European Commission

How to accelerate the roll out of ERTMS?

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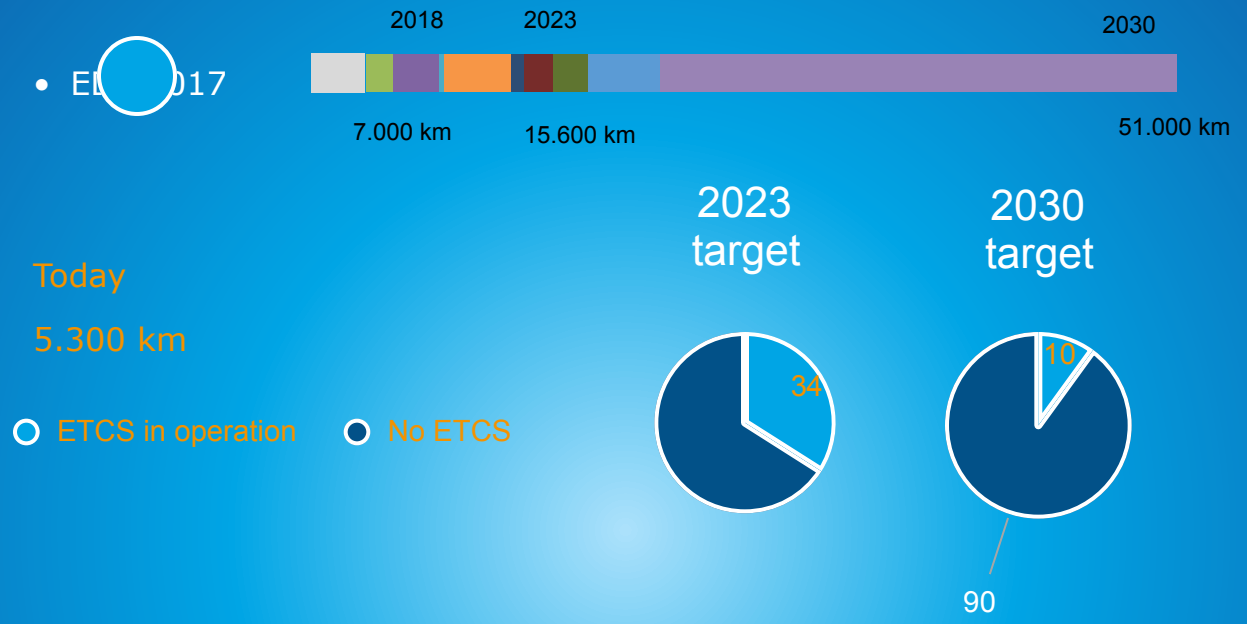
Where are we with the ERTMS deployment?



Compliance with EDP in 2017 and in 2018

- Of the 1.638 km foreseen in the EDP for 2017, 411 km are still delayed
- Of the 2.619 km scheduled in the EDP for 2018, 267 km are in operation. Additional 823 km are in operation but being upgraded to B2 Level 2. 1.529 km are delayed or the status is unknown

Conclusions from ERTMS deployment on CNC (1)

- The deployment is delayed (already 2 years after adoption of EDP)
- Most of the delays do not exceed 2 years
- The vast majority of the pending lines are under construction
- In a number of cases the works have finished but the line is not in operation for various reasons
- Some lines are in operation for years but nobody is using ERTMS (terrible waste of public resources)

Conclusions from ERTMS deployment on CNC (2)

- Several early movers for nation-wide deployment delay the deployment (e.g. DK and NL); what undermines the business case for rolling stock retrofitting
- Others (e.g. LU) are on track and intend decommissioning of class B systems but rolling stock in neighbouring countries is not ready
- Equipping just the corridor in most of the cases does not bring about sufficient benefits (objective: nation-wide deployment)

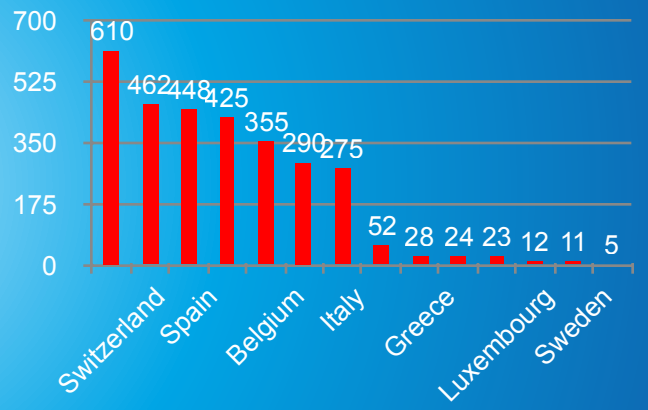
ERTMS OBUs deployment on CNC

- The business case analysis demonstrates that the best transition deployment strategy at **corridor level** is a **dual on-board strategy**
- Therefore, the **whole fleet** operating on CNC has to be equipped with B3R2 by 2030
- In countries where a large part of the network is covered by CNC, **100% of the fleet to be equipped**
- In countries where there is still a large part of the network without any CNC, size of the fleet to be equipped **depends on the scenario**
- Vehicles can be equipped via: either **renewal** (e.g. if vehicle is older than 30 years before 2030) or **retrofit**
- Depending on the scenario adopted:
  - In 2022: 4700 – 5700 vehicles equipped
  - In 2030: 27 500 – 33 500 vehicles equipped
- *(source: DMT: INECO-EY)*

Number of ERTMS On-Board Units (OBU) contracted and in operation

- In Europe: 10,449 contracted OBUs
- Germany is the frontrunner with 2,152 OBUs, followed by Switzerland with 1,402 OBUs contracted

- Out of those 10,449 contracted OBUs:
- 3,020 OBUs are currently in operation
- Switzerland is in the leading position with 610 OBUs, followed by Austria with 462 OBUs and Spain with 448 OBUs in operation.

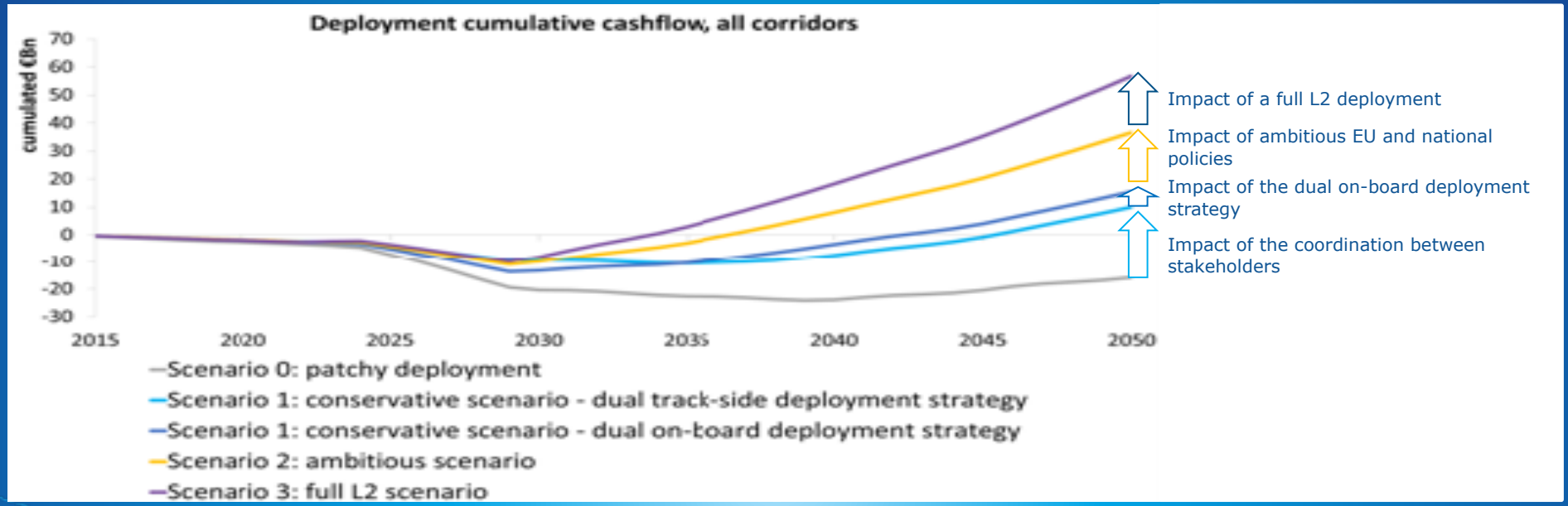


- *(source: UNIFE – UNISIG databases)*

There is a positive business case for ERTMS deployment…

Rhine - Danube IRR: 10,0%
Mediterranean IRR: 6,8%
Atlantic IRR: 8,5%
Orient / East Mediterranean IRR:12,3%
Baltic - Adriatic IRR: 9,4%
North Sea – Baltic IRR: 13,4%
Scandinavian - Mediterranean IRR: 9,2%
Rhine - Alpine IRR: 9,1%
North Sea - Mediterranean IRR: 10,5%
Overall IRR: 9,6%

...but it is dependent on co-ordinated deployment both on-board and trackside



Decommissioning of class B systems

- Decommissioning of class B systems trackside
  - will bring about significant maintenance savings for infrastructure managers
  - can be the main driver for trackside deployment provided the existing rolling stock is retrofitted on time
  - can be a powerful driver for ERTMS deployment on-board
  - must be done in a coordinated way with a sufficient transitional period

Retrofitting deployment plan

- Future retrofitting needs will be high
- A consolidated view on the upcoming retrofitting needs is important to:
  - Determine capacity needs
  - Address bottle necks
  - Ring-fence sufficient public financing
  - Address the state aid issue
  - Attract private financing
  - Mobilize smaller railway undertakings
  - Identify prototypes
  - Promote standard solutions

Points to ponder

There are several key conditions determining the fate of ERTMS (and possibly also of the railways in the EU):

- respect of the European commitments and the genuine ownership of the deployment strategy at the national level
- standardisation of products and reduction in unit costs
- industrial deployment
- backward and forward compatibility
- swift implementation of new technologies and game changers

ERTMS is only a part of a bigger picture called rail digitalization. The Commission services together with the sector representatives are at present working on the overall future architecture and the necessary short and mid-term steps to achieve this objective

European Commission

Thank you for your attention

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