Shift2Rail JU
Driving innovation on railways

Paris 25 September 2019

“OPTIYARD final event”

Laura PIANI

@Shift2Rail_JU
#Horizon2020



S2R OBJECTIVES

+50%

INCREASE RELIABILITY & PUNCTUALITY **BY 50%**

x2

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

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AN OPEN and ACTIVE ORGANISATION



28
MEMBERS

375
PARTICIPANTS INVOLVED FROM **28** COUNTRIES

101
SMEs

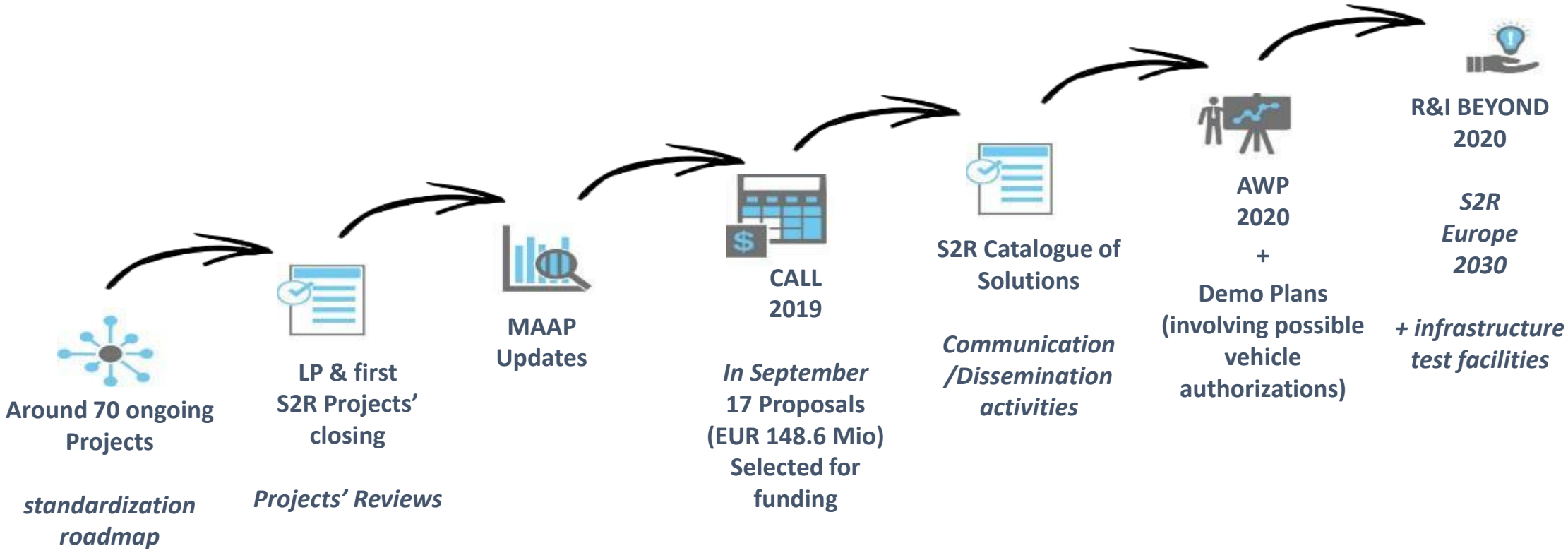
103
RESEARCH CENTRES AND UNIVERSITIES

[1]Data extracted from CORDA database in February, 2019

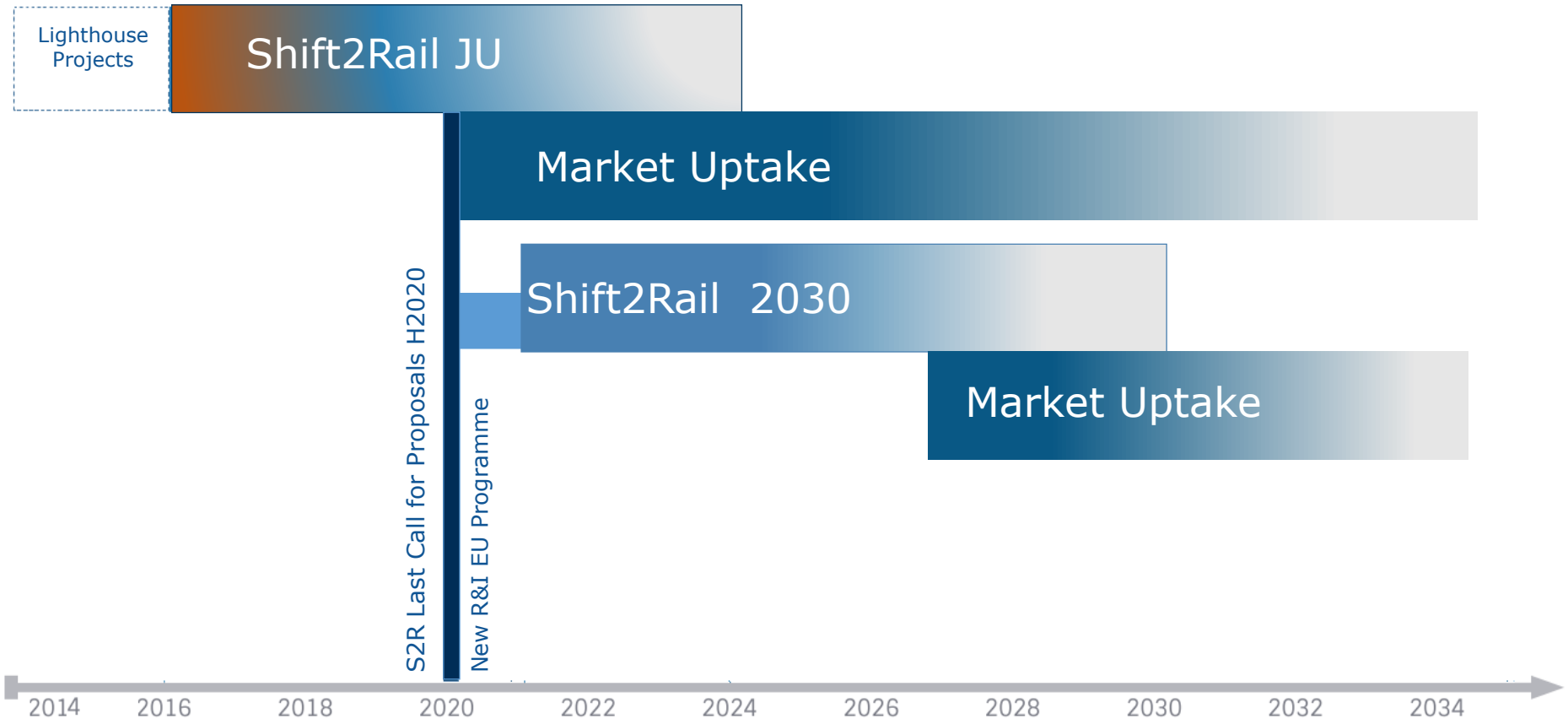
…opening up new Capabilities coming from emerging technologies or concepts!

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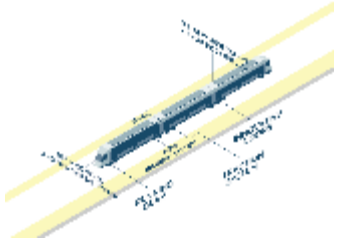
An Innovation Programme in motion



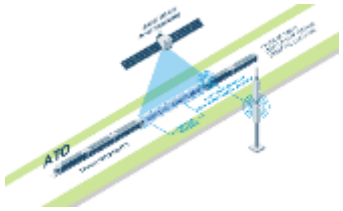
R&I BEYOND 2020



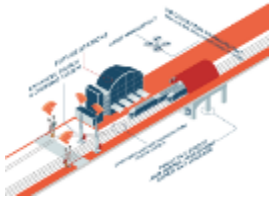
S2R solutions derived from Technical Demonstrators



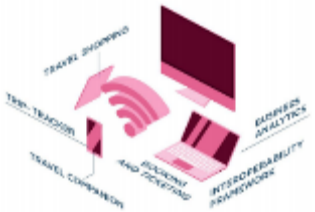
IP1 Cost-efficient and Reliable Trains, including high-capacity trains and high speed trains



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

WHO BENEFITS?

CUSTOMERS

- FINAL USER
- OPERATOR
- INFRAMAN
- SUPPLIERS

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IP5 objectives:

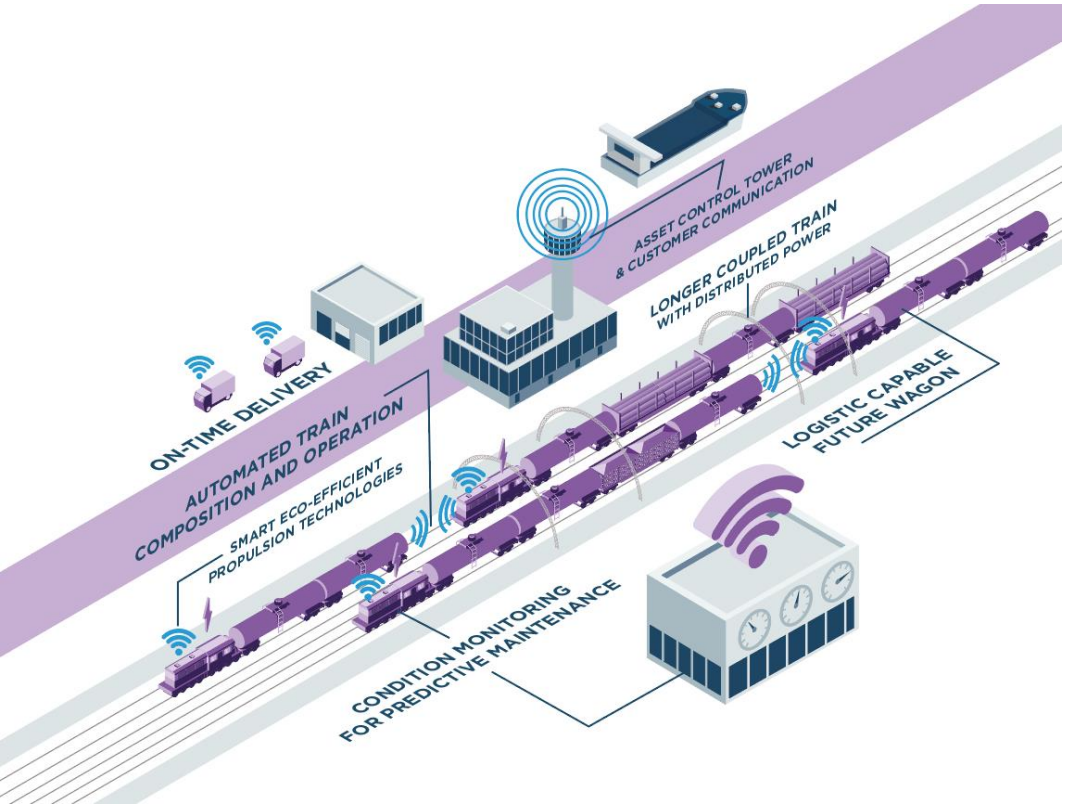
Improve the cost competitiveness and the reliability of freight services of the rail sector in order to meet the ambitious objective of almost doubling the use of rail freight compared to 2005.
This will allow achieving the White Paper objective of a shift of 30% of road freight over 300 km to modes such as rail or waterborne transport by 2030 and more than 50% by 2050.

Rail freight must be in a position to:

- Offer service oriented profile (on time delivery, competitive prices, client needs) –attractive service to shippers
- Increase productivity (interoperability issues, cost effective solutions, technology transfer)

During 2018 IP5 has progressed well in the re-prioritization of its TDs that allows for a more focused and prioritized series of R&I activities with a clear target towards **digitalisation**, **automation** and **sustainability.**

IP5: Technologies for Sustainable & Attractive European Rail Freight



IP5: Key innovations:

Fleet Digitalisation/Automation: automatic coupling (flexible wagon composition), CBM (data handling, analytics and dashboards), ATO/DAS (testing of ATO developed in IP2).

Digital Transport Management: IT solutions electronic communication technologies to maximise punctuality and capacity.

Freight wagon concepts: Low-noise, lightweight, high speed & track friendly Freight Running Gear & Modular lightweight freight wagon design.

Freight Propulsion systems: New powerful EU freight locomotives with flexible and network independent operation capabilities, supporting increased train lengths up to 1500m and reducing massively energy consumption.

TRAFIKVERKET DB SNCF ÖBB INFRA CAF AVL DIE BAHNINDUSTRIE. ConTraffic TATRAVAGÓNKA POPRAD
BOMBARDIER Hitachi Rail STS Slovenske železnice PJM mCL AC2T research
virtual vehicle Faiveley TRANSPORT indra ceit IK4 Research Alliance DLR CAP KNORR-BREMSE SBB CFF FFS WBN Tradition seit 1835
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TD 5.2 “ Digital Transport Management”

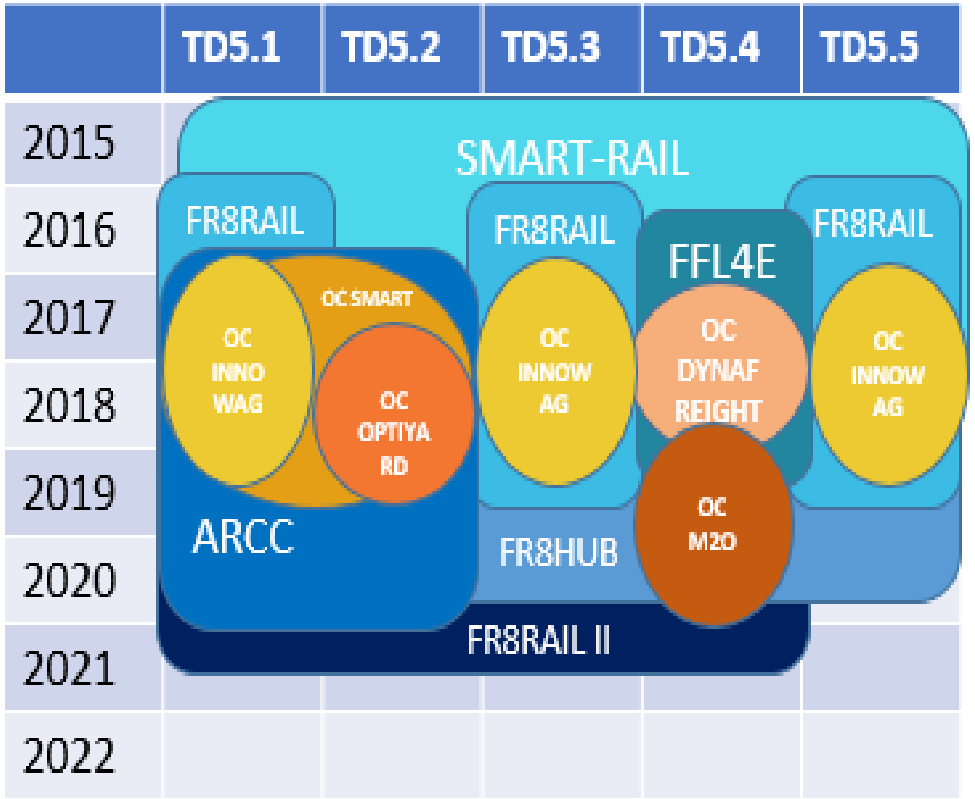
Key challenge: Improve the interaction between yards/terminals and the network reducing the lack of information and adding new decision tools that will increase punctuality and capacity.

Where we are:

- ✓ Real time yard and network management: specifications / architectural design of a web-based information system for supervision and management of marshalling yards
- ✓ Intelligent Video Gate for high speed wagon scan : scale demo

Where we want to go:

- ✓ Higher TRL for IVG
- ✓ Real time network management - Decision making platform for real-time time-tabling including information from the marshalling yards, terminals and the locos. Demonstrated through a simulation environment.



TD 5.2 progress: ARCC, SMART, OPTIYARD, FR8HUB, FR8RAIL II – further input from CFM call 2019.

Transforming Europe's Rail System

The Commission published the public consultation for a potential European Partnership "**Transforming Europe's rail system**" under Horizon Europe.

Feedback will be taken into account for further development and fine tuning of the initiative.

The questionnaire is available for your reply here: https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2019-4980251/public-consultation_en

The deadline for replies is 6 November 2019.

FOUNDING MEMBERS

ALSTOM

BOMBARDIER

CAF

Hitachi Rail STS

NetworkRail

SIEMENS

THALES

TRAFIKVERKET

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ASSOCIATED MEMBERS

amadeus

AŽD PRAHA

DB

DIGINEXT be visionary

Faiveley Transport A Wabtec Company

HaCon

indra

KNORR-BREMSE

kontron S&T Group

mermec AN ANGEL COMPANY

SNCF

Talgo

Virtual Vehicle Austria consortium+ (VVAC+)

virtual vehicle

WIENER LINIEN

FCP

TATRAVAGÓNKA POPRAD

getzner engineering a quiet future

ACT

KIRCHDORFER CONCRETE SOLUTIONS

Plasser&Theurer

MCL

voestalpine ONE STEP AHEAD.

PJM

AVL

European Rail Operating community Consortium (EUROC)

ÖBB Immer in Bewegung

bls

COMBOIOS DE PORTUGAL

Lik erne vira sto

PKP POLSKIE KOLEJE PAŃSTWOWE Spółka Akcyjna

SBB CFF FFS

ProRail

Infraestruturas de Portugal

TCDD

Slovenske železnice

Swi'Tracken consortium

RAILENIUM

Universidad del País Vasco Euskal Herriko Unibertsitatea

U.PORTO

TATA STEEL

University of Minho

vossloh

TRONICO FILCEN

izt

egis

EURO TUNNEL

Smart DeMain (SDM) consortium

Strukton Rail

cemosa

Fraunhofer IVI

acciona

DLR

AERFITEC

AERnnova

FIDAMC

tecnalia Inspiring Business

Competitive Freight Wagon Consortium (CFW)

ConTraffic Consulting Network for Traffic System

DLR

DIE BAHNINDUSTRIE. VDB VERBAND DER BAHNINDUSTRIE IN DEUTSCHLAND E.V.

ceit IK4 Research Alliance

WBN

Smart Rail Control (SmartRaCon) consortium

DLR

RAILENIUM

ceit IK4 Research Alliance

NSL

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