



→ Themes for potential development through standardization under the cooperation programme of FP7

- The railway sector

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→ The railway industry

The attributes of this industry are as follows:

- mature but still developing
- safety conscious
- based on innovation
- traditionally involved in research
- evolving from service to business led

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under the cooperation programme of FP7

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→ Standardization

The Industry is supported by three EU recognised Standardization Bodies namely:

- CEN TC256 for all ‘mechanical’ standards
- CENELEC TC9X for all ‘electrical’ standards and
- ETSI for all ‘telecommunication’ standards

These 3 bodies are coordinated by a
Joint Programming Committee for Rail [JPCR]

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→ Unique nature of the Industry

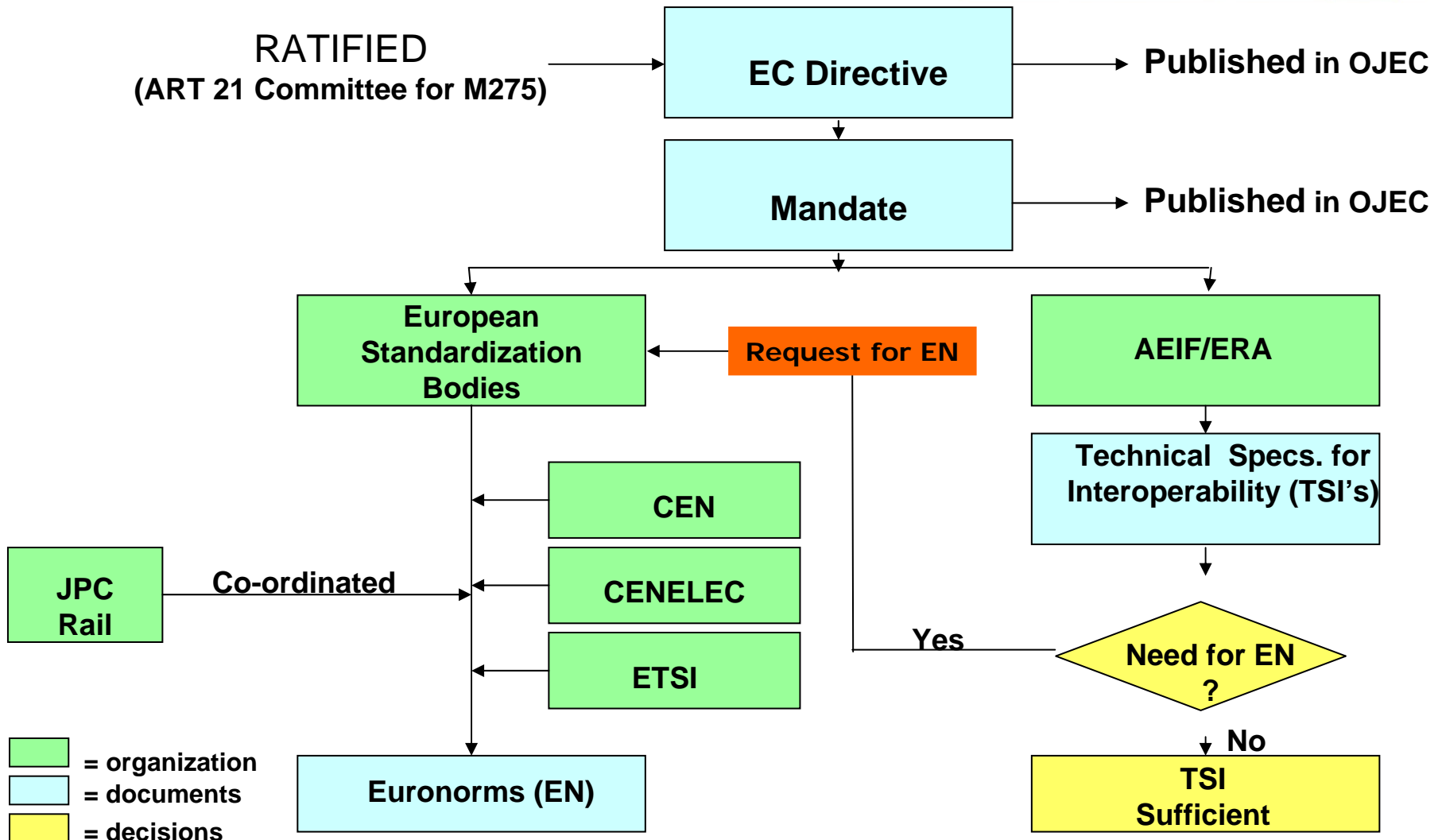
- There is a difference between the rail industry and others:
- **the presence of TSI's**

Technical specifications for Interoperability are legal documents applicable to all member states and placed between the EU Directives and the mandates for Standards to the ESB's.

- TSI's determine the TC256 priorities to a large extent

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 Themes for potential development through standardization
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The railway sector



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under the cooperation programme of FP7

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→ Past involvement in Research

TC256 has long been involved with R&D projects leading to standard e.g.

- EU programme Safetrain for Crash EN
- Firestarr programme for Fire standard
- Aerodynamics research for Drag on workers beside running lines
- Libertin programme for Light Rail EN's
- Noise research to establish Track Roughness EN for cab noise

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The railway sector



→ Lessons learned

- ESB's must be aware of and be regularly informed on the progress of the project and the Industry intentions for the outputs.
- Suitable funding for the development of identified EN's must be put into the programme.
- Safety aspects of new R&D must be proven before introduction into ENs, especially at all identified interfaces.
- Industry Impact studies must be done before introduction of new ideas into the business

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The railway sector



→ Themes for the future

ESB view [1]

There are many areas of R&D that would help the EU in general and this Industry in particular as follows:

- **Attractiveness of Rail**

- Projects to eliminate barriers for freight and passengers using rail
- Accessibility to vehicles and infrastructure for persons with reduced mobility
- ‘Seamless journeys’ with better regularity

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under the cooperation programme of FP7

The railway sector



→ Themes for the future

ESB view [2]

The Industry has a tremendous safety record and this must be maintained. However the cost of this is very high and urgent research is needed to reduce these costs

▪ Safety in Rail

- Use of GPS technology for control of vehicles on track
- Automated infrastructure inspection system
- Unified risk management and product approval systems
- Concept of 'safety bonus' to industry

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→ Themes for the future

ESB view [3]

With the importance of climate change forcing energy efficiency, the industry needs to look at

- **New materials**

- lighter weight
- good fire resistance
- lower maintenance
- better crashworthiness

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The railway sector



→ Themes for the future

ESB view [4]

With the proven performance of rail systems at speeds of 300+ kph, there is a need to investigate:

- **Aerodynamics**
 - Reduction of drag for energy saving and for safety of passengers and line side workers.
 - regenerative braking for non-electrical propulsion
 - air braking
 - effects of cross winds especially on tilting

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The railway sector



→ Themes for the future

ESB view [5]

The industry needs further work to enhance the experience of users of the system:

■ Customer care

- availability of passenger information
- ride comfort including tilting trains
- active suspensions for lower track maintenance with good ride comfort
- tracking and security of freight

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→ Themes for the future

ESB view [6]

With the advent of global warming and the need for minimising energy usage there is a need for:

- **Environment management methods**
 - CFC free air conditioning
 - low energy usage air management
 - recyclability
 - low energy propulsion [electrical and mechanical] with storage/regeneration

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→ Themes for the future

ESB view [7]

With the large unitary railways now breaking into smaller business units, there is a need for:

- **Knowledge Management**
 - Knowledge transfer from Universities
 - Industry knowledge retention
 - relevant cross-industry transfer

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The railway sector



→ A bright future

- As a safe and energy efficient public transport system, the railways are already leading other modes of transport.
- To maintain and improve this position, the sector has to continue to invest in R&D so that inefficiencies are eliminated and new technologies deliver the potential for growth and regeneration.
- Through R&D the sector can assist the whole Community to reduce the major problems currently being encountered in the road sector

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under the cooperation programme of FP7

The railway sector



→ Finally

- I would like to thank you all for giving me this opportunity to present some thoughts on R&D in this sector.
- The views expressed are those of a European ESB. It needs the industry to take some or all of these ideas into realistic projects for the 7th FP

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