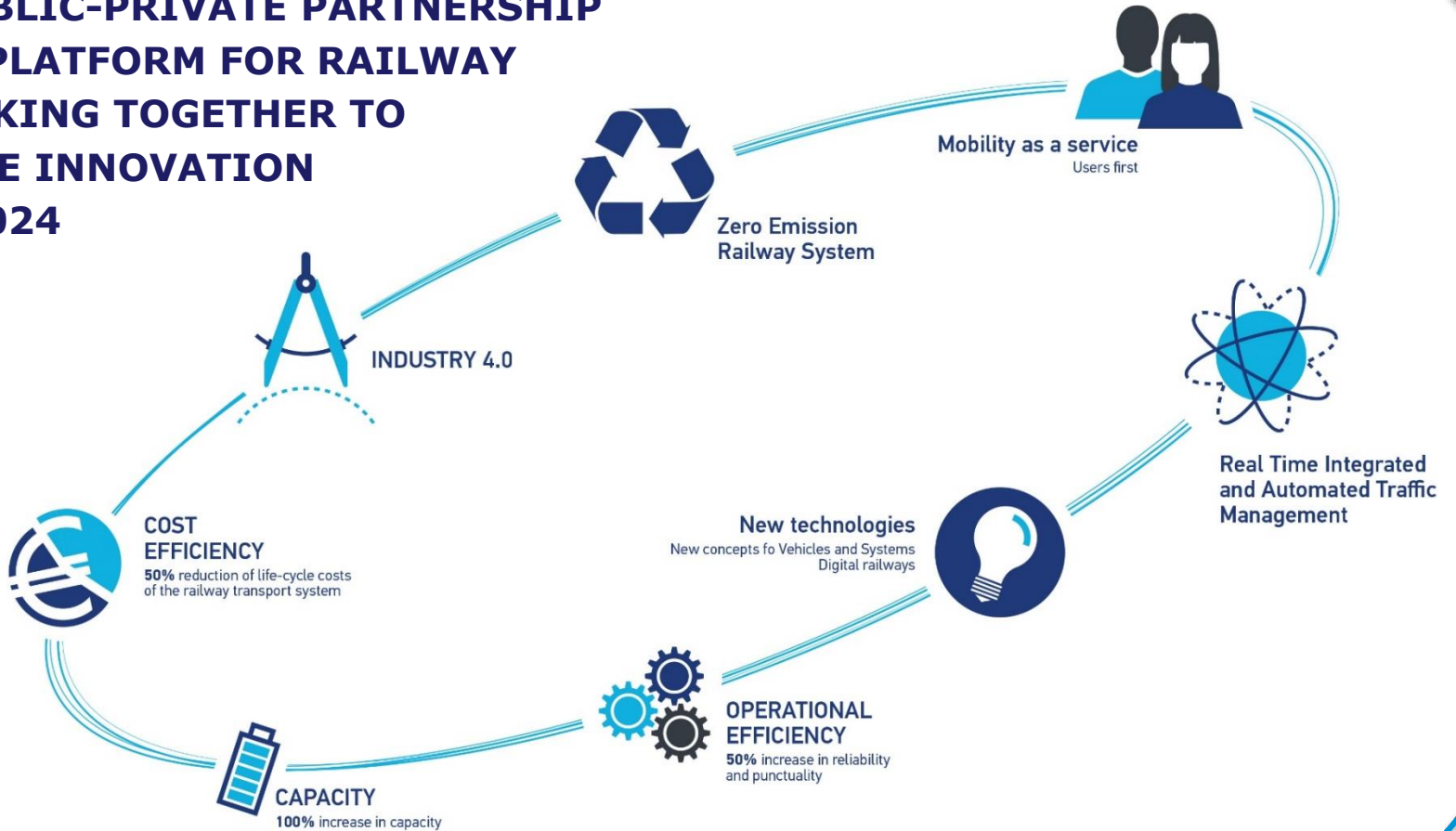




OPEN CALLS 2018
(draft)

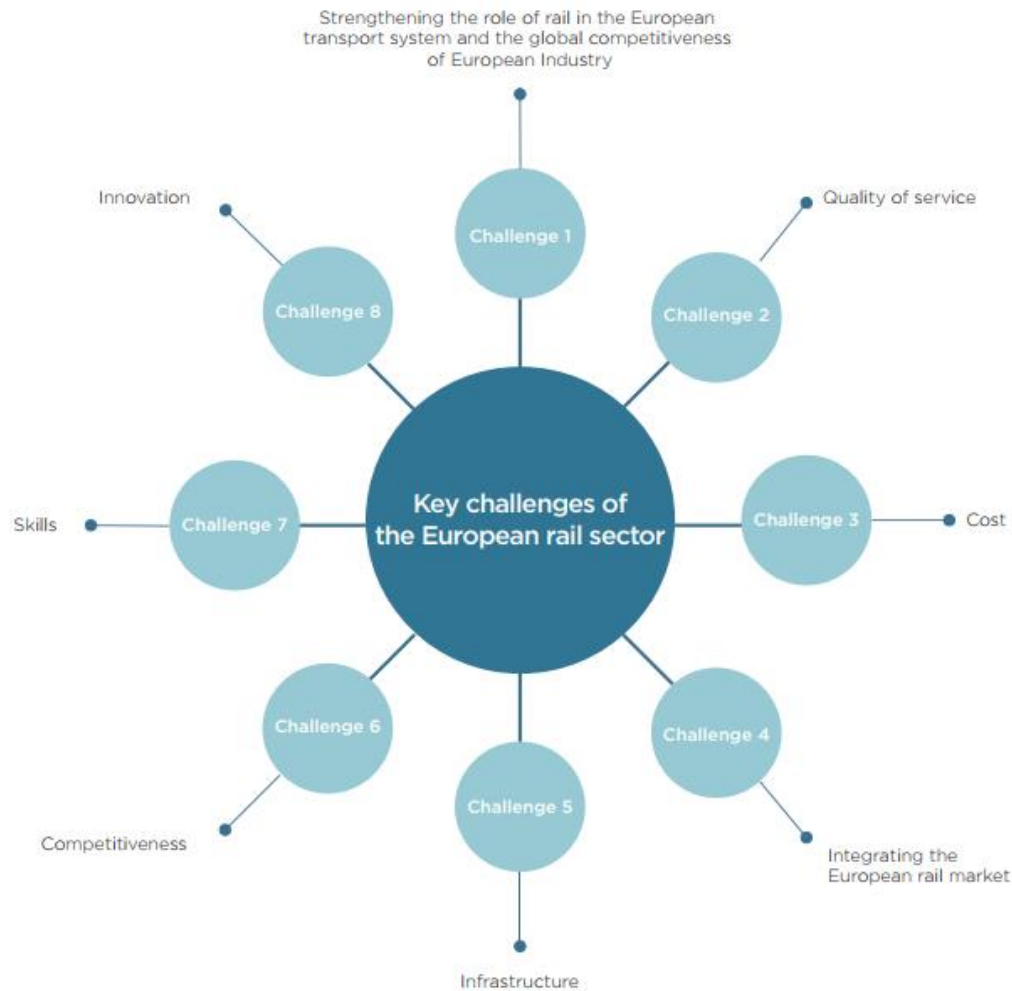
carlo m borghini, Executive Director
2017 Nov 20

A PUBLIC-PRIVATE PARTNERSHIP R&I PLATFORM FOR RAILWAY WORKING TOGETHER TO DRIVE INNOVATION BY 2024



- Award and signature of **17 Grant Agreement**
- Invitation to the **Associated Members**
- **Interim Evaluation of Shift2Rail**
- Finalisation of the **AWP 2018**
- **MAAP Part A**
- SRG & Scientific Committee meetings
- Programme **Bi-annual Reporting**
- **Project Reviews**
 - Continuous Deliverable Assessment
 - External experts' support
- **FCH-S2R** workshop follow up
- JU event in **Strasbourg 24 25 October**





To **deliver**
through
railway **research and innovation**
the **capabilities** to bring about the
most **sustainable, cost-efficient,**
high-performing, time driven,
digital and competitive
customer-driven
transport **mode** for Europe



WHAT & WHY

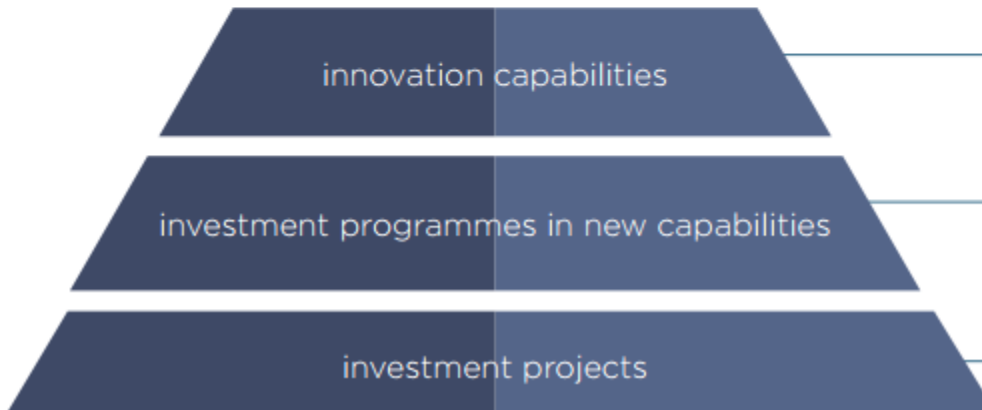


easy, personalised and integrated mobility

clustered around issues of carbon, cost, customer and capacity

market segments and needs e.g. SPDs

HOW



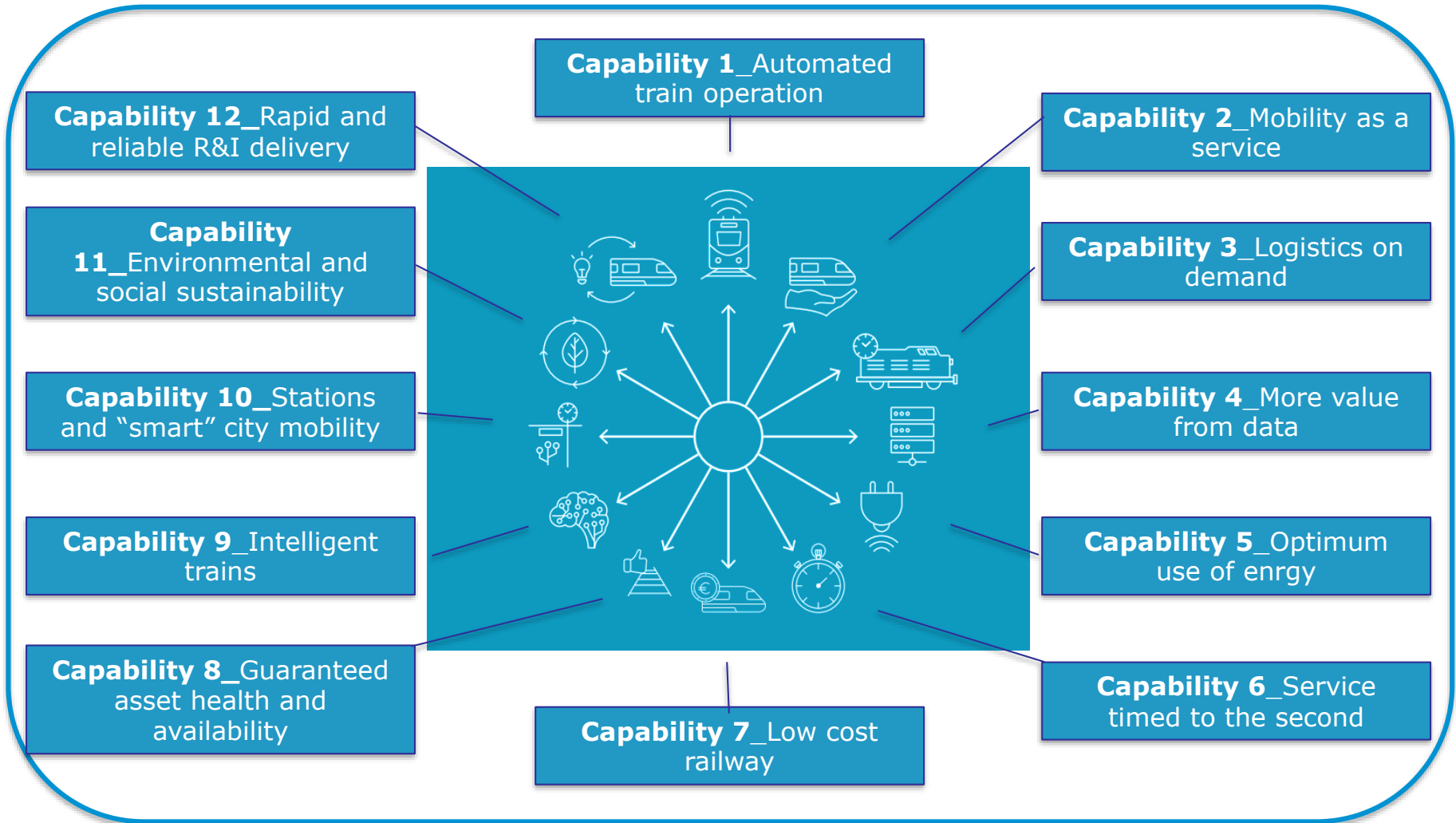
linking the goals with the specific R&I programmes

portfolio of significant programmes e.g. Shift2Rail

Shift2Rail projects, Solutions catalogue



Innovation Capabilities



Automated Train Operation

Trains are able to operate themselves and run closer together



1A_ Automated (passengers and freight) trains run closer together with increased flexibility

1B_ Passenger and freight train preparation processes are automated

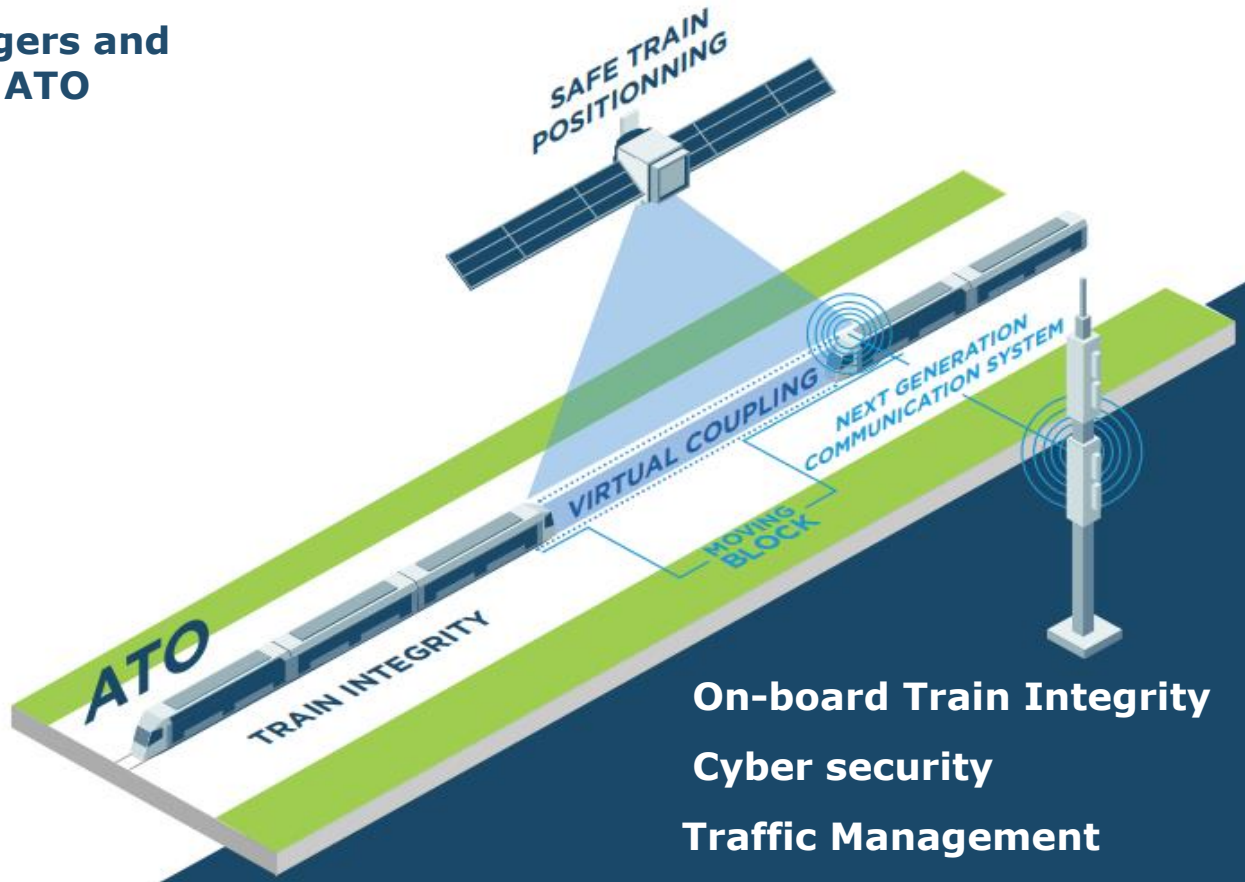
1C_ Vehicles split and join on the move. New operational approaches (e.g., virtual coupling, conveying, reduced headway, communication connections between trains/units) are employed

1D_ Self-propelled automated / autonomous single units guide themselves through the system



ATO through... Building Blocks

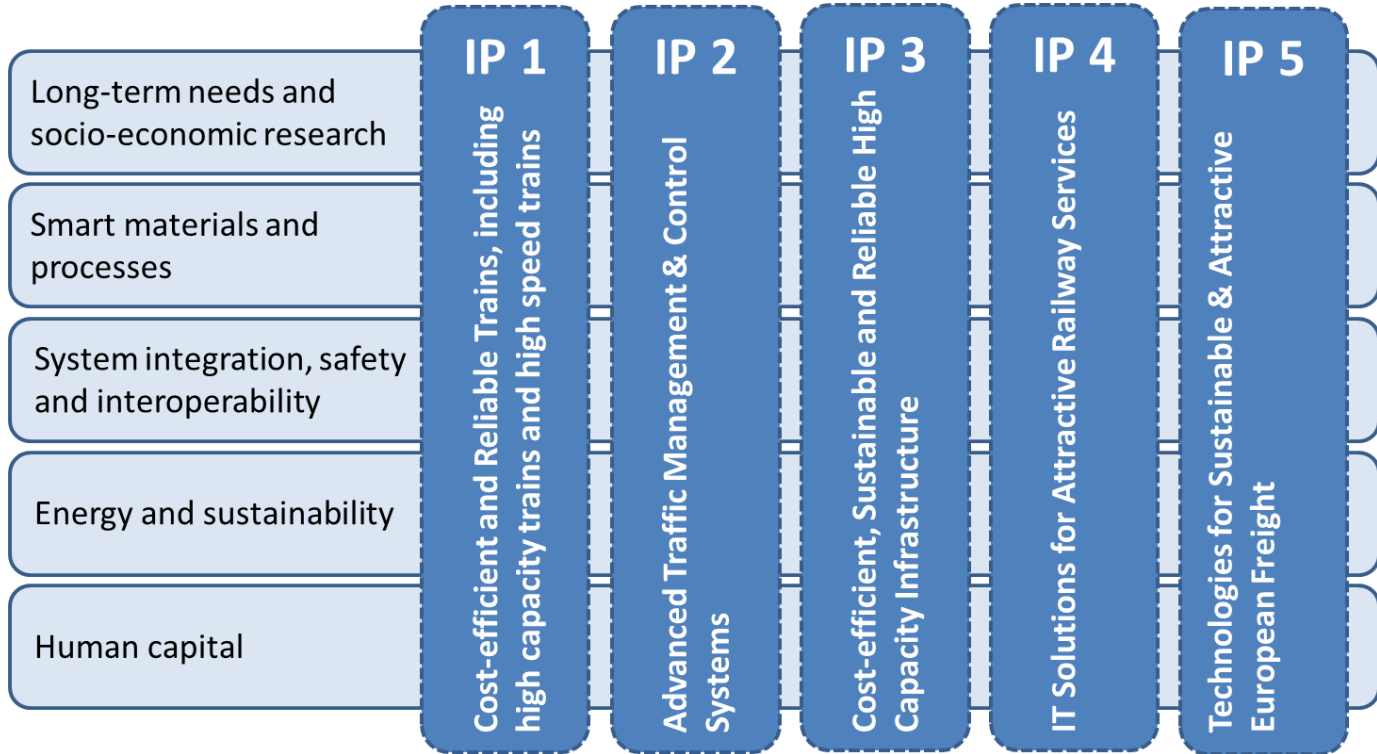
Passengers and
Freight ATO

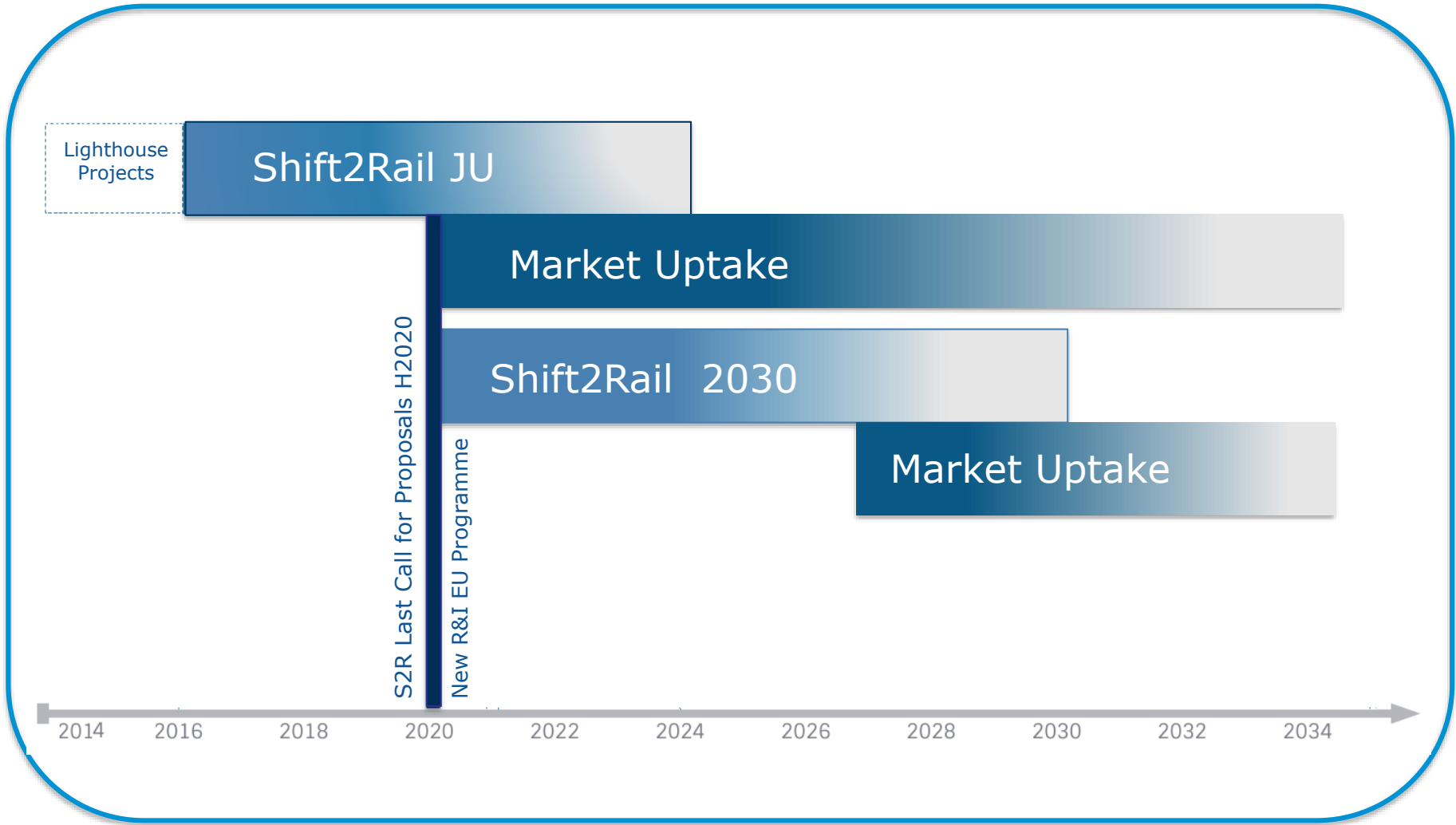


On-board Train Integrity
Cyber security
Traffic Management



**S2R PROGRAMME:
INTEGRATED
CONSISTENT
DELIVERY ORIENTED**







AWP 2018



Activity	Type of call (*) <i>indicative figures in EUR</i>	Value of the actions (*)	Maximum S2R co-funding (*)	In-kind contribution (*)	Indicative publication date
Call for Proposals and/or Call for tenders	JU members eligible only	134.1	59.6	74.5	Q4 2017
Call for Proposals	Open, JU Members excluded	21.1	19.1	2.0	Q4 2017
Call for Tenders	Open	2.3	2.3	N/A	Q4 2017
Operational Experts	Open, including through REA	0.3	0.3		
Total		157.8	81.3	76.5	



Topic number - IP	Topic name <i>(*) indicative figures in EUR</i>	Type of action and expected Technical Readiness Level (TRL)	Value of the actions (*)	Maximum S2R co-funding (*)	In-kind contribution (*)
S2R-CFM-IP1-01-2018	Development of technology demonstrators for the next generation of traction systems and adhesion management systems	RIA , TRL 5 to 6	28,534,203	12,680,600	15,853,603
S2R-CFM-IP1-02-2018	Implementing new technologies for the TCMS	RIA, TRL 5	10,576,058	4,700,000	5,876,058
S2R-CFM-IP2-01-2018	Advanced Signalling, Automation and Communication System (IP2 and IP5)	IA, TRL6	38,900,540	17,287,400	21,613,140



Topic number - IP	Topic name <i>(*) indicative figures in EUR</i>	Type of action and expected Technical Readiness Level (TRL)	Value of the actions (*)	Maximum S2R co-funding (*)	In-kind contribution (*)
S2R-CFM-IP3-01-2018	Research into optimized and future railway infrastructure	IA, TRL 6	30,153,015	13,400,000	16,753,015
S2R-CFM-IP4-01-2018	Passenger service platform specifications for an enhanced multi-modal transport ecosystem including Mobility as a Service (MaaS)	IA, TRL 6	11,701,170	5,200,000	6,501,170



Topic number - IP	Topic name <i>(*) indicative figures in EUR</i>	Type of action and expected Technical Readiness Level (TRL)	Value of the actions (*)	Maximum S2R co-funding (*)	In-kind contribution (*)
S2R-CFM-IP5-01-2018	Technology demonstrators for competitive, intelligent rail freight operation	IA, TRL 6	12,376,238	5,500,000	6,876,238
S2R-CFM-CCA-01-2018	Virtual certification & smart planning	RIA TRL 3	1,894,689	842,000	1,052,689
TOTAL			134,135,914	59,610,000	74,525,914



Topic number – IP	Topic name <i>(*) indicative figures in EUR</i>	Type of action and expected Technical Readiness Level (TRL)	Value of the actions (*)	Maximum S2R co-funding (*)	In-kind contribution (*)
S2R-OC-IPX-01-2018	Paradigm shifts for railway	RIA, up to TRL 2	2,200,000	2,200,000	n.a
S2R-OC-IPX-02-2018	Transversal exploratory research activities and knowledge transfer	CSA	500,000	500,000	n.a
S2R-OC-IPX-03-2018	Innovative/breakthrough mobility concepts (with rail as backbone)	CSA	500,000	500,000	n.a



Topic number – IP	Topic name <i>(*) indicative figures in EUR</i>	Type of action and expected Technical Readiness Level (TRL)	Value of the actions (*)	Maximum S2R co-funding (*)	In-kind contribution (*)
S2R-OC-IP1-01-2018	Technical solutions for the next generation of TCMS	RIA, up to TRL 4/5	4,000,000	4,000,000	n.a
S2R-OC-IP2-01-2018	Analysis for Moving Block and implementation of Virtual Coupling concept	RIA, up to TRL 3	1,300,000	1,300,000	n.a
S2R-OC-IP2-02-2018	Modern methodologies and verifications for GNSS in Railways and virtual test environment.	RIA, up to TRL 3	1,020,000	1,020,000	n.a



Topic number – IP	Topic name <i>(*) indicative figures in EUR</i>	Type of action and expected Technical Readiness Level (TRL)	Value of the actions (*)	Maximum S2R co-funding (*)	In-kind contribution (*)
S2R-OC-IP2-03-2018	Communication environment assessment and validation	RIA, up to TRL 5/6	750,000	750,000	n.a
S2R-OC-IP3-01-2018	Measuring and monitoring devices for railway assets	IA up to TRL 6	6,785,714	4,750,000	2,035,714
S2R-OC-IP4-01-2018	Semantic framework for multimodal transport services	RIA up to TRL4	2,000,000	2,000,000	n.a



Topic number – IP	Topic name <i>(*) indicative figures in EUR</i>	Type of action and expected Technical Readiness Level (TRL)	Value of the actions (*)	Maximum S2R co-funding (*)	In-kind contribution (*)
S2R-OC-IP4-02-2018	Supporting the implementation of the IP4 multi-modal transport ecosystem	RIA up to TRL4	1,500,000	1,500,000	n.a
S2R-OC-IP5-01-2018	Radio communication and simulation of train dynamics for Distributed Power within long trains	RIA up to TRL5	600,000	600,000	n.a
TOTAL			21,155,714	19,120,000	2,035,714



Number	Subject of tender	Indicative scope	Maximum budget
1 - contract	Study on alternative communication bearers in the railway environment	<p>The activity shall assess the railway environment and identify new alternative bearer beyond established cellular technologies (UMTS/HSPA, LTE, LTE-A, etc.) or other access technologies (WiFi/802.11, SatCom, etc.), which are or expected to become available for on-board to trackside communication needs. The availability of the alternative bearers might be restricted to certain areas (for example train stations, shunting yards, high-speed lines, different terrains, etc.). The alternative bearers could rely on or leverage already available infrastructure or equipment alongside the railway tracks. Some potential candidates include but are not limited to data over power lines, free space optical communications, etc.</p> <p>The results of the study are expected to enrich the set of access network options for infrastructure managers, when they deploy their new adaptable communication system and leverage the benefits of alternative bearers to address specific needs of their planned rollout of advanced services and applications.</p>	€ 150,000



Number	Subject of tender	Indicative scope	Maximum budget
2 - contract	Study on railway bridge dynamics and the interface with rolling stock	<p>Under supervision of the JU, in collaboration with the ERA, the study should collect bridge and train data, as well as calculation and validation methods, including:</p> <ul style="list-style-type: none"> • calculation methods to describe the dynamic interface vehicle – bridge; • vehicle design assessment method; • validation of calculation methods; • load models and vehicle design limits; • proposal and suggestions for standardisation and regulation. 	€ 250,000



Number	Subject of tender	Indicative scope	Maximum budget
3 - contract	Support to ERTMS European Action Plan to pave the way for the deployment of the future S2R Innovative Solutions	<p>This activity aims at supporting the implementation of the ERTMS European Action Plan, published by the European Commission in June 2017.</p> <p>Under the supervision of the JU and together with Commission Services (DG Move), inter alia, the contractor will perform tasks such as support the ERA Change Control Management process' and related update of specification documentation (including test specifications); Identification of the existing sets of engineering rules regarding transitions between systems; Contribution to the technical review of trackside deployment of ERTMS in cross-border sections; Contribution to the drafting/updating of technical specifications for upcoming ERTMS communication system set to replace GSM-R and to the appraisal of the impact on interoperability of its roll-out.</p>	€ 1,600,000



Number	Subject of tender	Indicative scope	Maximum budget
4 - contract	Study on use of fuel cell hydrogen in railway environment	<p>This activity aims at analysing the business case of hydrogen and fuel cell usage in the rail environment, both in passenger train and freight.</p> <p>The investigation could for example include analyses on the CO2 performance (through Life Cycle Analysis techniques) of current rail powertrain solutions and demonstrate the specific emissions saving that can be achieved by replacing conventional technologies.</p>	€ 270,000
TOTAL			€ 2,270,000



Thank you

