

# Europe Rail JU

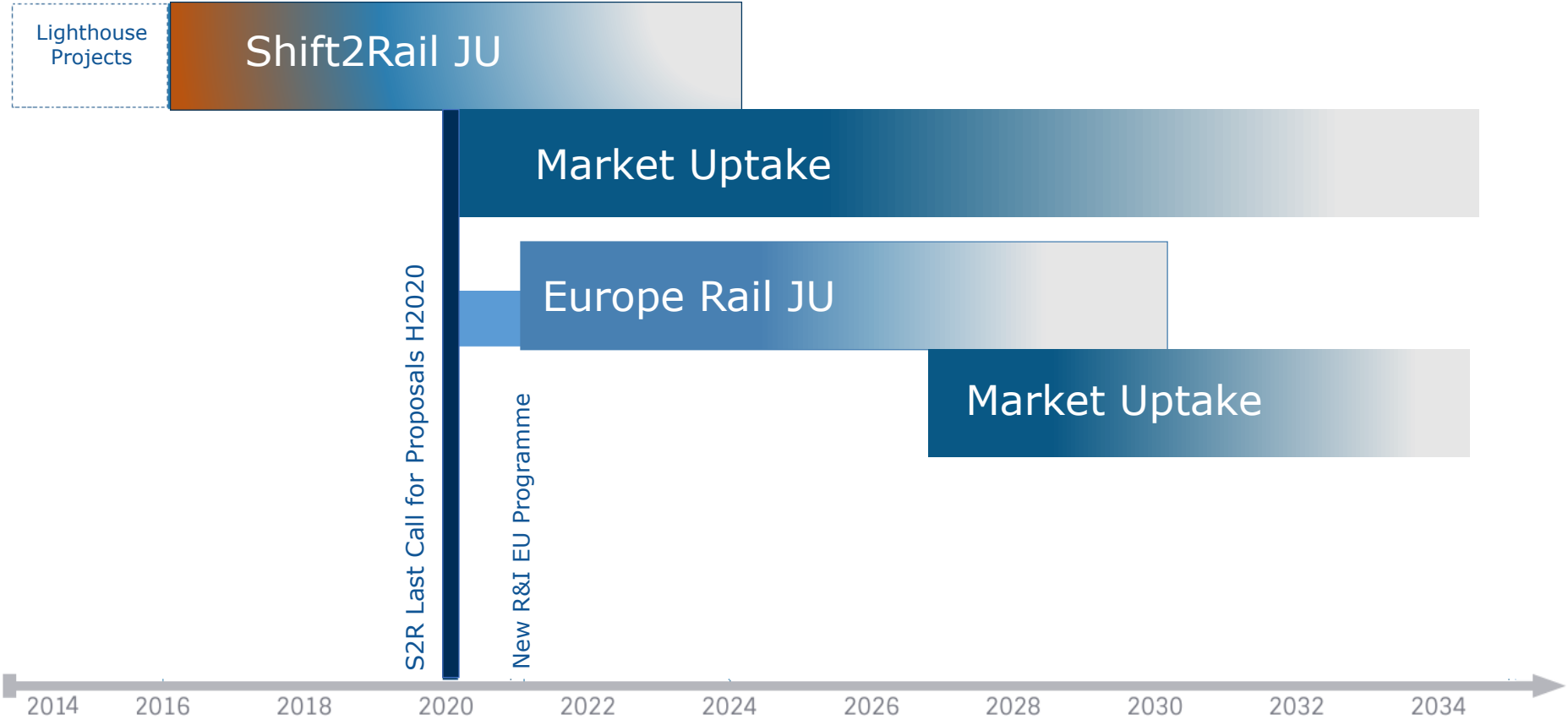
Moving European Railways Forward

Sources:

- *Draft Proposal for a European Partnership under Horizon Europe: Transforming Europe's Rail System (July 2020)*
- *Draft Rail Strategic Research and Innovation Agenda (October 2020)*

November 2020

# R&I BEYOND 2020



## **The European Commission requested an High Level Paper to:**

- UNIFE / CER (with the technical support of UIC) / EIM / UITP / EURNEX / ERRAC
- S2R, other than the Union, Founding Members

S2R JU identified as coordinator and in supporting role

It resulted in a co-drafted document in July called [Draft Proposal for a European Partnership under Horizon Europe: Transforming Europe's Rail System](#)

**The European Commission launched an [Invitation to manifest the interest to become candidate founding member of the Transforming Europe's Rail System European Partnership](#)** in August 2020 (deadline 1 October)

**The European Commission asked ERRAC to finalise a SRIA**, which was developed by the sector stakeholders and launched in public consultation until October 30: [Draft Rail Strategic Research and Innovation Agenda](#)

**all information accessible on** <https://shift2rail.org/shift2rail-successor/>

# Common Vision, Objectives & Expected Impacts

## European Green Deal:

*decarbonisation through sustainable and smart mobility*

EU policy priorities

A Europe fit for the digital age:  
Shaping Europe's Digital Future

An economy that works for people:  
New Industrial Strategy

Europe in the world

EU rail policy objectives

SERA:  
interoperability +  
safety+ connectivity

Guaranteed  
interconnected urban  
mobility driven by  
citizens'

Passenger focused  
Customer experience,  
accessible mobility

Rail freight improved  
performance and  
competitiveness

Faster modernisation of  
the rail industry  
including deployment

iPPP  
general  
objectives

Integrated European transport  
networks

Urban      SERA

Deliver multimodality

Connected and automated door  
to door mobility for citizens and  
freight users

Delivering European rail  
industry competitiveness

Bridge the innovation "valley of  
death" through coordinating  
live, large-scale demos

iPPP  
specific  
objectives

Deliver a European  
Traffic Management  
Layer that would  
cover the specific  
needs of mainline  
and urban  
services/operations

Competitive green  
rail freight fully  
integrated into  
logistic chain

Achieve mobility on  
Demand

Deliver a  
sustainable, safe  
and resilient rail  
system

Bring into market  
new land guided  
transport solutions

# Transforming Europe Rail System: necessity for a European Partnership

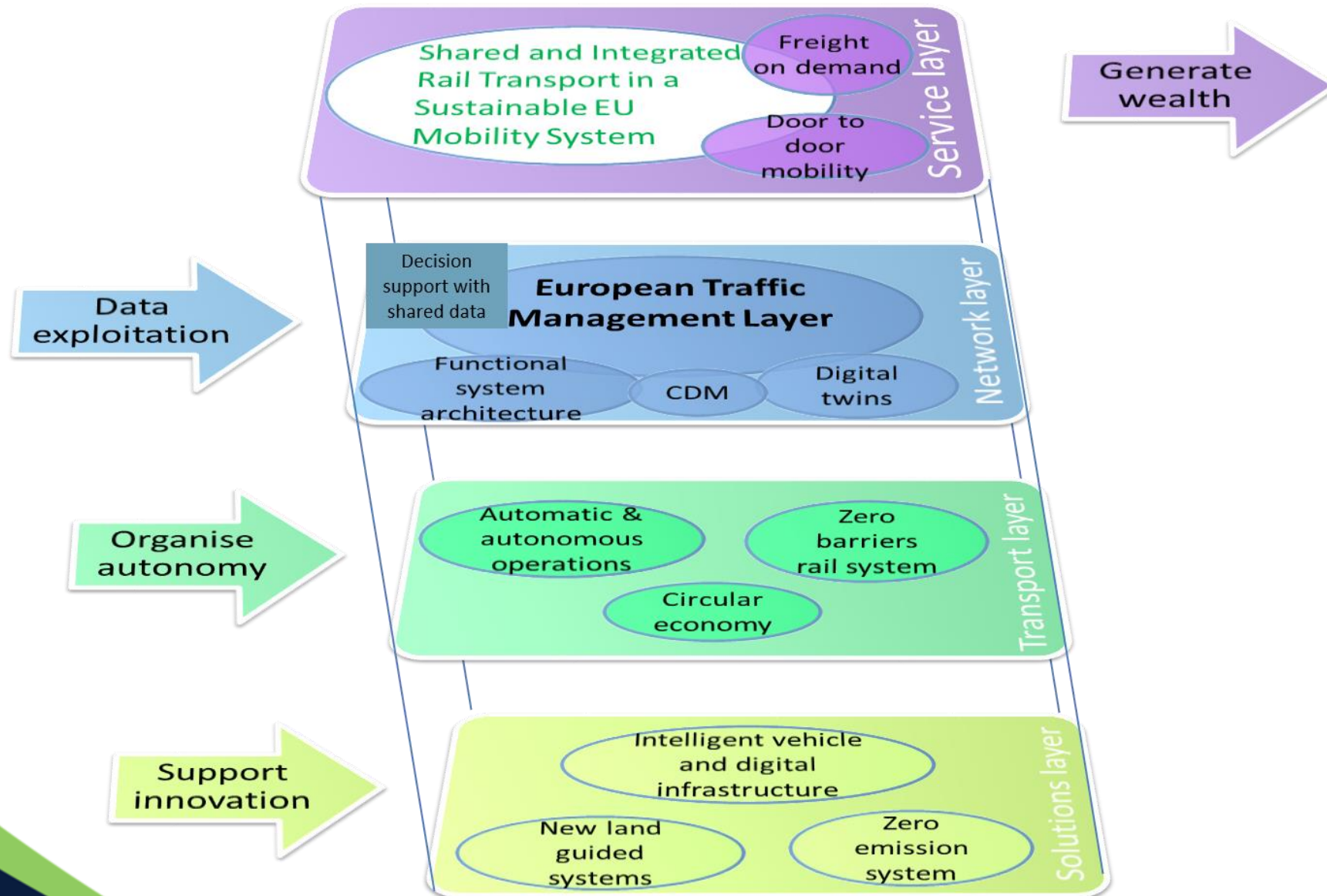


Rail is a complex system of systems to deliver value to its customers, in terms of mobility and transport services. Only through forward looking cutting edge, integrated and systemic research and innovation, it will be possible to tackle the complexities of rail and maximize the benefits of the R&I investment.

Requirements :

- Need to gather **diverse expertise** to bring innovation to the rail system
- **Long-term commitment of actors** involved on the basis of risk sharing and regulatory stability needs to be guaranteed
  - **Contribution to policy** design and standardisation
  - Efficient **cooperation** with other transport modes
- Synergies with other **European and/or National Programmes**

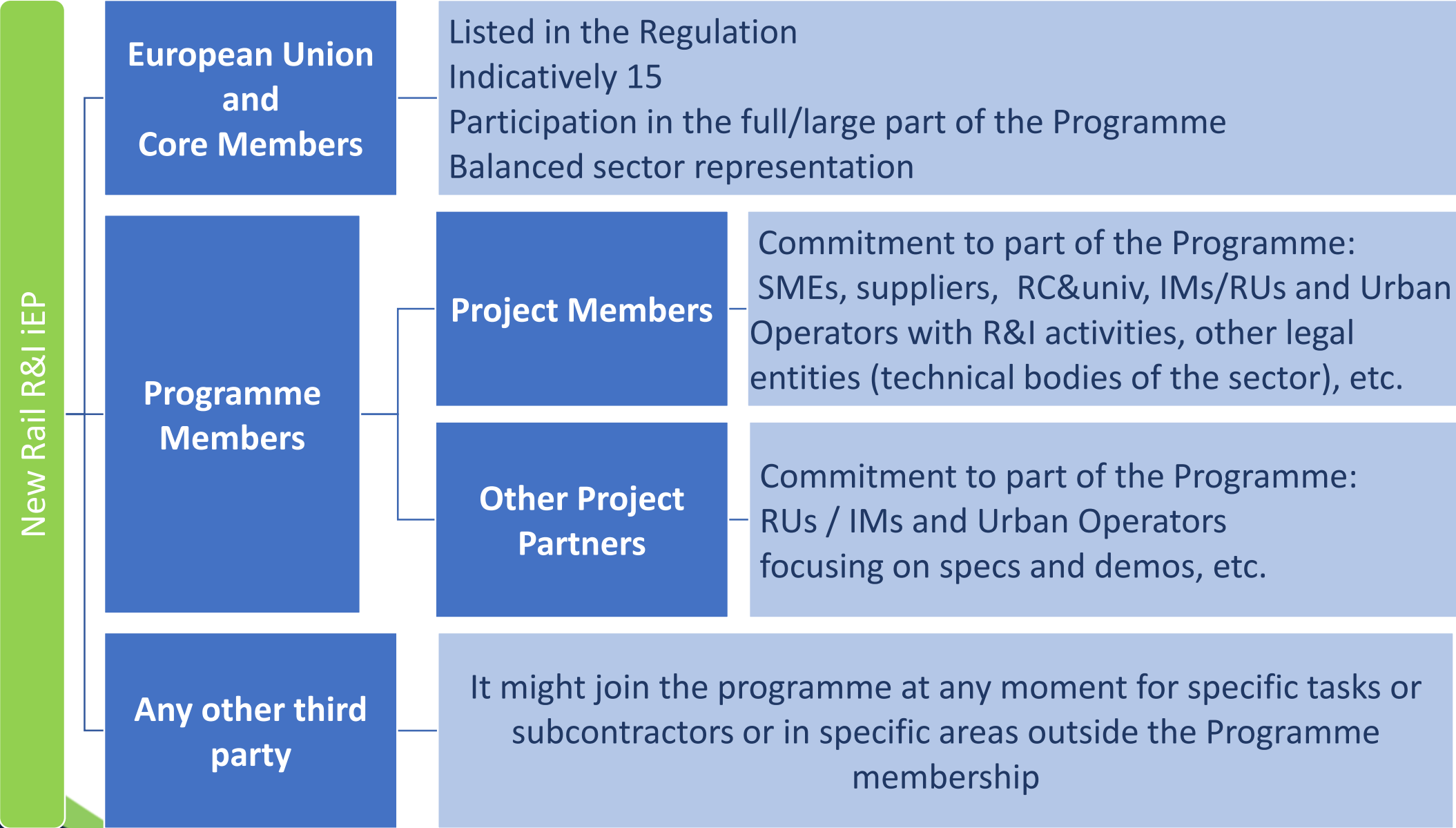
# Vision of the architectural layers for future system evolution



# Target Groups & Stakeholders

- The operating community
- Manufacturers of rail systems
- Start ups
- The scientific community
- Freight forwarders and logistic providers
- Passengers
- Representatives of rail staff
- National Supervisory Authorities
- ERA
- EU standardisation bodies
- Sector Associations

# Partners' Composition (*sector request*)





# Rail R&I iEP funding EUR 1.5 bln (*sector request*)



## Exploratory and Fundamental Research

integrating the research community, innovators/start-ups and other R&I institutions to work together with the rail sector to explore and generate new ideas

EUR 200 million

## Applied Research and Innovation

wanted market solutions will be pushed to move towards market deployment or terminated because not progressing as expected

EUR 800 million

## R&I Large Scale Operational Demos

Integrated R&I activities to show the possible benefits that would come from the future European deployment of new solutions

EUR 500 million

# A R&I Programme estimated at EUR 2.5 ~ 3.0 bln

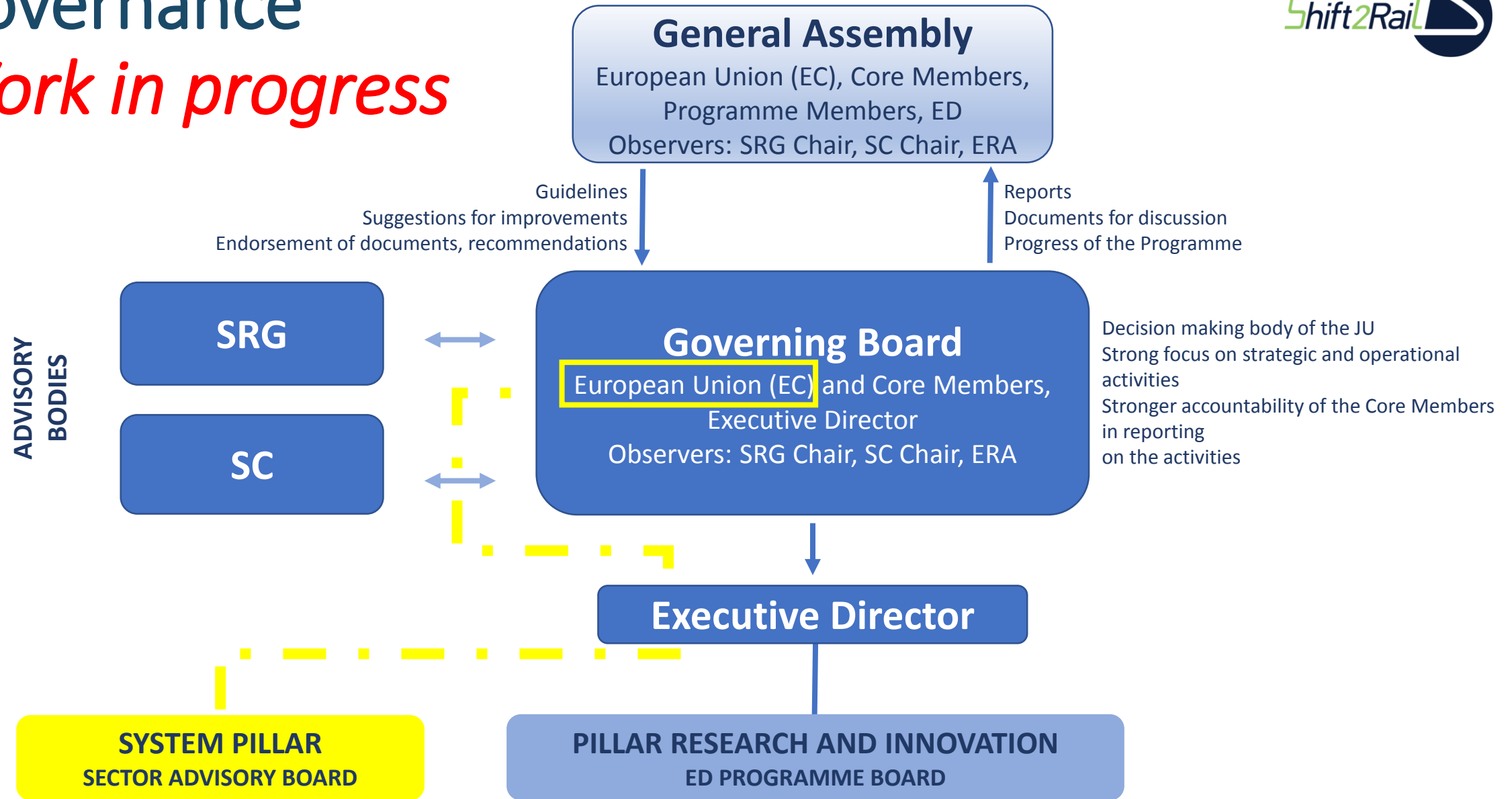
# Resources (*sector request*)



- **Members:** The overall investment made by the core members, in terms of Total Project Costs established in according with their usual accounting standards, is expected to be funded by the new Rail iEP at **50%**.
- **Programme Members** in the forms of Project Members committed to performing some part of the Programme activities or Projects or different cycles of R&I. The model should be similar to the one for the core members, but with a lighter administrative process, with a **funding rate at 50%**.
- **Programme Members in the form of Other Project Participants** will contribute to the definition of specifications and possibly testing the overall results; the **funding rate might differentiate compared to the activities to be performed**.
- **Other Third Parties** will be subject to the **H.E. funding rates** for RIA or IA or CSA, mostly involved in lower TRLs or possibly in the highest ones.
- **Financial contributions** – beyond the net internal contributions to be provided by the different categories of members, it is expected that they would get involved with cash contributions to the running costs of the new Rail iEP based on the value of their net contributions, in a % estimated between 3 and 5%.

# Governance

*Work in progress*



# Transforming Europe's Rail System



- Integrated EU rail networks
- Door to door mobility for freight/passengers
- Innovation in the market

S2R Master Plan

S2R MAAP

S2R R&I implementation

Part A: Capabilities  
Part B: Technological Demonstrators per IP

S2R Projects xx  
sub-systems  
architectures (TD or  
ITD) and IT models

S2R IPX, Linx4Rail

Railway Functional System Architecture  
& Conceptual Data Model

Operational  
vision

Interoperability &  
modularity vision

Individual stakeholders  
or other sectors external  
initiatives

## System Pillar

Operational concepts

Migration plans

**A single coordinating body for the whole  
sector evolution**

**Functional System of systems Architecture**

Open interfaces to  
other transport  
modes & businesses

System  
requirement  
specifications

## Innovation Pillar

Operational solutions for  
the services of the future

Integrating project for a  
shared Rail Transport EU  
Mobility System

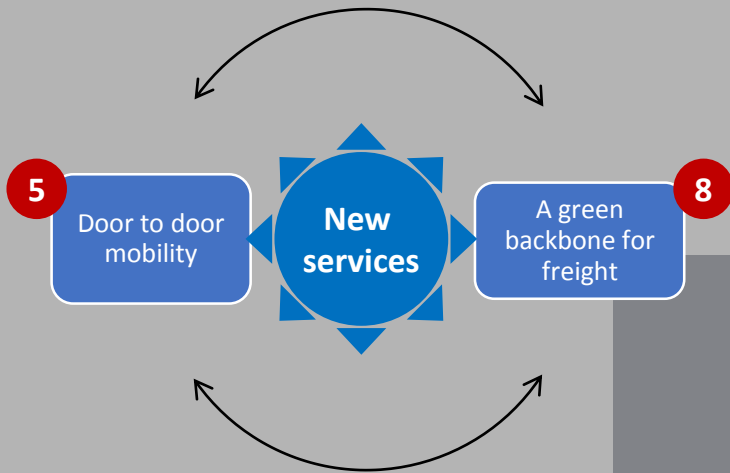
European Rail Traffic  
Management Layer

TSIs and/or standards  
pre-development

Transforming Projects  
(sub-system R&I  
implementations)

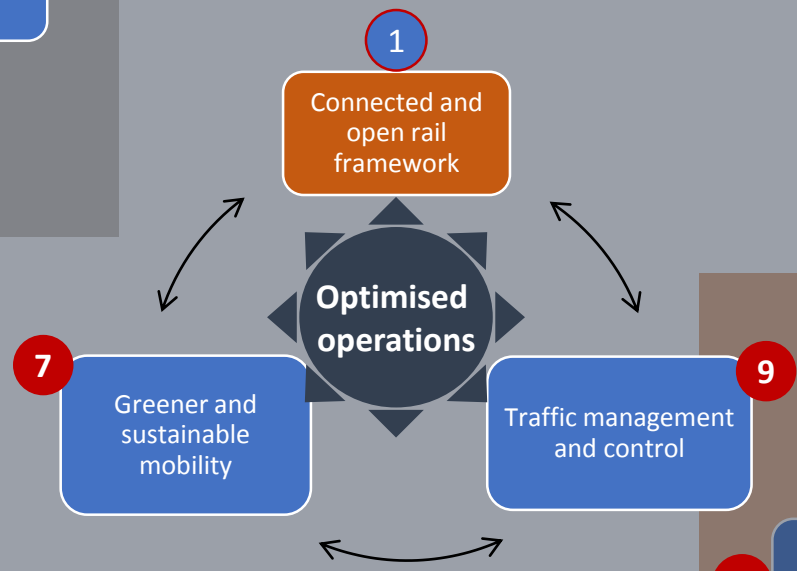
&  
Large scale operational  
demonstrations

*iPPP objective: deliver multimodality*

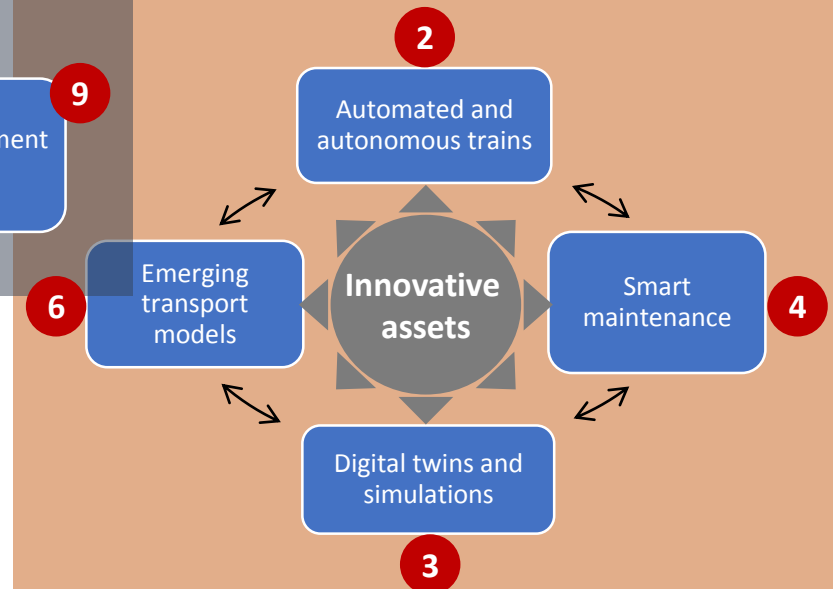


A coherent framework improves the system impact of R&I activities and ensures a European interoperability

*iPPP objective: Integrated European transport networks*



*iPPP objective: delivering European rail industry competitiveness*



Large scale demonstrations accelerate opportunities for better services, operations and assets

## Founding Members



## Associate 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

