

Urban Nodes Forum

**Session: “Digitalisation and Smart Solutions “
Budapest, 4th April 2019**

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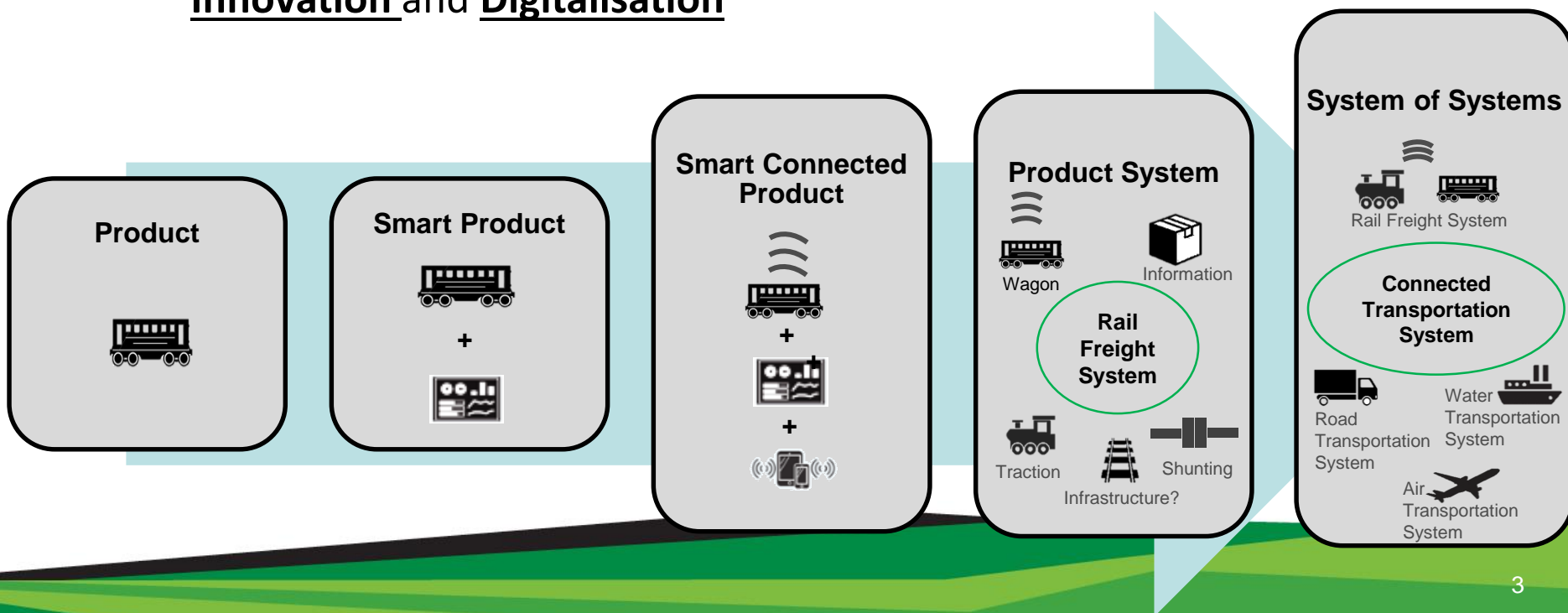


- ❖ European Association of train-builders and rail equipment manufacturers
- ❖ More than 100 suppliers of rolling stock, infrastructure and signalling (cf. ERTMS) equipment



The redefinition of Rail boundaries through multimodal integration

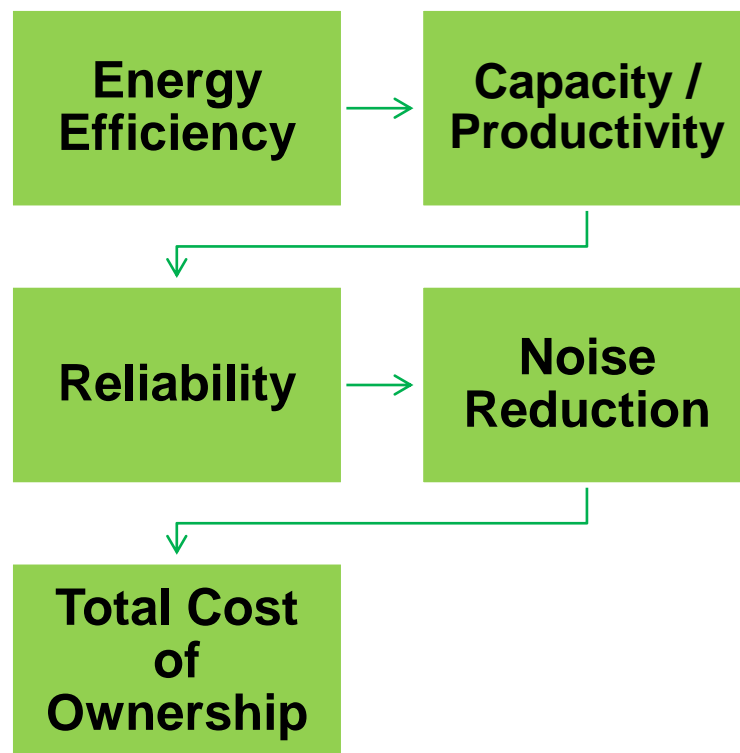
- The future of freight transport is in **multimodal integration**.
 - Urban Nodes offer a good environment to foster efficiency across the entire multimodal logistics chain in terms of economic, safety and environmental parameters.
 - Rail has to become the **backbone** of the multimodal logistics chain.
 - The goal is to redefine Rail (freight) boundaries through **Research & Innovation** and **Digitalisation**



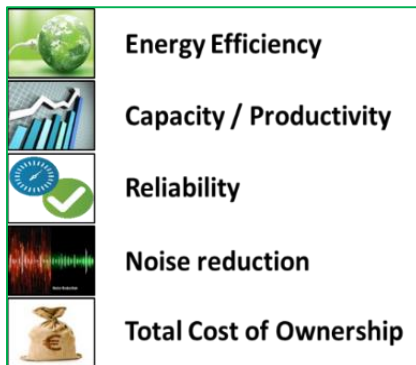
ERIFA is a living document which identifies key technologies to boost the competitiveness of the rail freight in a multimodal context.

- 30 innovative technologies identified in the field of:
 - 1) IT;
 - 2) Rolling Stock;
 - 3) Infrastructure.
- No overlapping with already existing strategic roadmaps – ERRAC, Infra Manager/ Railway Undertaking Associations, etc.
- Full complementarity and strict consistency with the work carried out within funding programmes e.g. Shift2Rail Joint Undertaking

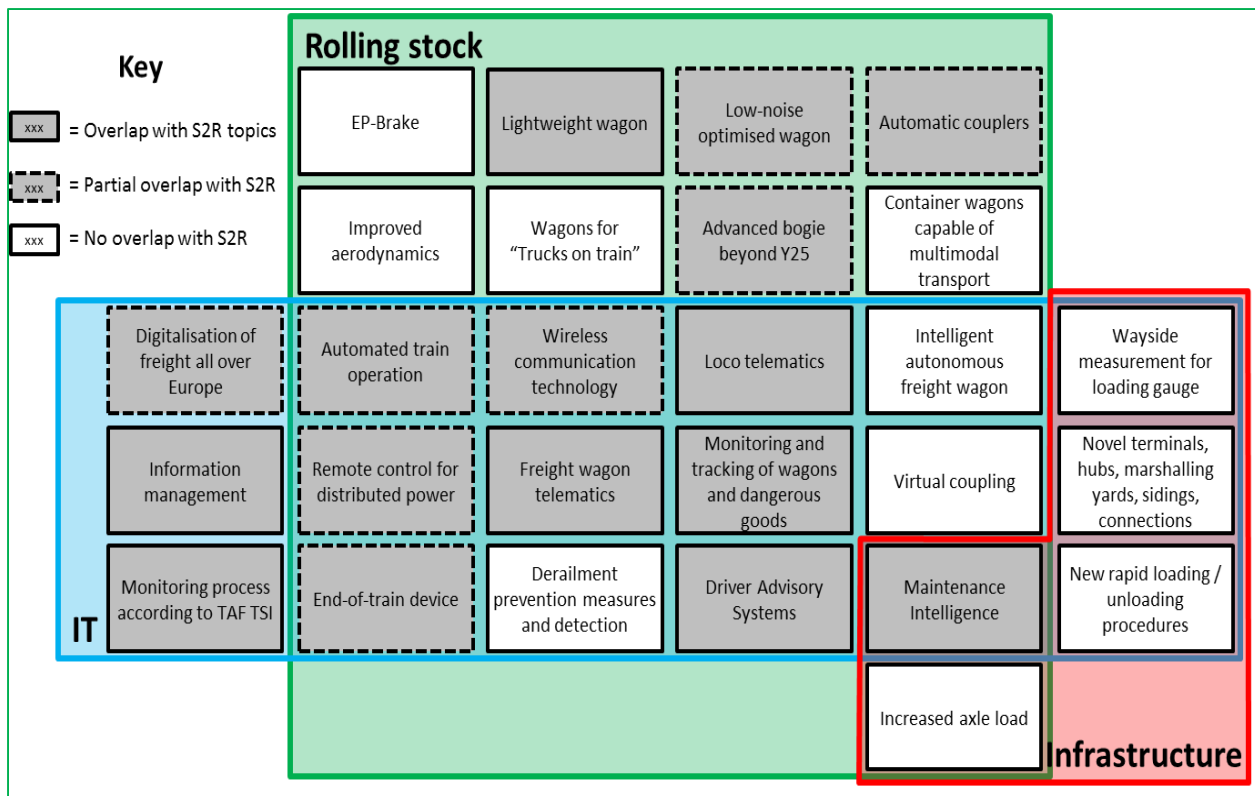
- Each technology will be assessed by using a visual approach against five indicators:



ERIFA at a glance



	Low impact
	Medium impact
	High impact



ERIFA – The European Rail Industry Freight Agenda (3/4) – The case for ATO

- It is the right time for ATO. Most of required technologies is ready.
- In Europe, two main development directions can be distinguished
 - ATO over ETCS
 - ATO over legacy/national ATP systems
- Both with different needs and requirements
 - National or network specific adaptations required
 - Interoperability only guaranteed in ATO over ETCS L2

- Several European Operators / companies have recently started initiatives to develop solution for their hassles



- Only a few commercial projects in development

South Western
Railway
ABDO on
Aventra

Thameslink with
ATO
over ETCS L2

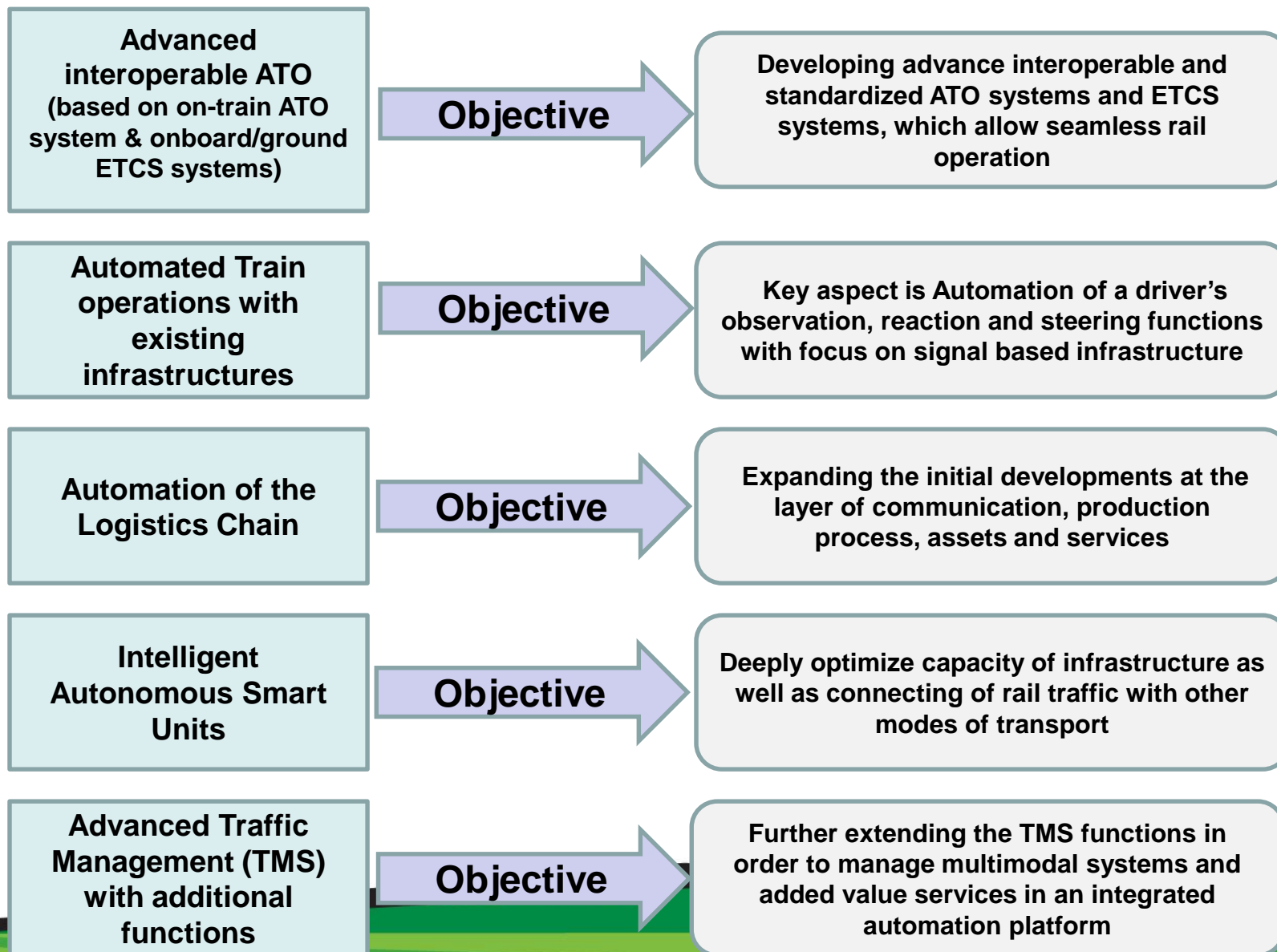
Lower Operational Costs

- Lower energy costs in the range of 15%
- Lower maintenance costs vehicle in the range of 5-10%
- Lower maintenance costs infrastructure in the range of 5%
- Less accidents in the range of 20%

Increased System Efficiency

- Higher availability in the range of 10%
- Increased reliability in the range of 5%
- Higher traffic density
- Stable freight traffic timetables

ERIFA – The European Rail Industry Freight Agenda (4/4) – Five scenarios for ATO





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R&I is of paramount importance to enable Rail as the backbone of tomorrow's multimodal mobility

R&I plays a fundamental role in supporting the rail sector's technological efforts

Constant improvement of Rail performance in terms of:

- 1) Energy efficiency;**
- 2) Life-cycle cost of rail components;**
- 3) Boosting rail's technological advancement**

Continuity, stability and long-term vision of the whole rail sector's innovation efforts

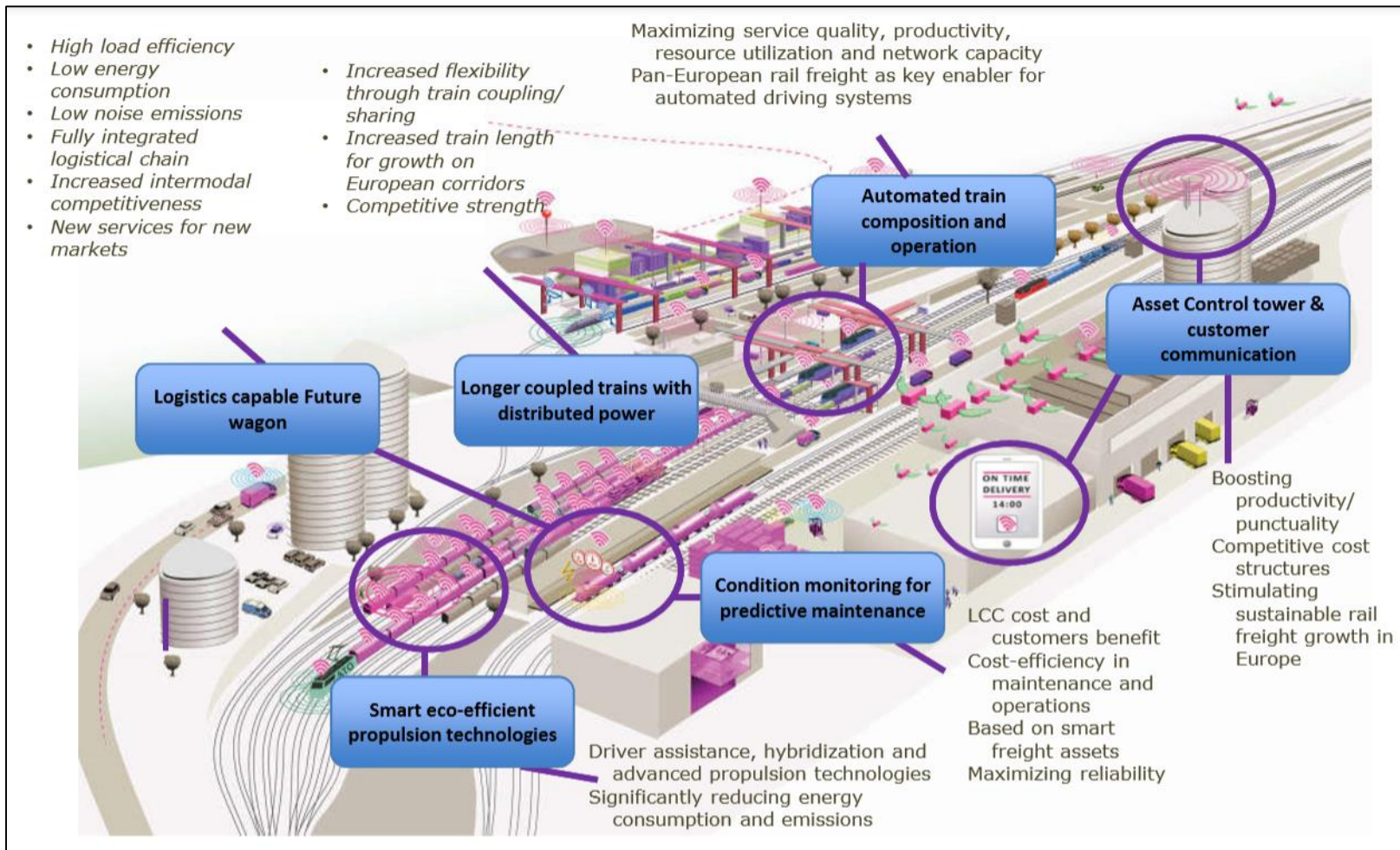


Collaborative research and platform for cooperation across the whole innovation ecosystem



Technology demonstrators for competitive, intelligent rail freight operations

Innovation Programme 5: Technologies for Sustainable & Attractive European Rail Freight – EUR 83 million (2014-2020)



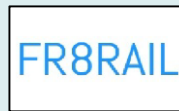
Implementation Strategies and Business Analytics

- Migration plans
- Identifying market segments
- Developing specifications and KPIs



Fleet Digitalisation and Automation

- Automatic coupling
- Condition-based and predictive maintenance
- Driver Advisory Systems



Digital Transport Management

- Real-time data gathering, steering, operation
- Coordination of intermodal transport through the asset control tower



Shift2Rail IP5 – Research and Innovation for Rail Freight (3/3)

Smart Freight Wagon Concepts

- Telematics
- Electrification

FR8RAIL

INNOWAG

fr8hub

New freight propulsion concepts

- Last-Mile
- Longer coupled trains with distributed power
- Improving the overall locomotives' performance

DYNAREIGHT

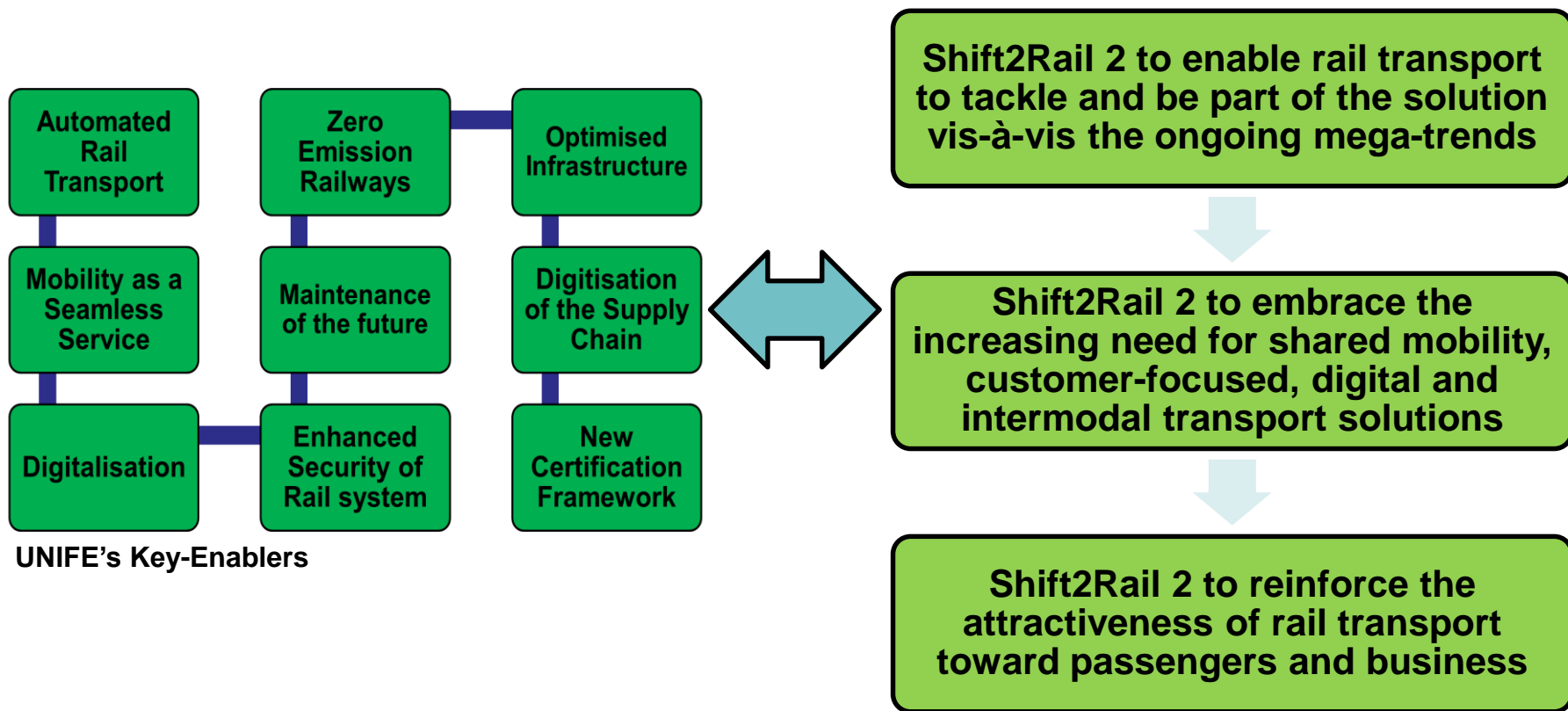
FFL4E
Future Freight Locomotives
For Europe

fr8hub

The future of Rail Research and Innovation – Shift2Rail 2

- **UNIFE strongly calls for the continuation of the Shift2Rail Joint Undertaking within the next Research and Innovation framework programme Horizon Europe 2021 – 2027.**

The European rail supply industry's vision for Shift2Rail 2



Want to know more about UNIFE?

- Read our « *About UNIFE* » guide
- Consult our website: www.unife.org
- Follow us on twitter: @UNIFE
- Contact: Tommaso.Spanevello@unife.org

