

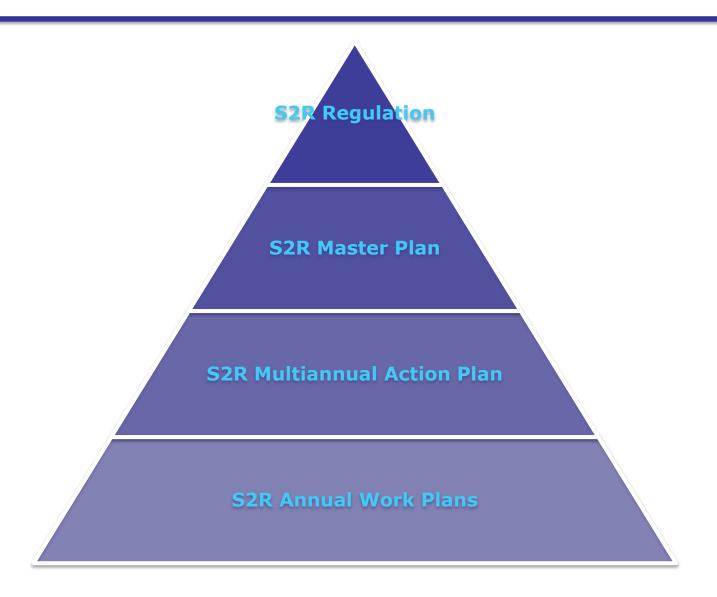


S2R @ Platform of Rail Infrastructure Managers in Europe

carlo m borghini Executive Director S2R JU 17 November 2016



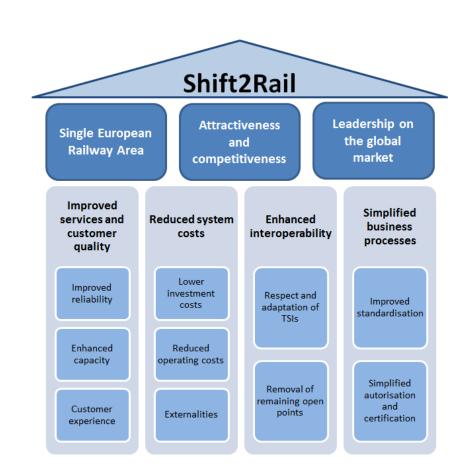
reference framework





key objectives

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





what is S2R (1)

- a public-private partnership
- established in June 2014
- a platform for the rail sector as a whole to work together to drive innovation in the years to come ...
 2024
- play a major role in rail-related research and innovation
- ensure coordination among projects and providing all stakeholders with relevant and available information on projects funded across Europe
- manage all rail- focused research and innovation actions co-funded by the Union
- reach autonomy in May 2016



what is S2R (2)

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)



a new approach to R&I

Focused, coordinated, LT investment in R&I

Operational performance & cost-effectiveness

a. overcome R&I fragmentation

b. support the market uptake

c. Implement innovative solutions

Increase leverage effect of EU funding

System-wide approach to innovation

Stakeholders sustained networks and knowledge exchange

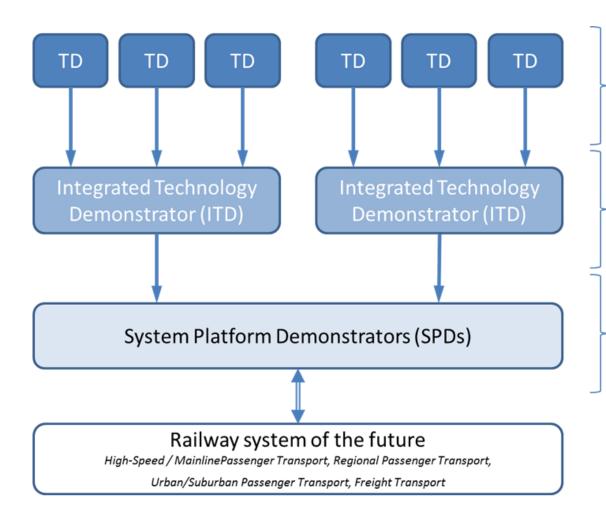


Innovation Programmes

IP 3 IP₂ IP IP 1 **IP** 5 Long-term needs and Cost-efficient, Sustainable and Reliable High **Cost-efficient and Reliable Trains, including IT Solutions for Attractive Railway Services** socio-economic research high capacity trains and high speed trains **Fechnologies for Sustainable & Attractive** Advanced Traffic Management & Control Smart materials and processes System integration, safety and interoperability Capacity Infrastructure European Freigh **Energy and sustainability** Systems Human capital



from TRL 0 to 7



Technology Demonstrators (TDs):

Projects which specify, develop and demonstrate a specific technology, resulting in a laboratory tested and/or simulated prototype

Integrated Technology Demonstrators (ITDs):

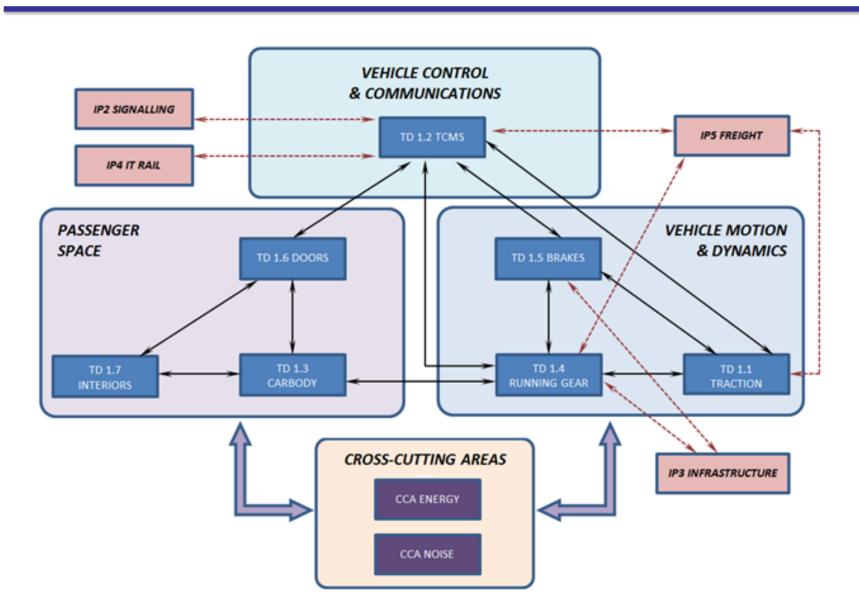
Projects integrating / combining TD prototypes at system level (both in lab and on-site) and testing system performance

System Platform Demonstrators (SPDs):

Assessment of the whole system level performance based on the results of TDs and ITDs. SPDs will bring S2R's innovative solutions to a technology maturity level for a new generation of railway systems

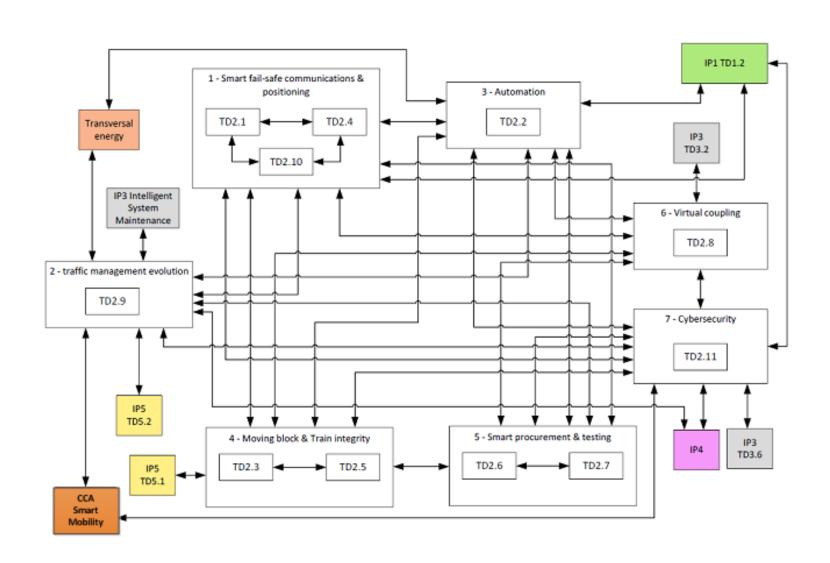


IP1 (225 Mio EUR)



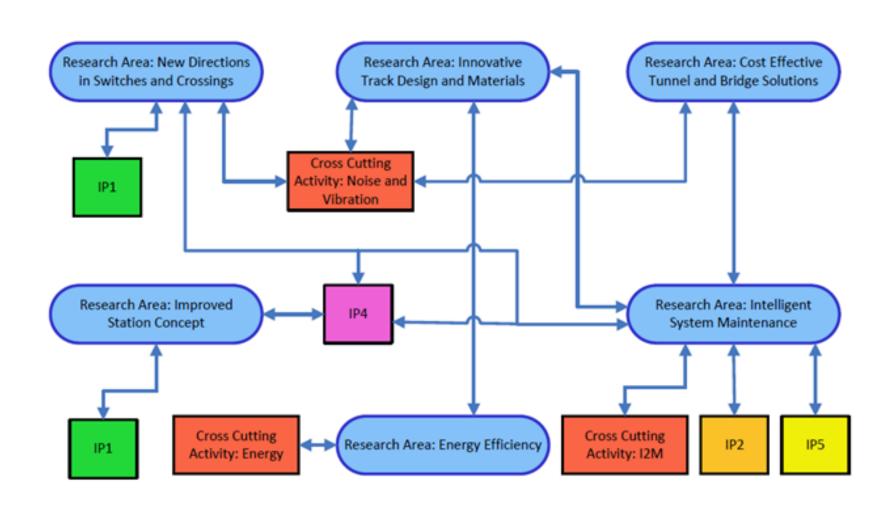


IP2 (195 Mio EUR)



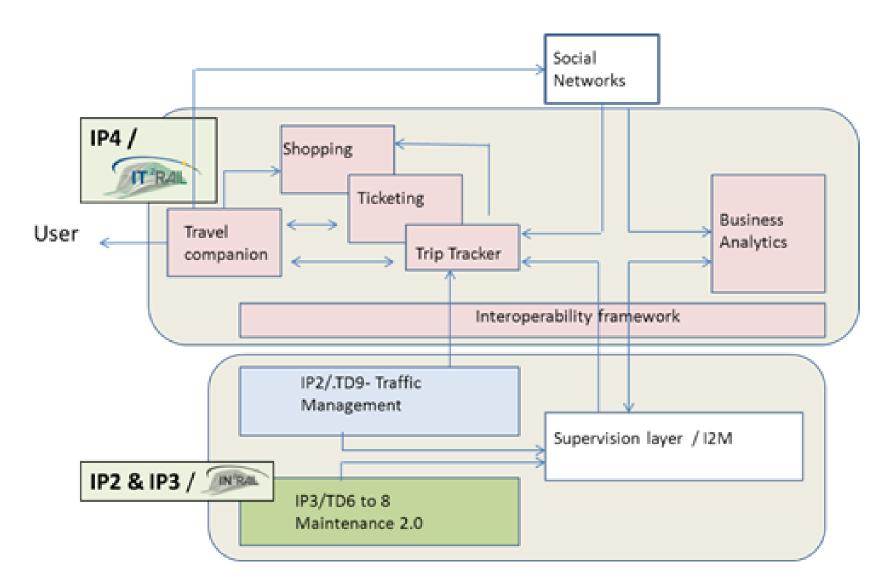


IP3 (153 Mio EUR)





IP4 (86 Mio EUR)







- TD5.0 Business analytics and implementation strategies
- TD5.1 Freight electrification, brakes and telematics
- TD5.2 Access and Operation
- TD5.3 Wagon design
- TD5.4 Novel Terminal, Hubs, Marshalling Yards, Sidings
- TD5.5 New Freight Propulsion Concepts
- TD5.6 Autonomous train operation



CCA (35 Mio EUR)

Work Area 1 Work Area 2 Work Area 3 Work Area 4 Work Area 5 Work Area 6 KPI Safety, Smart Mobility Energy and Human Capital Socio economics Standardisation Sustainability & Smart Maintenance 3.1 Safety 4.1 5.1 Smart Planning Energy 3.2 Standardisation Socio-economics 3.3 Key and System Smart Human Capital Performance Platform Maintenance Indicators Demonstrators 3.4 4.2 5.2 **Smart Materials** Integrated Noise & Mobility Vibration Management 3.5 Virtual Certification



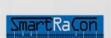
an open organization

- 8 Founding Members having committed at least EUR 30 million for the duration of Shift2Rail, to secure substantial industry co-funding from the outset
- 19 Associated Members selected as a result of a call representing a broad range of actors from the entire rail value chain and from other innovative sectors, including SMEs, research organisations, universities, etc.
- at least 30% of the Union contribution through calls for non-JU members































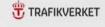




























members

European Union								
8 Founding Members	Alstom, Ansaldo STS, Bombardier, Construcciones y Auxiliar de Ferrocarriles (CAF), Siemens, Thales and Infrastructure managers Trafikverket and Network Rail							
12 Associated Members (single legal entities)	Amadeus IT Group, AZD Praha, Deutsche Bahn, DIGINEXT, Faiveley Transport, HaCon Ingenieurgesellschaft, INDRA Sistemas, Kapsch CarrierCom, Knorr-Bremse, MER MEC, SNCF Mobilités, Patentes Talgo							
7 Associated Members (consortia)	 AERFITEC (AERNNOVA Aerospace, FIDAMC, Fundacion TECNALIA) Competitive Freight Wagon (Contraffic, DLR, Waggonbau Niesky, Centro de Estudios e Investigaciones Técnicas (CEIT), Verband der Bahnindustrie in Deutschland) EUropean Rail Operating community (Infraestruturas de Portugal, Association of Train Operating Companies, BLS, CP, Finnish Transport Agency, ÖBB-Infrastruktur, Polskie Koleje Państwowe, PRORAIL, Rede Ferroviária Nacional, Schweizerische Bundesbahnen, Slovenske zeleznice, Türkiye Cumhuriyeti Devlet Demiryollari) Smart DeMain (Strukton Rail, ACCIONA Infraestructuras, DLR, Fraunhofer, CEMOSA) SmartRaCon (DLR, CEIT, Fondation Railenium, Nottingham Scientific Ltd) Swi'Tracken (Fondation Railenium, Universidade Do Porto, Universidad Del Pais Vasco, Universidade Do Minho, TATASTEEL, VOSSLOH-COGIFER, Institut für Zukunftsstudien und Technologiebewertung, EGIS RAIL, Groupe EUROTUNNEL, TRONICO ALCEN) Virtual Vehicle Austria consortium+ (Kompetenzzentrum, FCP Firtsch, Getzner Werkstoffe, Kirchdorfer Fertigteilholding, Plasser&Theurer, Vvoestalpine Schienen, Voestalpine VAE, Wiener Linien, AVL List, PJM Messtechnik, TATRAVAGONKA, AC2T research, Materials Center Leoben Forschung 							



governance





the MAAP*

- is a collaborative long-term investment planning document
- translates strategic R&I priorities for the Railway sector as per S2R Master Plan - into concrete R&I activities, milestones and deliverables
- contains the description of R&I activities worth an estimated value of about EUR 777 million
- is a living document (ongoing "maintenance")
- enables the preparation of result-oriented Annual Work Plans and Calls for Proposals
- grants awarded for the actions(Projects) should aim to implement part(s) of the MAAP



structure of the MAAP

GENERAL INTRODUCTION

PART 1:

SHIFT2RAIL: PROMOTING THE MODAL SHIFT AND THE COMPETITIVENESS OF THE EUROPEAN RAILWAY INDUSTRY

PART 2:

SHIFT2RAIL PROGRAMME SCOPE AND STRUCTURE

PART 3: DETAILED MULTIANNUAL ACTION PLAN PER IP/CCA IP1 IP2 IP3 IP4 IP5 CCA



programme financials



Programme 967M

S2R (H2020)

Co-Fin 450M

Railway Sector Net Contribution 517M



implementation

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Overall	Ongoing Projec											
				EUR	557.7 Mio							777.3
				2014:								
Lighthouse Members		Lighthouse	e projects EUR 5		2.2.04: 0.7.2.2.5							
Open				projects EUR 14		ant)						
Орен				projects EUR 25.	.4 10110							
IP1	Ongoing Projec	to FUD 64 1 Mio	(200/)									
ILI	Oligoling Projec	LS EUR 64.1 IVIIO	(20%)	To be	e awarded EUR	160 9 Mio						225.0
					awarded LOK							223.0
Lighthouse		Roll2Rail E	UR 14.9 Mio									
Members			Pinta	EUR 29.2 Mio (1	13.0 grant)							
			Conn	ecta EUR 13.3 M	1io (5.9 grant)							
Open			Safe	e4Rail EUR 6.7 M	lio							
IP2	Ongoing Projec	ts EUR 48.0 Mio	(25%)									
				To be	e awarded EUR	147.1 Mio						195.1
Members			X2Ra	il-1 EUR 45.0 Mi	io (20 Ogrant)							
Open				ail EUR 1.5 Mio	(20.0 grant)							
O pon				E EUR 1.0 Mio								
			_	ISTRAL EUR 0.5 N	Mio							
					VII.0							
IP3	Ongoing Project	ts EUR 40.7 Mio	(27%)									
			,	To be	e awarded EUR	112.0 Mio						152.7
		_										
Lighthouse		IN2RAIL EL	JR 13.0 Mio									
Members				RACK EUR 6.3 M								
				MART EUR 16.4 I								
Open			S-0	CODE EUR 5.0 M	io							



implementation

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Overall	Ongoing Project	ts EUR 219.7 Mi	o (28%)									
				EUR	557.7 Mio							777.3
Liabthouse		Lighthous	o projects FLID F	2.0.410								
Lighthouse Members		Lighthouse	e projects EUR 5		2 2 14: - /62 2	t)						
			_	projects EUR 14		ant)						
Open				projects EUR 25	.4 IVIIO							
IP1	Ongoing Project	ts EUR 64.1 Mio	(28%)									
				To be	e awarded EUR	160.9 Mio						225.0
Lighthouse		Roll2Rail F	EUR 14.9 Mio									
Members		NONZNAN L	_	EUR 29.2 Mio (:	13 () grant)							
Wiembers				necta EUR 13.3 M								
Open			_	e4Rail EUR 6.7 M								
O pen			San	E-HIGH LON 0.7 IV								
IP2	Ongoing Project	ts FUR 48.0 Mio	(25%)									
			(2575)	To be	e awarded EUR	147.1 Mio						195.1
Members			X2Ra	il-1 EUR 45.0 M	io (20.0 grant)							
Open			Cyr	ail EUR 1.5 Mio								
			VIT	E EUR 1.0 Mio								
			M	ISTRAL EUR 0.5 N	∕lio							
IP3	Ongoing Project	ts EUR 40.7 Mio	(27%)									
				To be	e awarded EUR	112.0 Mio						152.7
Limb th access		INIODALLE	ID 42 O M 4: -									
Lighthouse		IINZKAIL EU	JR 13.0 Mio	DACK FUD C 2 NA	in (2.0 mmnt)	 						
Members				RACK EUR 6.3 M								
0				MART EUR 16.4 I								
Open			S-	CODE EUR 5.0 M	10							



where we are, latest news

- Lighthouse, ongoing 4 Projects & 52 Mio EUR
- Members' R&I activities, 1 Sept 16, 13 Projects & 142
 Mio EUR

- OC R&I activities, 1 Nov 16, 14 Projects & 25 Mio EUR
- 1st meeting of System Integration Working Group
- MAAP Top Down review
- AWP 2017 approved and published



Open Call 2017



call for proposals 2017

Million of EUR	Total	Members only	Open to non-Members
Value of the Call for Proposals R&I	112.4	92.9	19.5
of which:			
S2R Maximum Co-funding	60.8	41.3	19.5
In-Kind Contribution	51.6	51.6	0
No of topics	17	7	10
Value of Call for tender (pantograph overhead contact line interaction)	0.7	0	0.7

Call for Proposals

- Publication Date: 10 November 2016 (no submission before 10 Jan 2017)
- Deadline for submission: 30 March 2017
- Planned start of activities: 1 September 2017



2017 open call topics

Topic number - IP	Topic name	Expected TRL	Type of action	Indicative S2R Co-funding EUR	Complementarity
S2R-OC-IP1-01- 2017	Innovative materials & modular design for rolling stock applications	4/5	RIA	3 500 000	S2R-CFM-IP1-01-2017
S2R-OC-IP1-02- 2017	Tools, methodologies and technological development of the next generation of Running Gear	2	RIA	2 800 000	S2R-CFM-IP1-01-2017 S2R-CFM-CCA-02-2015
S2R-OC-IP2-01- 2017	Operational conditions of the signalling and automation systems; signalling system hazard analysis and GNSS SIS characterization along with Formal Method application in railway field	3	RIA	1 800 000	S2R-CFM-IP2-01-2017 S2R-CFM-IP2-01-2015



2017 open call topics

Topic number - IP	Topic name	Expected TRL	Type of action	Indicative S2R Co-funding EUR	Complementarity
S2R-OC-IP2-02- 2017	Energy harvesting methodologies for trackside and on-board signalling and communication devices. Adaptation of already existing technologies for developing a purely on-board Train Integrity	4	RIA	1 700 000	S2R-CFM-IP2-01-2017 S2R-CFM-IP2-01-2015
S2R-OC-IP3-01- 2017	Smart metering and asset management of railway systems	5	RIA	2 200 000	S2R-CFM-IP3-01-2017 S2R-CFM-IP3-02-2016
S2R-OC-IP3-02- 2017	Future stations and accessibility (IP1 and IP3)	3	RIA	1 200 000	S2R-CFM-IP3-01-2017 S2R-CFM-IP1-01-2017



2017 open call topics

Topic number - IP	Topic name	Expected TRL	Type of action	Indicative S2R Co-funding EUR	Complementarity
S2R-OC-IP3-03- 2017	Satellite and autonomous monitoring systems' solution	5	RIA	600 000	S2R-CFM-IP3-02-2016
S2R-OC-IP4-01- 2017	Smart technologies for trip tracking and improved travel companion and trip tracking	4/5	RIA	3 500 000	S2R-CFM-IP4-01-2017 S2R-CFM-IP4-02-2017 S2R-CFM-IP4-01-2015 S2R-CFM-IP4-02-2015
S2R-OC-IP5-01- 2017	Real-time yard and network management	4	RIA	1 500 000	S2R-CFM-IP5-01-2017 S2R-CFM-IP5-02-2015 S2R-OC-IP5-01-2015
S2R-OC-CCA- 01-2017	Smart maintenance and human capital	4	RIA	700 000	S2R-CFM-CCA-01-2017 S2R-CFM-IP4-01-2015 S2R-CFM-IP4-02-2015
TOTAL				19 500 000	





THANK YOU



Contact for Project Calls:

Info-Call@shift2rail.e uropa.eu

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