

ERRACThe European Rail Research Advisory Council

Vision of the Rail Sector

Alberto Parrondo (VP Thales) Chairman ERRAC 11th European Innovation Summit Tuesday 04th February 2020, Brussels







- The European Technology Platform for rail was set up in 2001.
- Promotes the holistic vision of the rail system with all stakeholders.
- Aims to revitalise the European rail sector.
- Identifies business needs and innovates to make it attractive and more competitive.
- Fostering and guide research efforts at European level.
- Representatives from all the major European rail research stakeholders are gathered:

Operators	Infrastructure managers
Manufacturers	The European Commission
EU Member States	Shift2Rail / ERA
Users' groups	Academics

• ERRAC covers all segments of rail transport: from conventional, high speed and freight applications to urban and regional services.



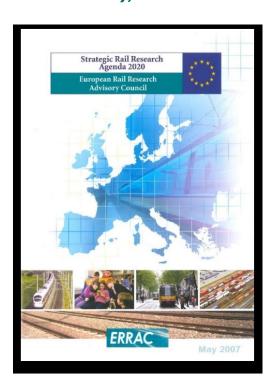
Some ERRAC earlier outputs

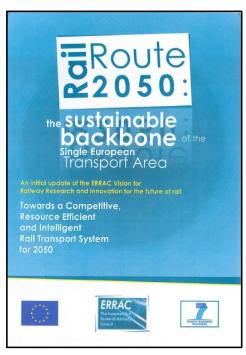
Strategic Rail
Research Agenda
(SRRA)
May, 2007

Rail Route 2050 *2012*

Strategic Rail
Research and
Innovation Agenda
(SRRIA)
November, 2014

ERRAC Roadmaps *April, 2016*







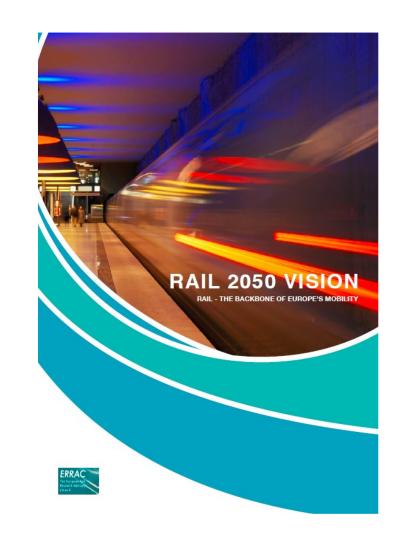




ERRAC Rail 2050 vision in a nutshell (1/2)

ERRAC 2050 Vision in a nutshell

"In 2050, rail transport in Europe is the backbone of an intermodal "Mobility as a Service" in cities and outside for both passengers and goods, meeting the needs of EU citizens and society. The suppliers and service organisations of the European rail industry are seen as the world's thought leaders for railway products and services."



https://errac.org/wp-content/uploads/2019/03/122017_ERRAC-RAIL-2050.pdf



ERRAC Rail 2050 vision in a nutshell (2/2)

Rail already plays an important role in delivering economic and societal benefits in Europe



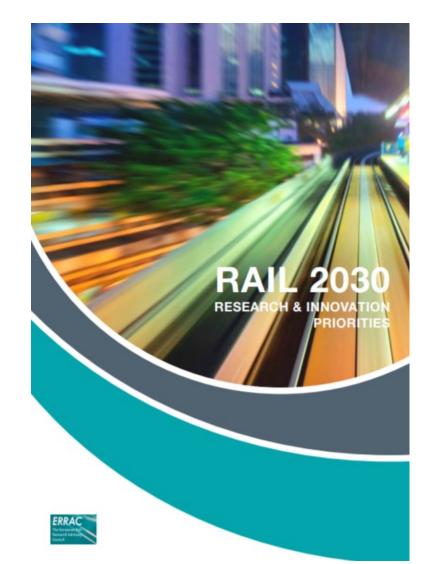
Public support for R&D&I is necessary

To do so, research and innovation (and other supporting elements, including appropriate regulatory structures) are vital



RAIL 2030 R&I Priorities(1/7)

- ✓ Reaching the ERRAC 2050 Vision requires consideration of the stages between today and then, particularly which aspects of the vision should be delivered by each stage, as a guide to formulating the priorities for research and innovation. The first such stage is the period to 2030, the focus of this document.
- ✓ The 2030 rail system will interact with other transport modes and with local, regional, national and European economic activities in transformational societal changes and trends.
- ✓ The objective of the sector is to offer end-users/citizens easy and seamless access to a portfolio of sustainable mobility options which have rail as their backbone.
- ✓ This document describes the priorities, which form the base for rail research and innovation, to build up the 2030 railway system.



https://errac.org/wp-

RAIL 2030 R&I Priorities(2/7)

1

CHALLENGES FOR THE MOBILITY OF 2030

ATTRACTIVENESS & CONVENIENCE

- End-use r/c itizen driven services (passe nger & logistics)
- Integrated door-to-door mobility
- ·Minimising Journey Time. No waiting times
- ·Punctual, reliable & secure
- Comfortable & quiet
- ·Affordable and tailored for all needs

MAXIMISED AFFORDABLE CAPACITY

- · Matching capacity with demand
- Affordable and minimising infrastructure changes
- · Resillient transport system and quick recovery
- Customised & Flexible: adaptable to changing needs

SUSTA INABILITY/SECURITY

- Decarbonised mobility
- · Energy efficiency
- Reducing congestion in populated areas
- Limiting noise, vibration and ground space
- More secure and resilient



"The rail sector addresses these challenges as the backbone of integrated mobility"



THE RAIL SECTOR'S ANSWERS TO THESE CHALLENGES (Supported by Horizon Europe)

DIGITALISATION

- · Connected & integrated railways
- Intelligent & cost efficient asset management
- Cyber-security solutions
- End-User/citizen-centric services
- Digital control command

AUTOMATION

- Real time operational management
- Trains running doser to gether.
 Platooning & virtual coupling
- Autonomous trains
- Automated freight operation
- Al & Robotics
- Extracting value from data

NEW MOBILITY SOLUTIONS

- Seamle as integration between modes of transport
- Smaller and more frequent trains
- New types of rail transport solutions (pods & others)
- Stations and terminals as mobility hubs

SUSTAINABLE SOLUTIONS

- Green energy technologies
- Interconnection between Energy and mobility systems
- Apply digitalisation to energy
 Silent railways
- ·Pro-active security
- *PTO active security
- Non-invasive inspection solutions

COST SAVINGS AND DEPLOYMENT OF INNOVATION

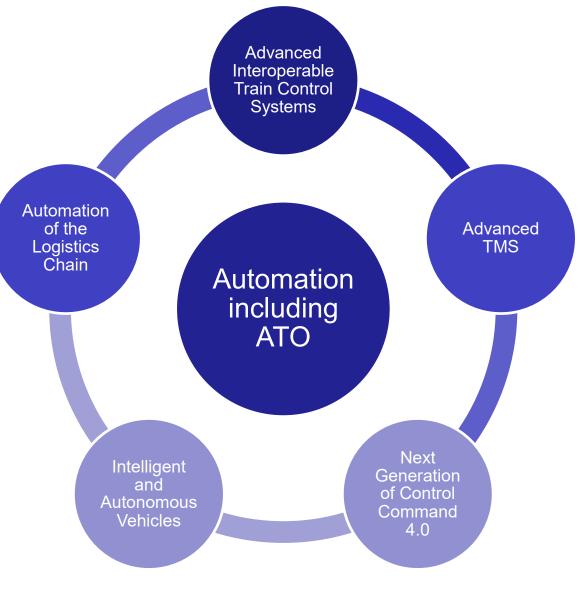
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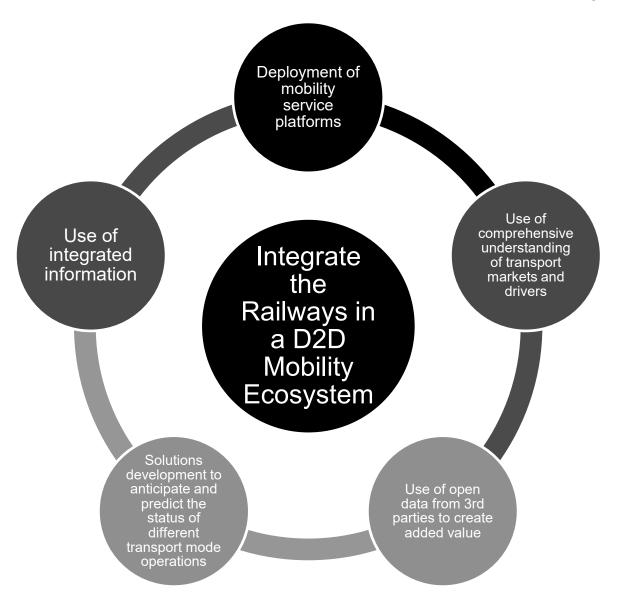
RAIL 2030 R&I Priorities (3/7)





RAIL 2030 R&I Priorities (4/7)







RAIL 2030 R&I Priorities(5/7)

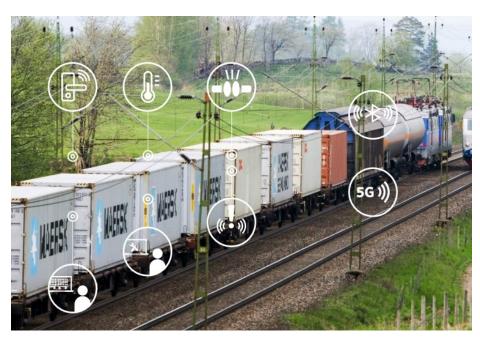
Digitalisation of the maintenance system

New construction methods

Intelligent
Assets
Lifecycle
Management

Prognosis and health assessment at system level

Specific technologies for maintenance execution





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> Affordable alternative propulsion

RAIL 2030 R&I Priorities(6/7)



RAIL IS 9X LESS CO intensive than road for freight

and air travel for passengers.

Procedures and techniques for recycling vehicles and eliminating polluting substances

Environmental sustainability and carbon free mobility

Holistic energy management approach for railways

Simulation tools and procedures to predict noise and vibrations





RAIL 2030 R&I Priorities(7/7)







- We have a momentum now is the time to act!
- Need to get the extension of Shift2Rail in Horizon Europe following the iPPP Model!





Thank you for your attention!

