



ERTMS deployment trackside and on-board. Opportunities and challenges

Marcin Wójcik
European Commission DG MOVE

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@Transport_EU

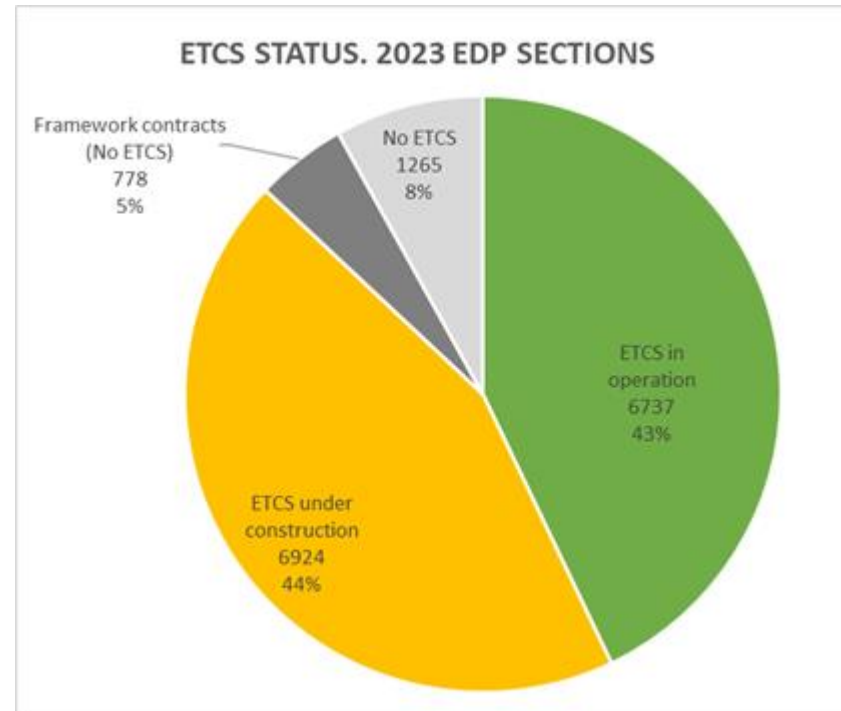
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Most CNC lines scheduled under the EDP for 2023 are operational or under construction

Trackside ERTMS covered by EDP – State of play

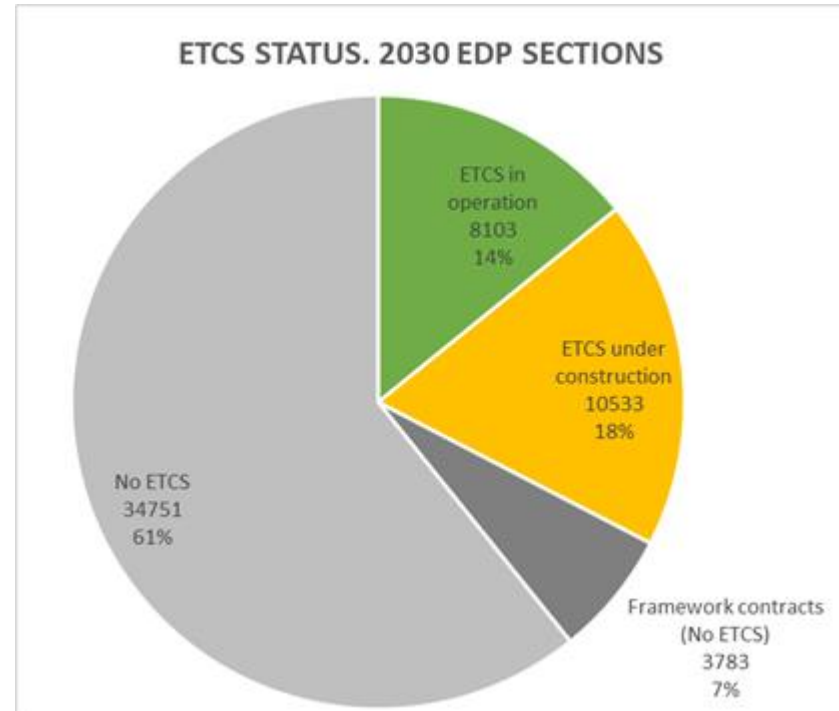
- The majority of CNC lines scheduled for 2023 are in operation or under construction (but with some delays).
- By September 2021, ETCS was deployed on **43%** of the lines of the CNC expected to be equipped by 2023 (EDP – Total 15,703 km)
- Additional **49%** are covered by contracts (including framework contracts)



The deployment on the CNC lines scheduled for 2030 is also taking momentum

Trackside ERTMS – State of play

- The deployment on the lines scheduled by 2030 is also gradually taking momentum. This regards also lines included to the CNC under CEF2
- By September 2021, ETCS was deployed on 14% of the lines of the CNC expected to be equipped by 2030 (CEF 2 alignment - Total 57,170 km)
- Additional 25% are covered by contracts (including framework contracts)



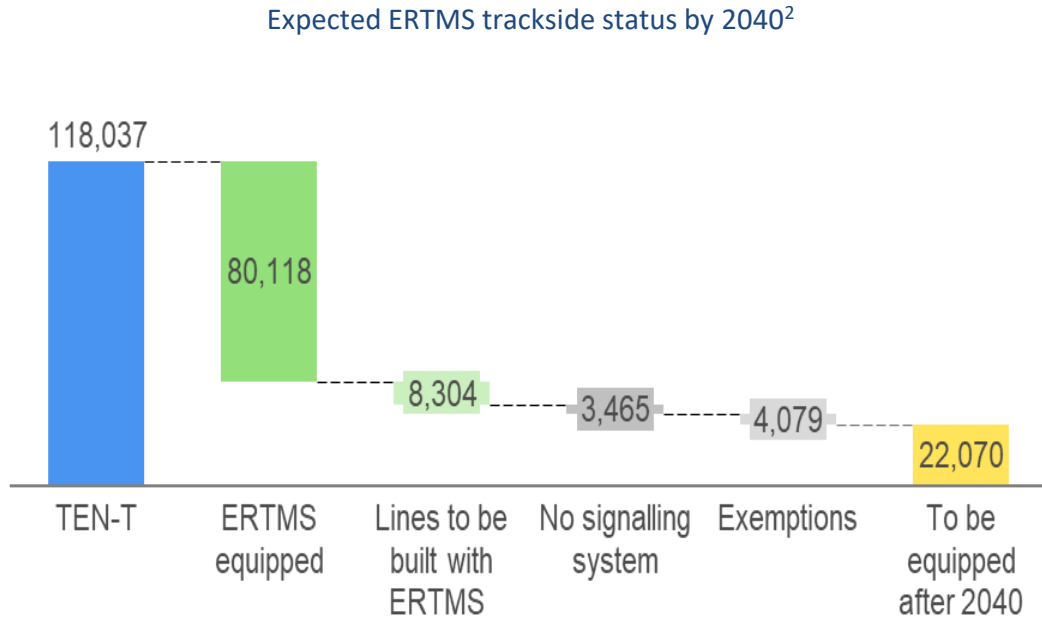
ETCS deployment status on CNC in September 2021



By 2040 the vast majority of the TEN-T Network and beyond will be equipped. A number of Member States will have equipped their whole network by then.

Trackside ERTMS – Outlook

- **By 2040**, the majority of the TEN-T network will have been equipped.
- Given national plans, by 2040, **less than 20% of the TEN-T Network will still require class B system onboard to run.**



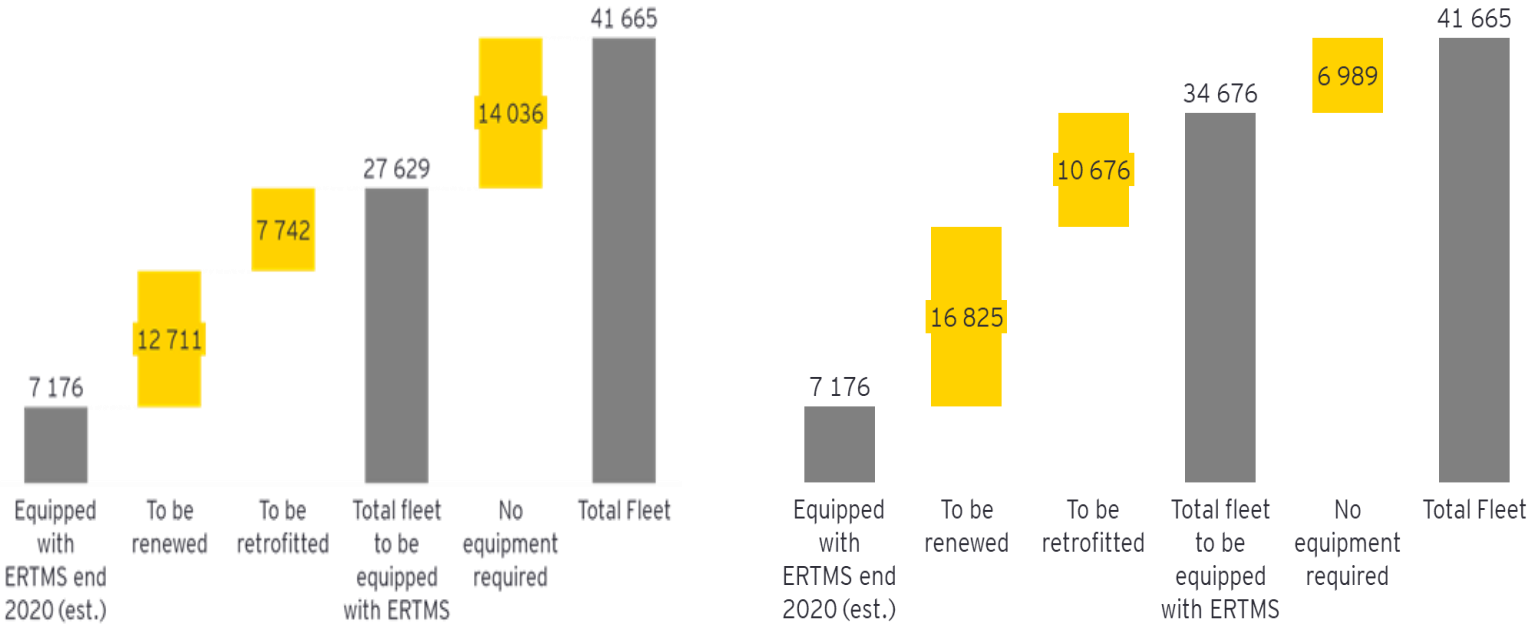
Expected ETCS status by 2040 according to the national plans



10 countries will have achieved full network coverage, and in total **no class-B system** will be required onboard in **14 countries**

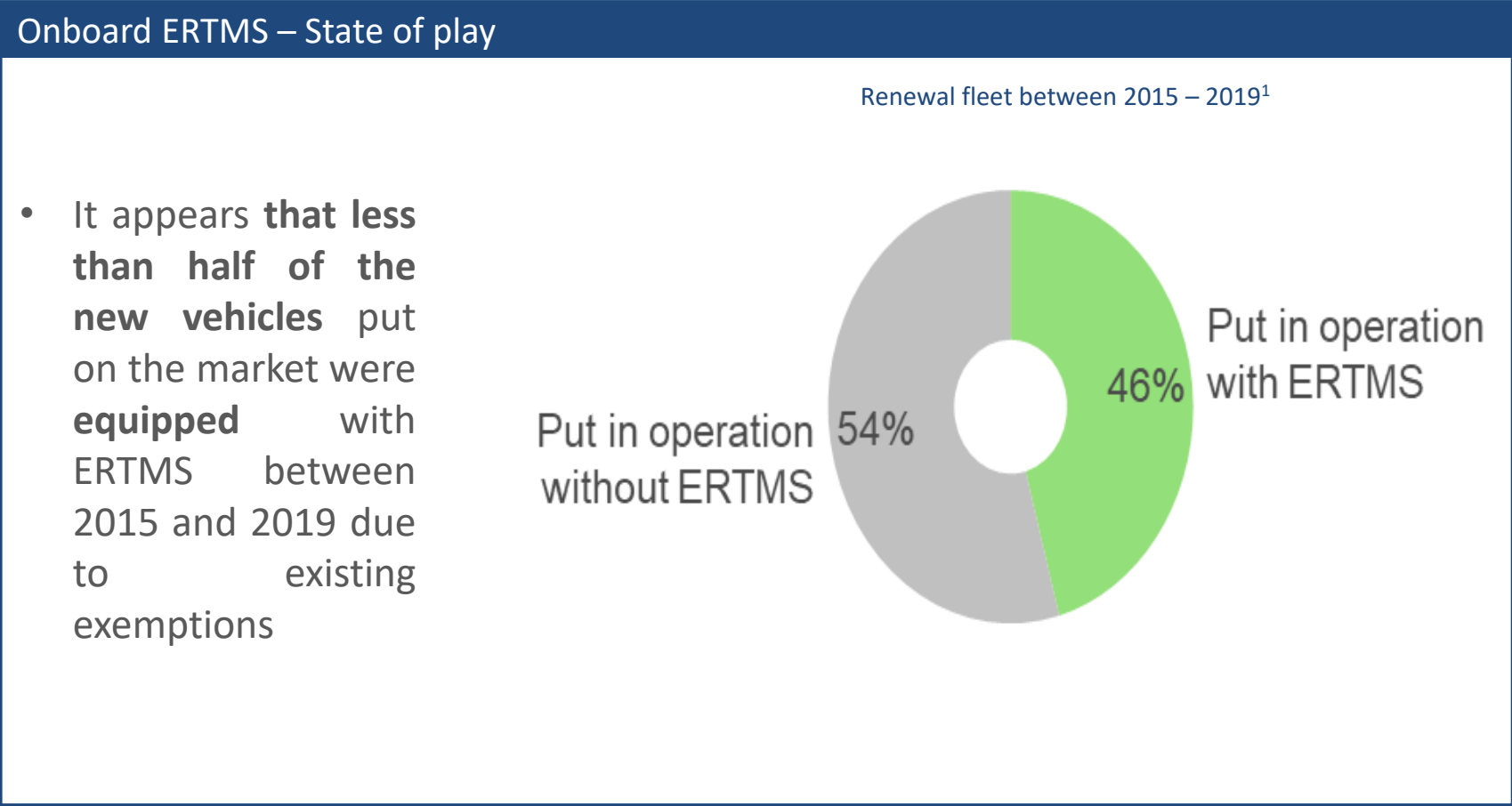
- ETCS in operation by 2040 – Core Network
- ETCS in operation by 2040 – Comprehensive Network
- No ETCS operation – Core Network
- No ETCS operation – Comprehensive Network
- - - No ETCS operation, new construction – Core Network
- - - No ETCS operation, new construction – Comprehensive Network
- No ETCS operation without train protection system – Core Network
- No ETCS operation without train protection system – Comprehensive Network

Total fleet to be equipped with ERTMS by 2030 – low and high bound



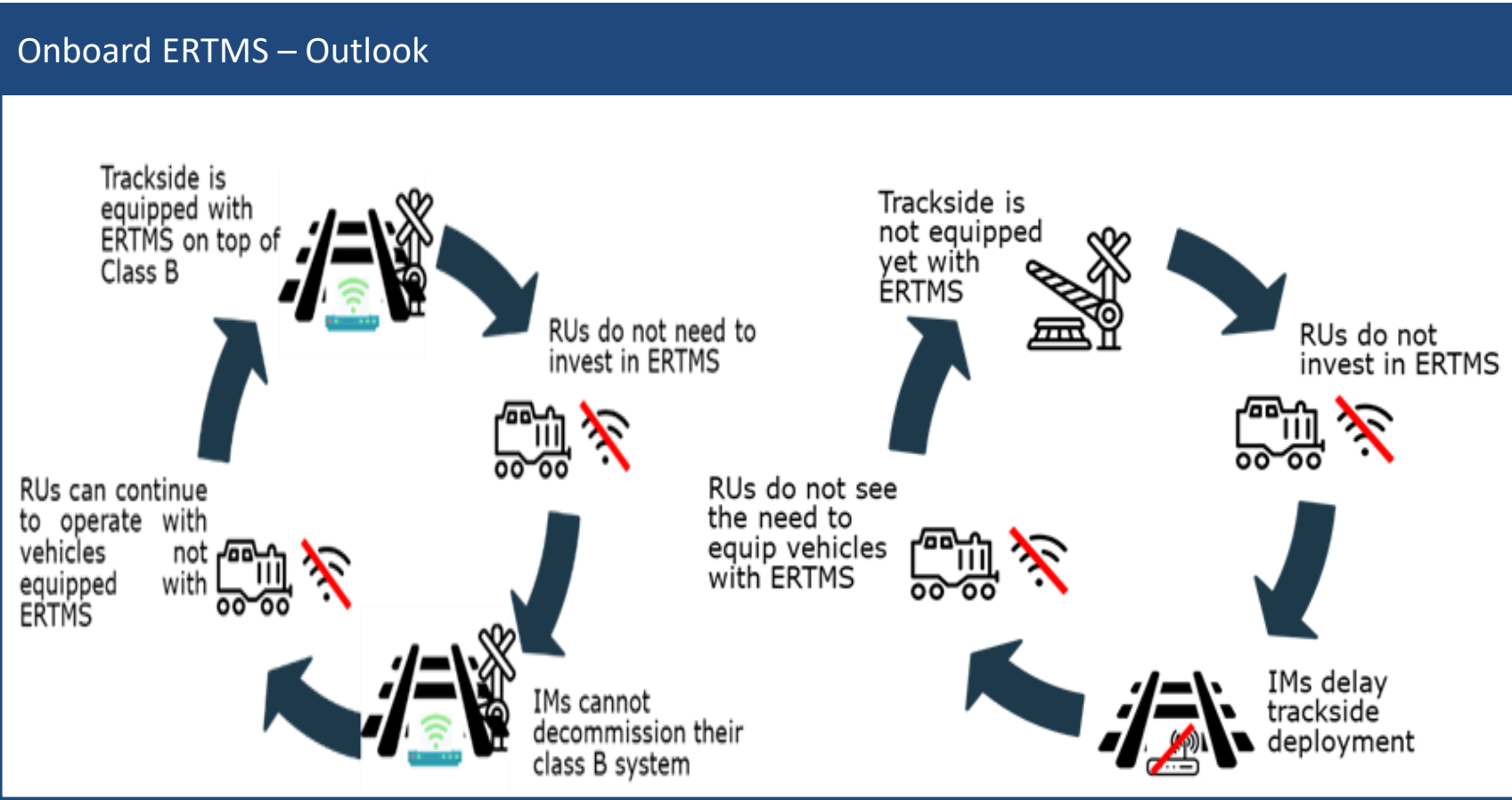
- Based on currently available data some 15,000 vehicles will be equipped with ERTMS by 2030 (7,176 existing plus 7,680 to be renewed or retrofitted)
- Around 20,000 vehicles will reach the end of life and therefore are expected to be renewed in the next ten years. This is an opportunity to **render the fleet green and digital**

Onboard deployment is lagging behind; as less than half of new vehicles are equipped.



¹Source: Data collect by UNIFE, by ERA, from interview carried out by Deployment Management Team with RU, additional desk research

Operators do not fit or retrofit their fleet since they do not see the need to invest in ERTMS: the lines in their area of operation are not yet equipped with ERTMS and/or they can still use class B systems.



Conclusions

- There are very **large benefits** to be reaped by Infrastructure Managers by achieving a coordinated **ERTMS deployment by 2040** coupled with a **class B decommissioning**.
- **Vehicles need to be equipped**, otherwise the benefits of trackside rollout will not be achieved.
- **ERTMS** should now become **standard equipment** of the rolling stock.
- Change from isolated “**ERTMS islands**” to commercial significant **networks equipped with ERTMS**.
- Prioritisation of **ERTMS deployment on specific sections (missing links)** would enhance international freight operations.
- **Class B systems** will become **niche markets** and **maintenance costs will rise**.



Thank you for your attention!