelligent Mobility Management (enlarged TMS), next gen TCMS, smart connected object controllers, condition based maintenance* for all kind of assets, etc.
- Aligning all ongoing modelling initiatives (*RTM, EULynx, IFC, RailML, TAP/TAF; SensorML* etc.) in terms of principles and digital data exchange format with the S2R solution on a EU shared *Conceptual Data Model*



Going for global performance definitely requires to master, design and simulate the Railway System as a whole, including its connection with other transport modes



Shift2Rail innovations: by design already contributing to the Green Deal

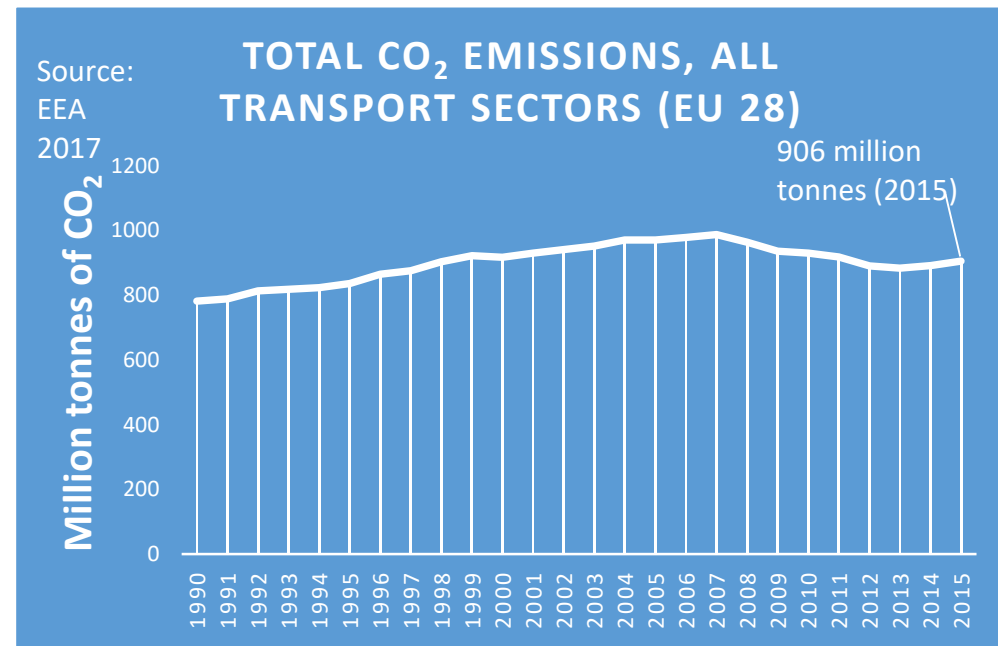
Improving the rail transport system, its technologies, operations, services and its connection with other transport modes will decrease climate impact and create new business opportunities



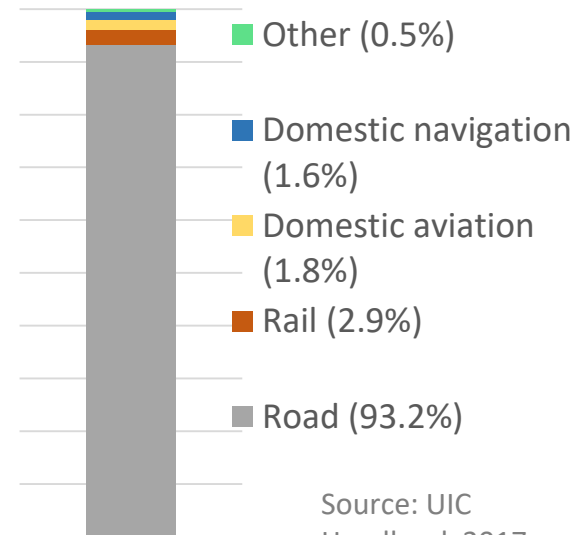
Other EU sector carbon emissions are decreasing, but not the transport sector.

Rail serves nearly 10% of the overall passenger and freight market share, but produces less than 3% of carbon emissions.

Rail is already an attractive, environmentally-friendly form of transport; further rail innovation can help the EU achieve its decarbonisation goals.



EU28 Share of CO₂ emissions

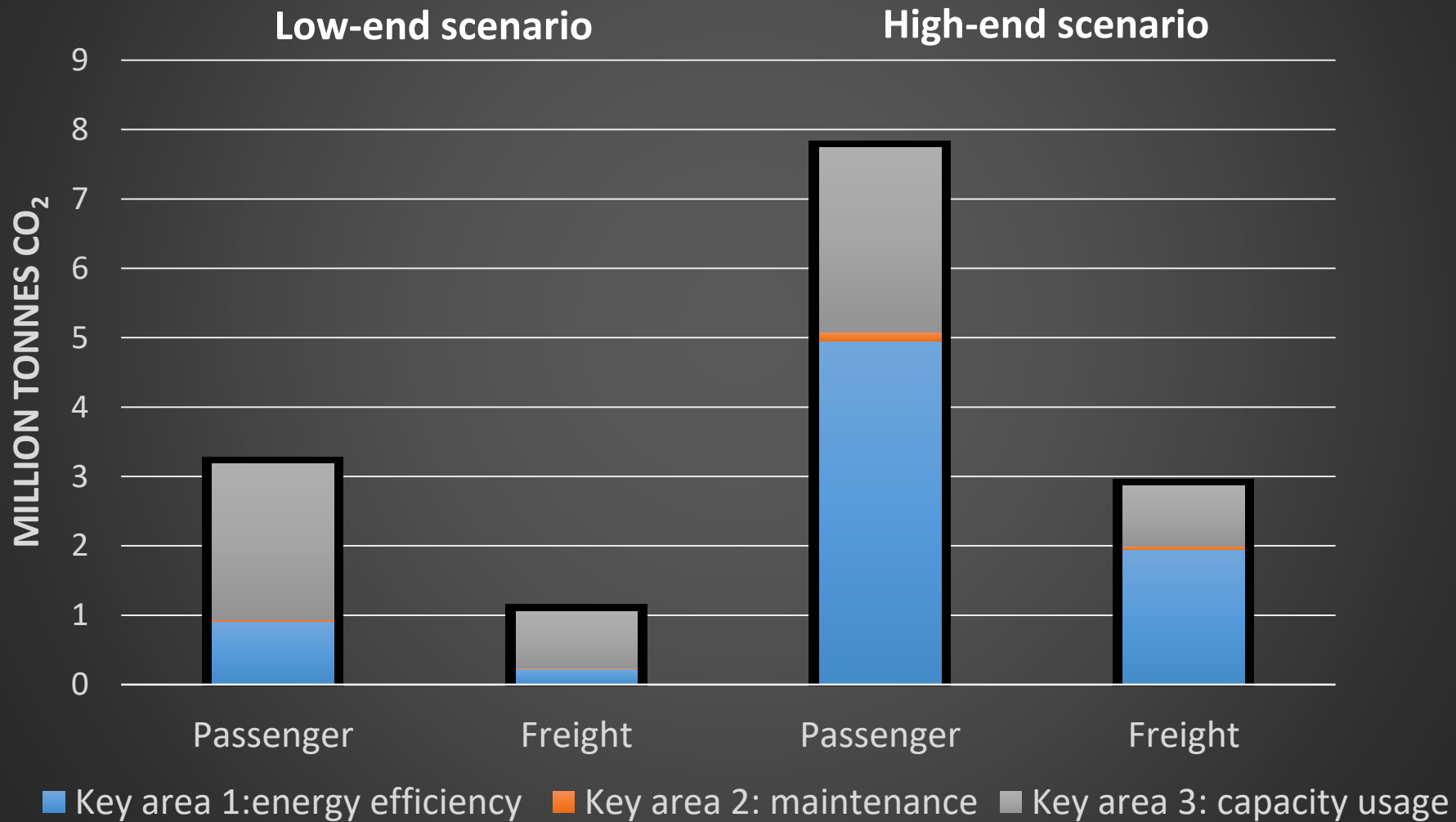


Source: UIC Handbook 2017

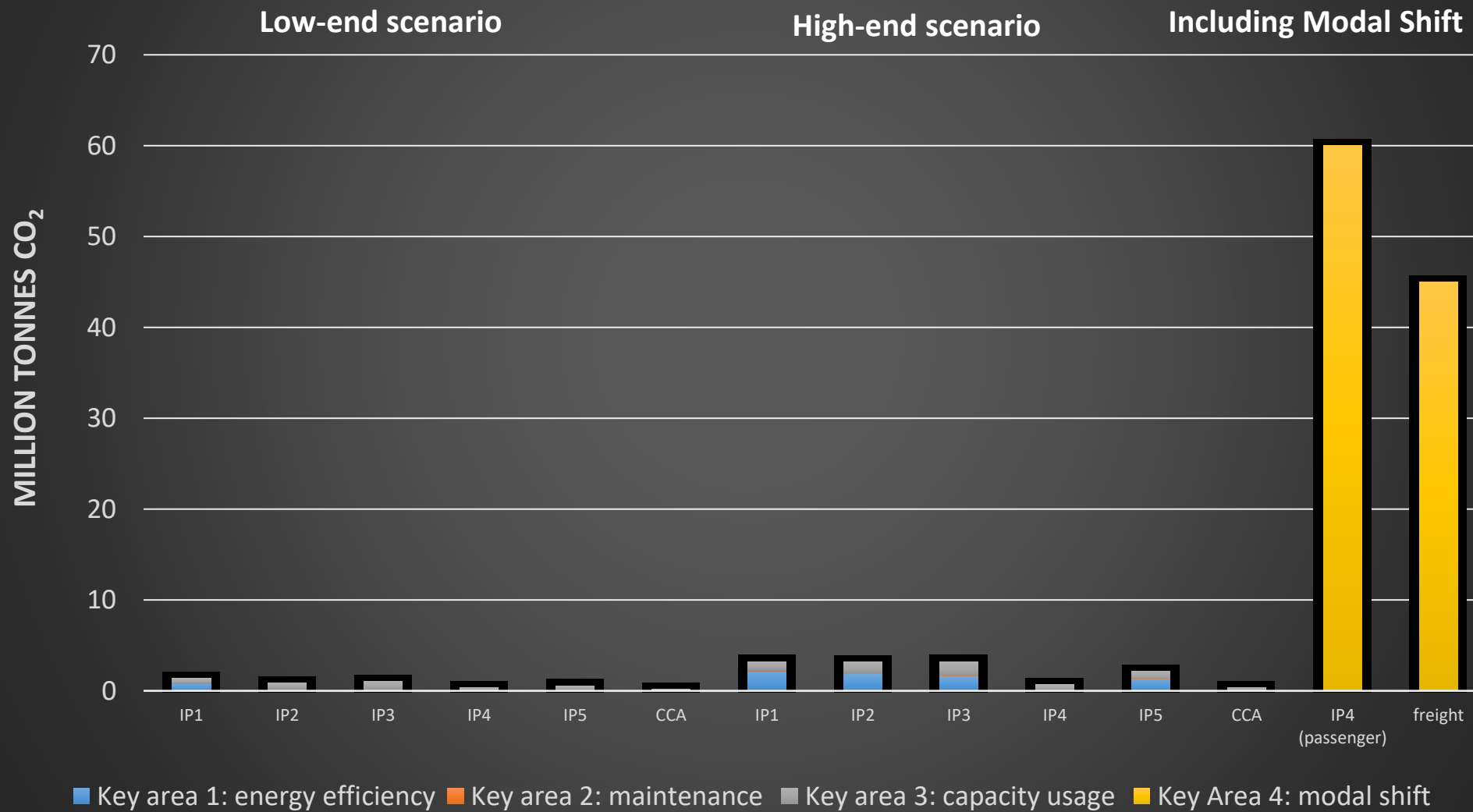


Reduction of CO2 emissions: passenger and freight contributions (rail sector only)

Internal calculations and estimations
DRAFT



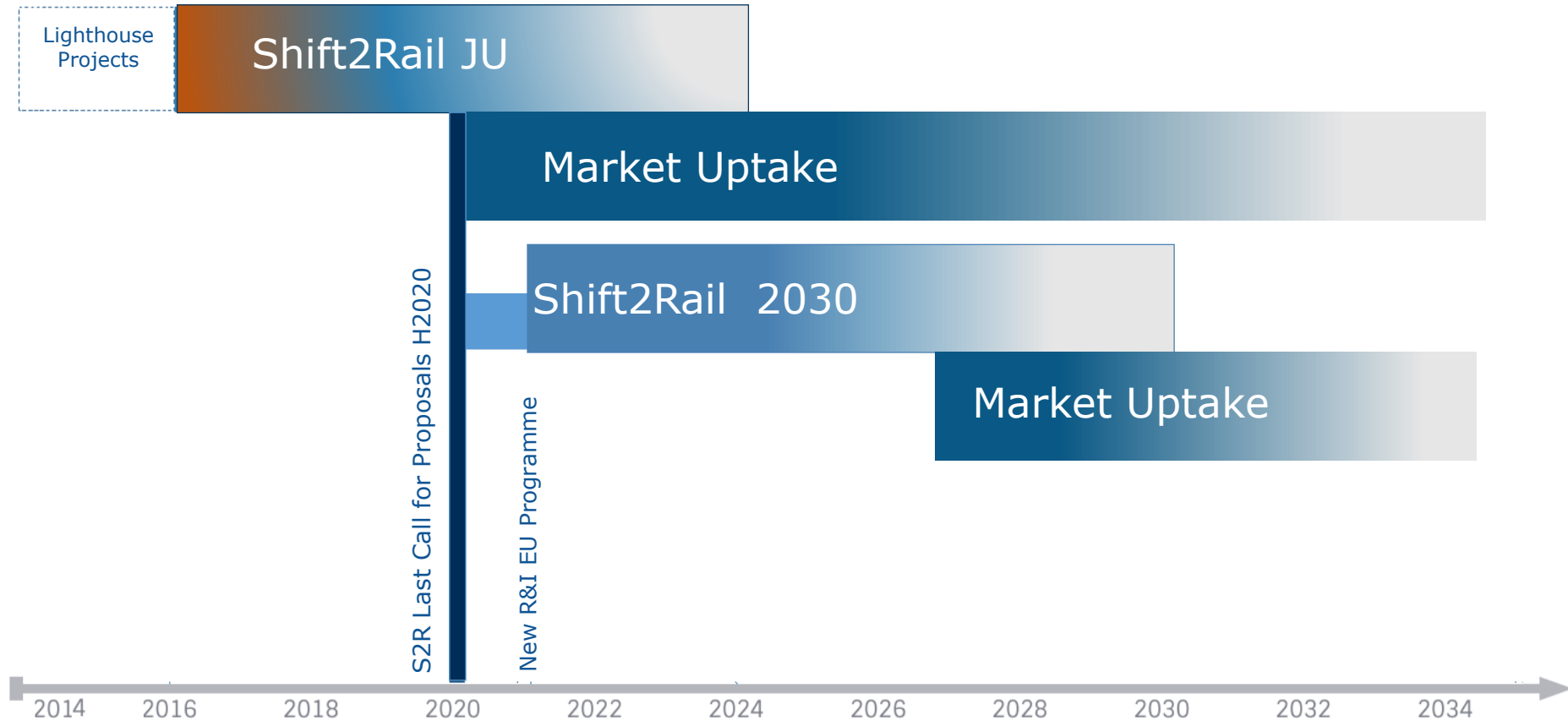
Reduction of CO2 emissions: IP contributions (rail sector only)



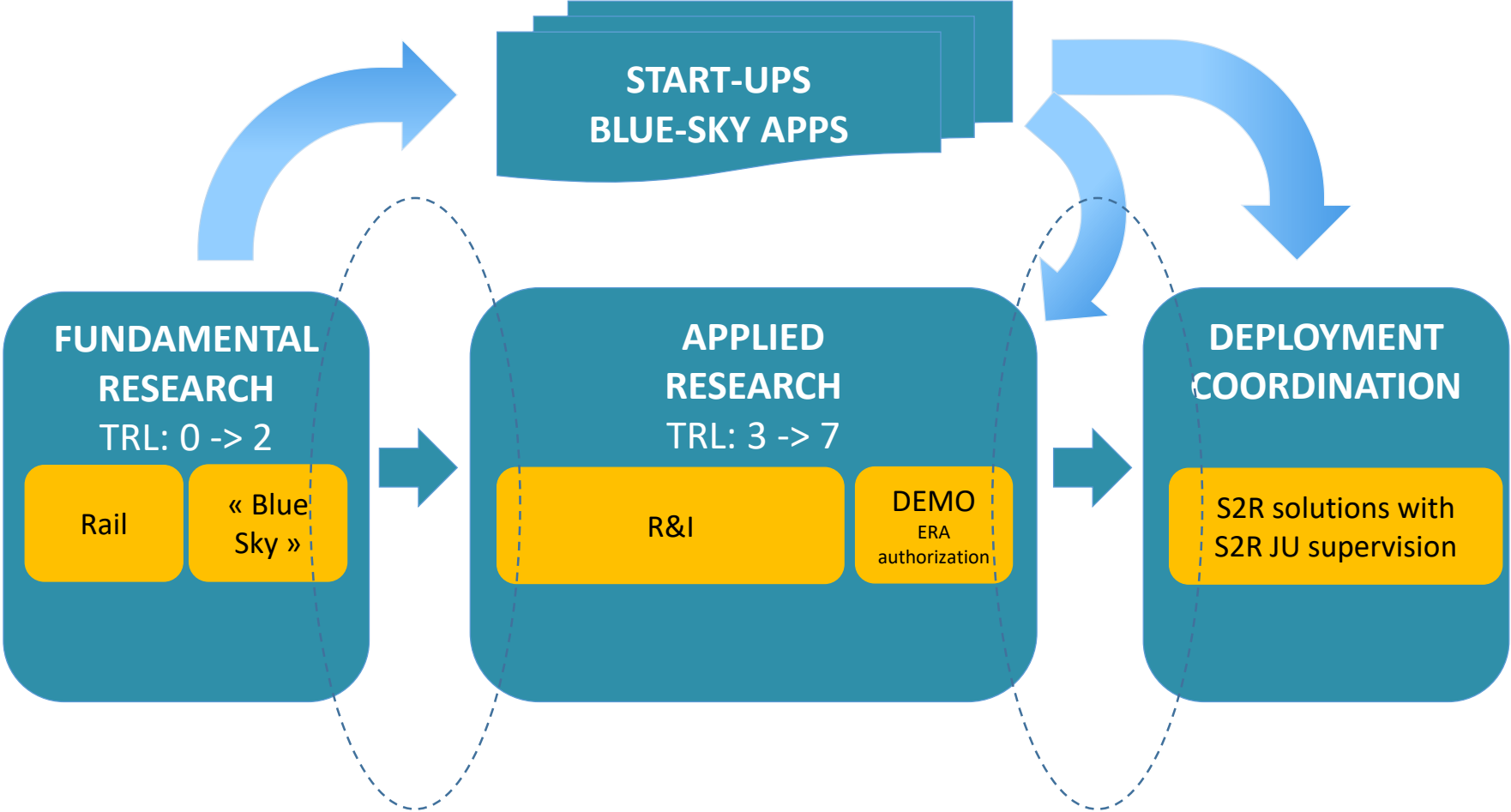
Internal calculations and estimations
DRAFT



R&I BEYOND 2020



S2R Europe 2030 Research and Innovation beyond 2020



APPLY NOW!

Call for Proposals 2020

Submission deadline: **21 April 2020**



→ <https://shift2rail.org/participate/call-for-proposals/ongoing/>



FOUNDING MEMBERS



ALSTOM

BOMBARDIER

CAF

Hitachi Rail STS

NetworkRail

SIEMENS

THALES

TRAFIKVERKET

ASSOCIATED MEMBERS



Virtual Vehicle Austria consortium+ (VVAC+)

European Rail Operating community Consortium (EUROC)

Swi'Tracken consortium

Smart DeMain (SDM) consortium



AERFITEC

Competitive Freight Wagon Consortium (CFW)

Smart Rail Control (SmartRaCon) consortium

