

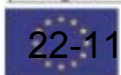
Eurailspeed

Parallel Session B.2

- **Jens Hartmann**
- Head of the Infrastructure
- Technical Management, DB Netz



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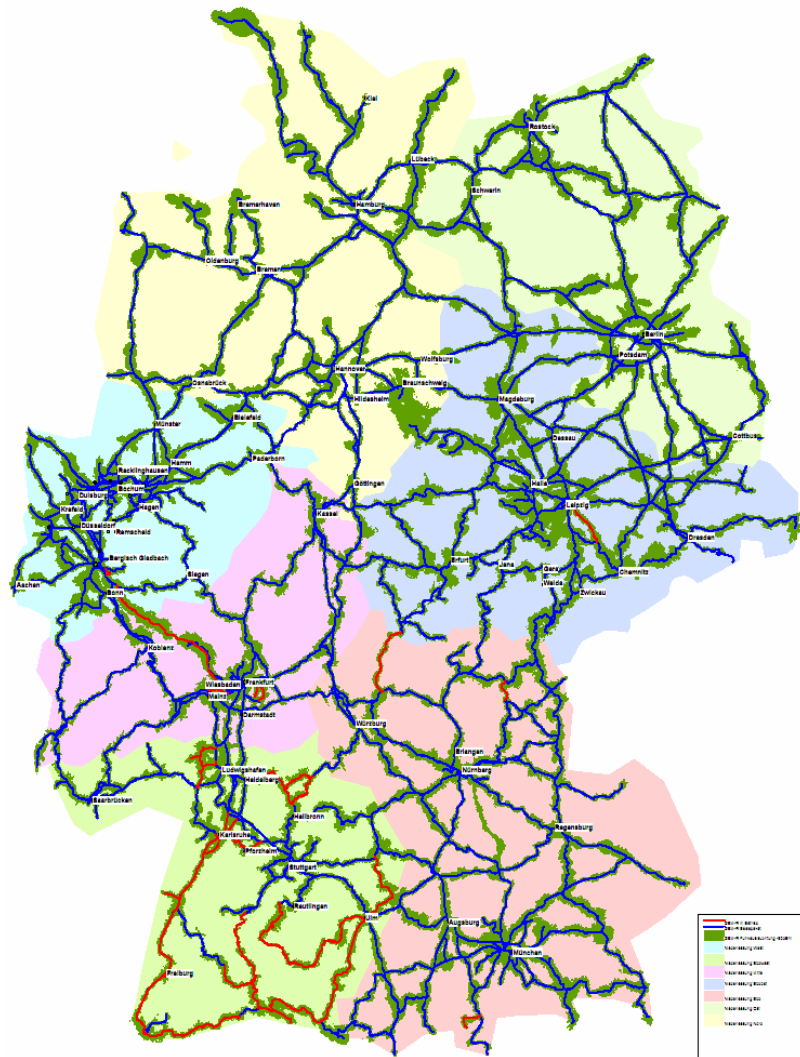
Interoperability: a European and a global technical challenge

eurailSpeed
milano2005

Jens Hartmann
Head of Technique Infrastructure
DB Netz AG Germany

Interoperability:

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GSM-R Radio

- GSM-R Radio coverage -90 dBm
- GSM-R basis tracks (first contract)
- GSM-R in service

Interoperability:

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Revision of TSI Control-Command and Signalling (High Speed)

- Text has been adapted to the model structure of the (new) TSI for Conventional Rail (CR)
- Chapter 7 (Implementation): obligation to implement ETCS (onboard and trackside) has been reduced for cases in which an economic use would not be possible because of too early timing; the “corridor idea” has been introduced according to the TSI for CR;

5 Specific Cases for Germany have been introduced according to the TSI for CR;

Commission had written section 7.3 “Change and Configuration Management”, in context with handing over this task from AEIF to ERA

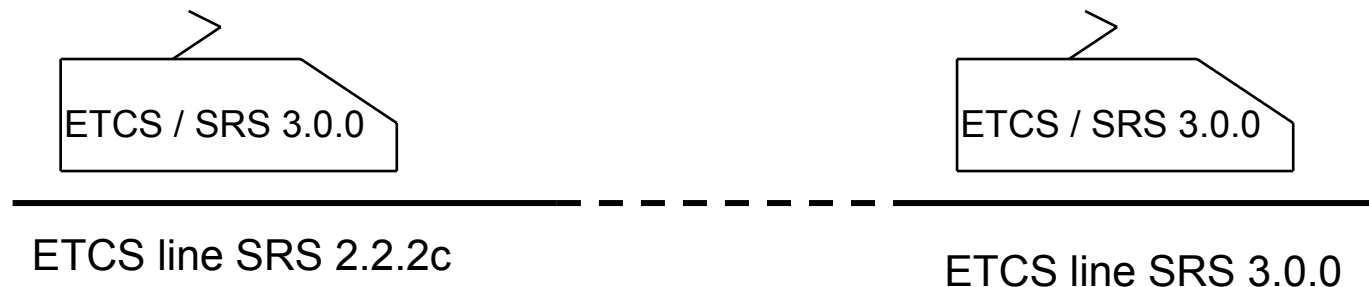
- Annex A (specifications): still to be updated, in particular concerning the consolidation of ETCS specifications
- Annex A Appendix 1 (train detection): new, but still to be updated aiming at unified limit values for disturbing traction currents and electromagnetic fields
- Annex A Appendix 2 (hot axle box detection): new
- Annex B Appendix 4 (train detection: limit values for existing systems): established for 130 types of track circuits in 13 member states.

Interoperability:

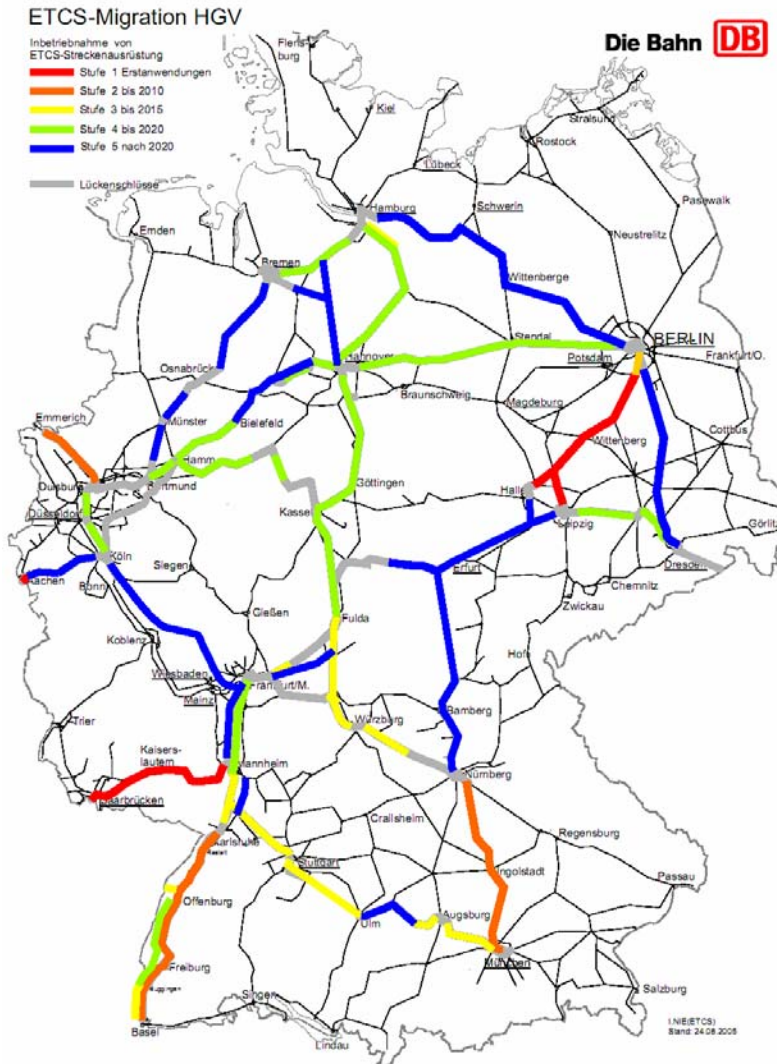
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ETCS-specification consolidation and backwards compatibility

- TSI control command signalling Annex A includes the ETCS specification
- SRS 2.2.2 is the basis for pilot projects and early deployment schemes
- first results of the consolidation process have lead to a list for change requests (Cr)
- Cr solves errors, inconsistencies as well as still standing open points like braking curves or level crossing
- currently SRS 2.2.2c is in preparation in order to ensure technical interoperability within and between current project
- SRS 2.2.2c will not be full interoperable; negotiations between the individual projects are necessary
- For the SRS 3.0.0 there is the requirement, that a train with SRS 3.0.0 will be interoperable with a line equipped according SRS 2.2.2c



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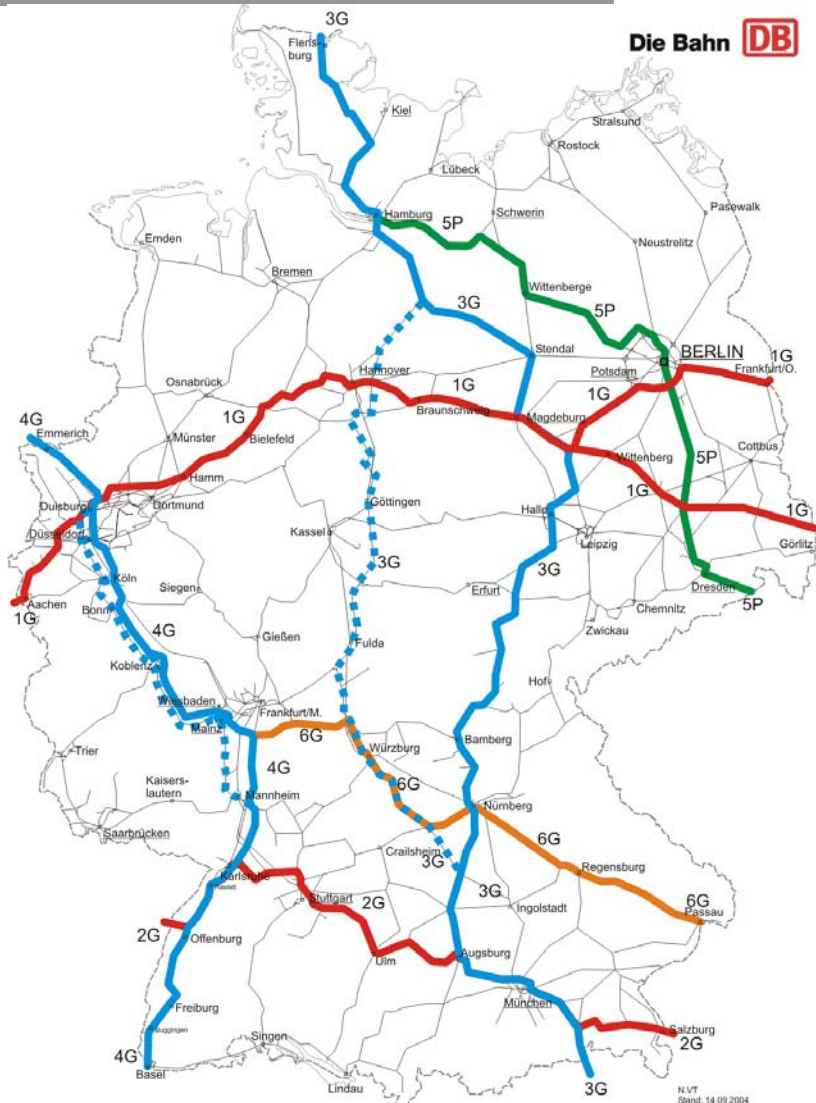


Implementation Strategy for ETCS for DB AG (HS)

Total length	4.800 km
V > 160 km/h	4.100 km
in detail	
LZB+ETCS L2	2.500 km
ETCS L2	1.600 km
gaps	700 km

- ETCS line equipment
- parallel ETCS and LRB
- Gaps with ETCS

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Implementation Strategy for ETCS for DB AG (CR)

- 1G Aachen — Frankfurt/Oder
Horka
- 2G Kehl - Stuttgart - Salzburg
- 3G Flensburg - Halle - Kufstein
(Option via Hannover-Würzburg)
- 4G Emmerich - Darmstadt - Basel
(Option left line at Mid-Rhine)
Part of Rotterdam - Milano Corridor
- 5P Hamburg - Berlin - Bad Schandau
- 6G Darmstadt - Nürnberg - Passau

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Total cost of ETCS in Germany

[mio €]	Trains	Track								Sum
		Pilot-Line	POS	NI	ABG	CR-Corridors			HS-Net	
						1G	4G	2G,3G,5P,6G		
Development	22	49,9	7,5							79
Equipment	359	37,7	27	18	1	269	236	643	1.100	2.691
Sum	381	98	42	18	1	269	236	643	1.100	2.787

- Pilot-Line Berlin-Leipzig (incl. Pilot ETCS Level 2)
- POS Paris-Ostfrankreich-Süddeutschland (Section Saarbrücken-Mannheim)
- NI Nürnberg-Ingolstadt
- ABG Aachen-belgian Border (ETCS Level1)
- 1G CR-Corridor Aachen -Frankfurt (Oder) / Horka
- 4G CR-Corridor Emmerich-Basel
- 2G CR-Corridor Kehl-Salzburg
- 3G CR-Corridor Flensburg-Kufstein
- 5P CR-Corridor Hamburg-Bad Schandau
- 6G CR-Corridor Darmstadt-Passau