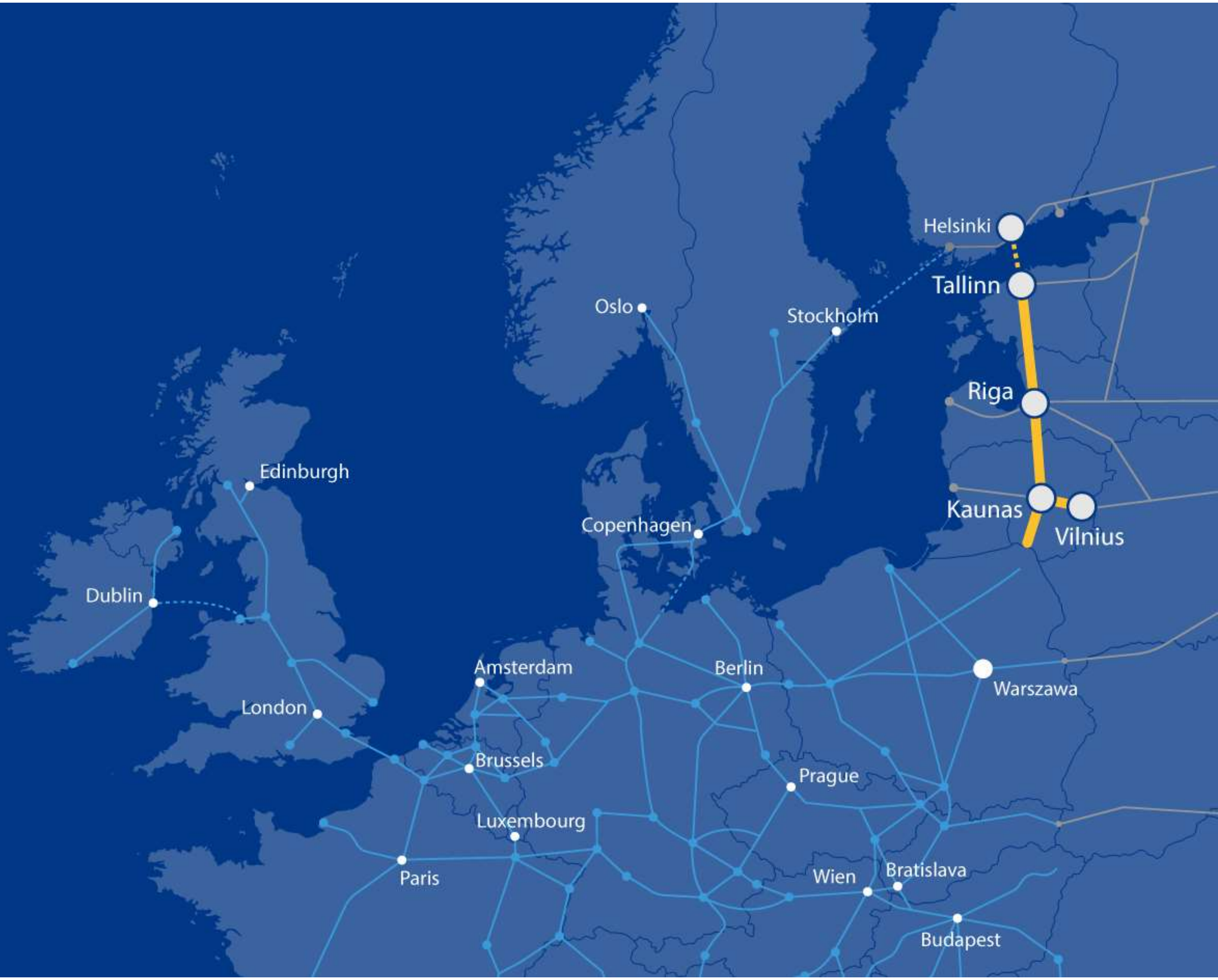
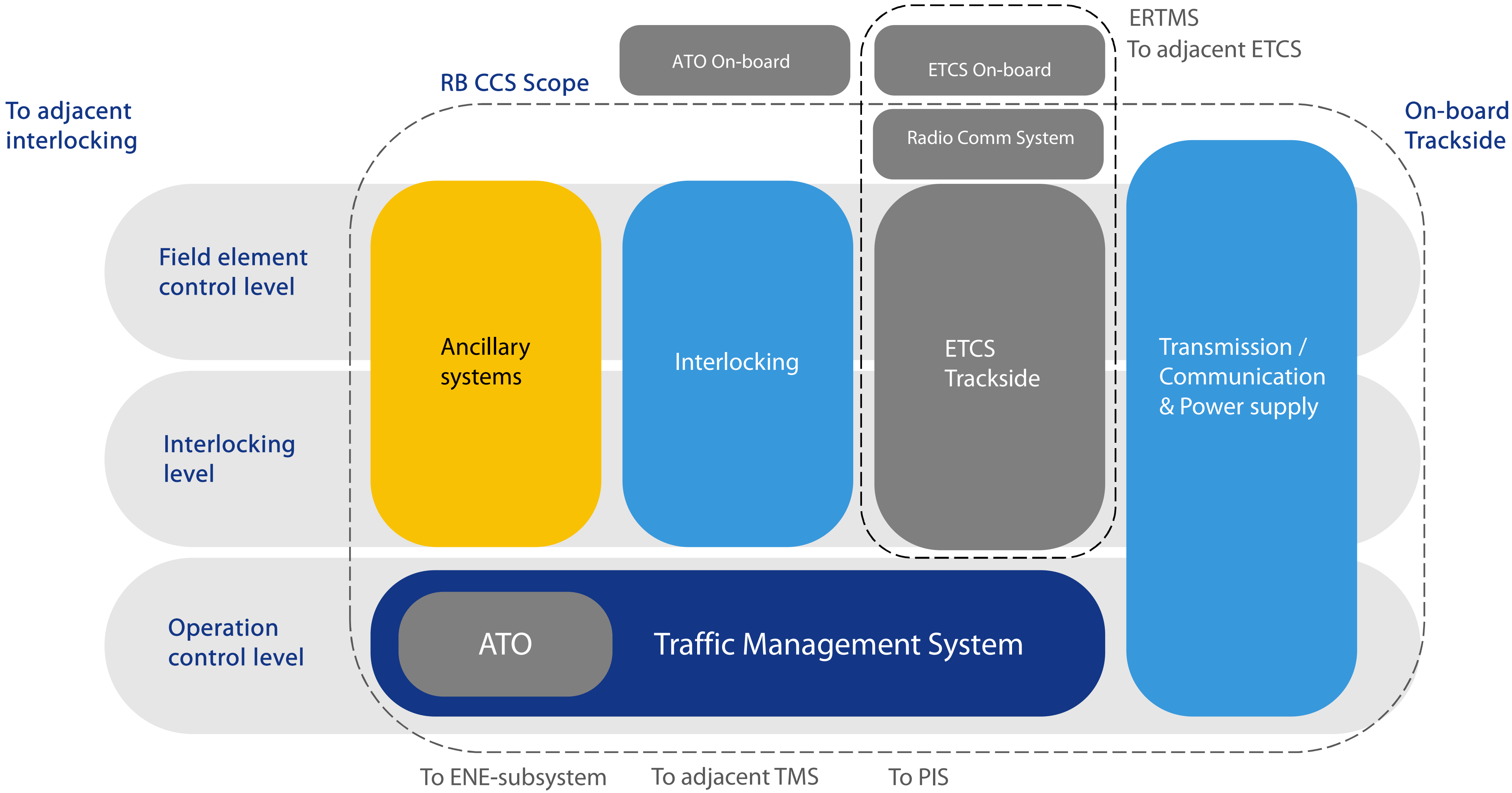
Rail Baltica

Rail Baltica CCS scope



Co-financed by the Connecting Europe Facility of the European Union

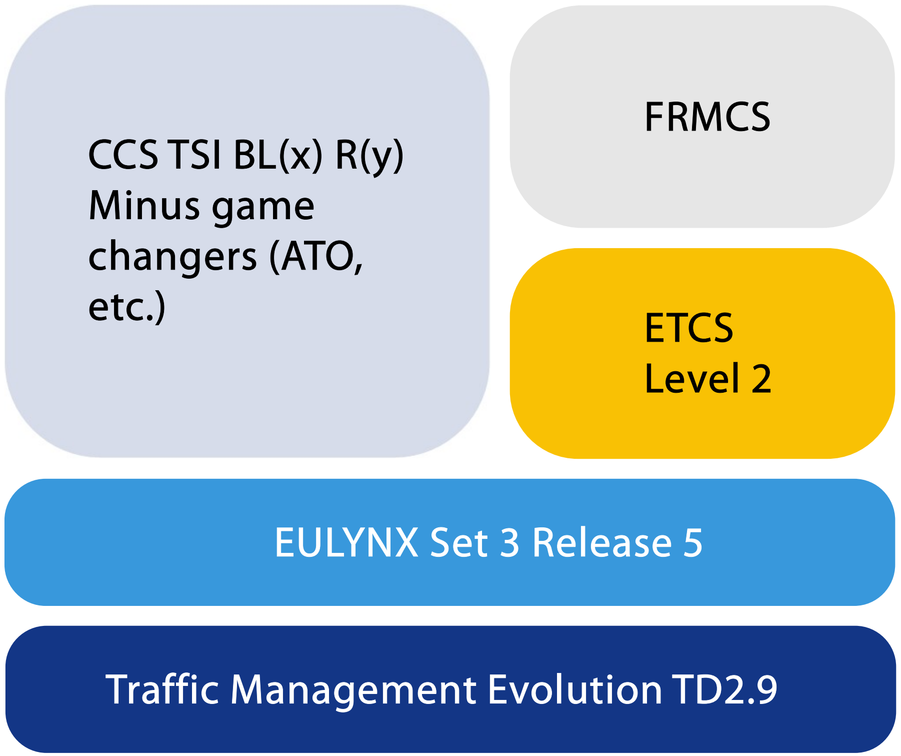
Reference architecture: Rail Baltica CCS scope



ERTMS Solution

Compliant with future CCS TSI (to be released in 2022)

Other functional or technical game changers not critical for the RB CCS delivery



Necessity to include the Future Radio System (FRMCS) (due to GMS-R obsolescence)

Solution should be based on ETCS Level 2

870 km of main line double track

Single design concept across 3 Baltic states resulting in scale and maintenance economies, limited number of interfaces

Sustainability and Life-Cycle Cost requirements

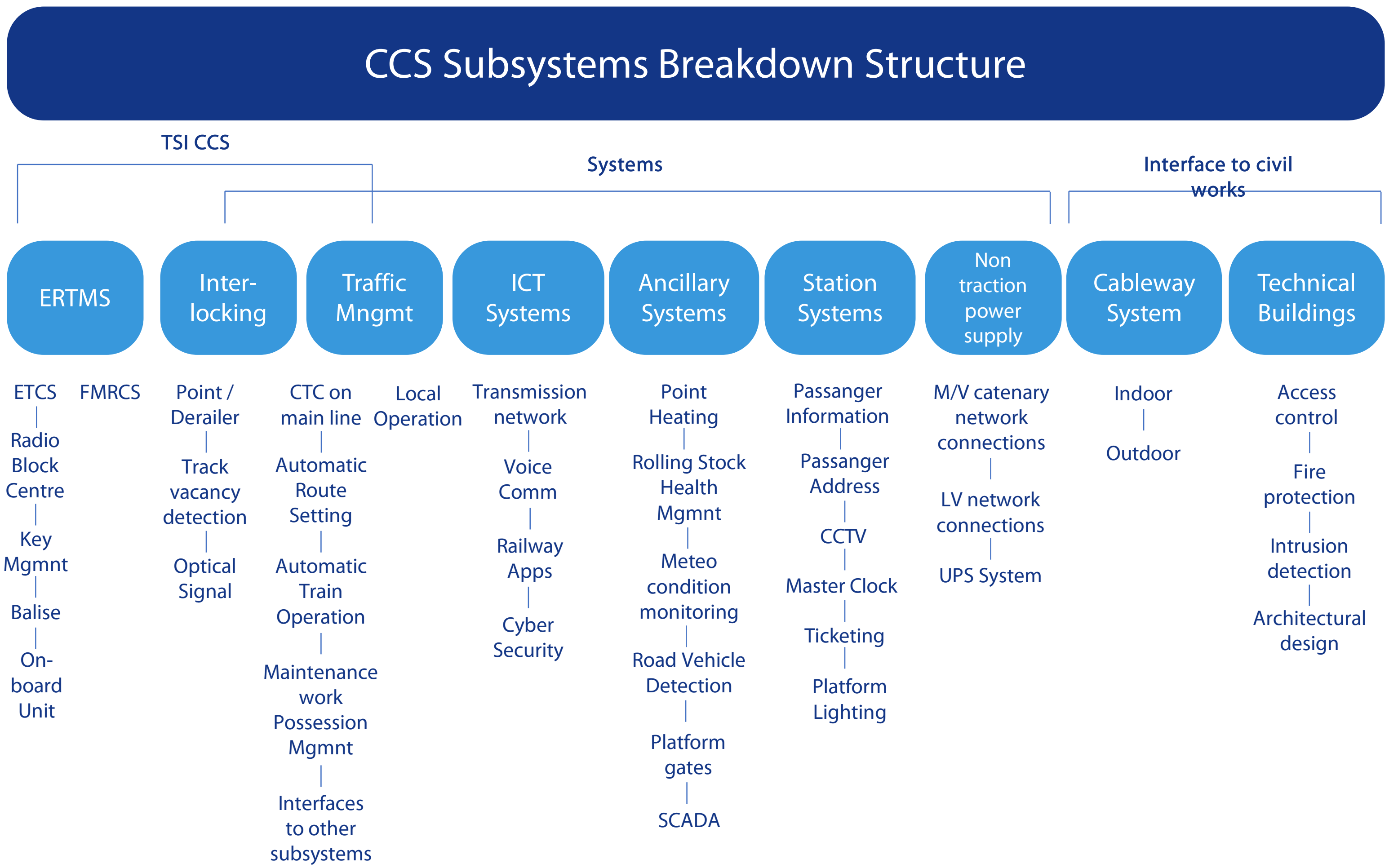
“State-of-the-art and further” by early adopting the latest evolutions of CCS standardization and initiatives (game changers from Shift2Rail and industry innovations (ATO functionalities, etc.)

Advanced coordination functions for intermodal operation with 1520 mm railways

Concentration of equipment in Systems Equipment Locations (around block posts)

Zero copper cables on open line

Usage of local renewable power supply



Operation of CCS in 3 countries

Uniform operation regime for Rail Baltica in Estonia, Latvia and Estonia

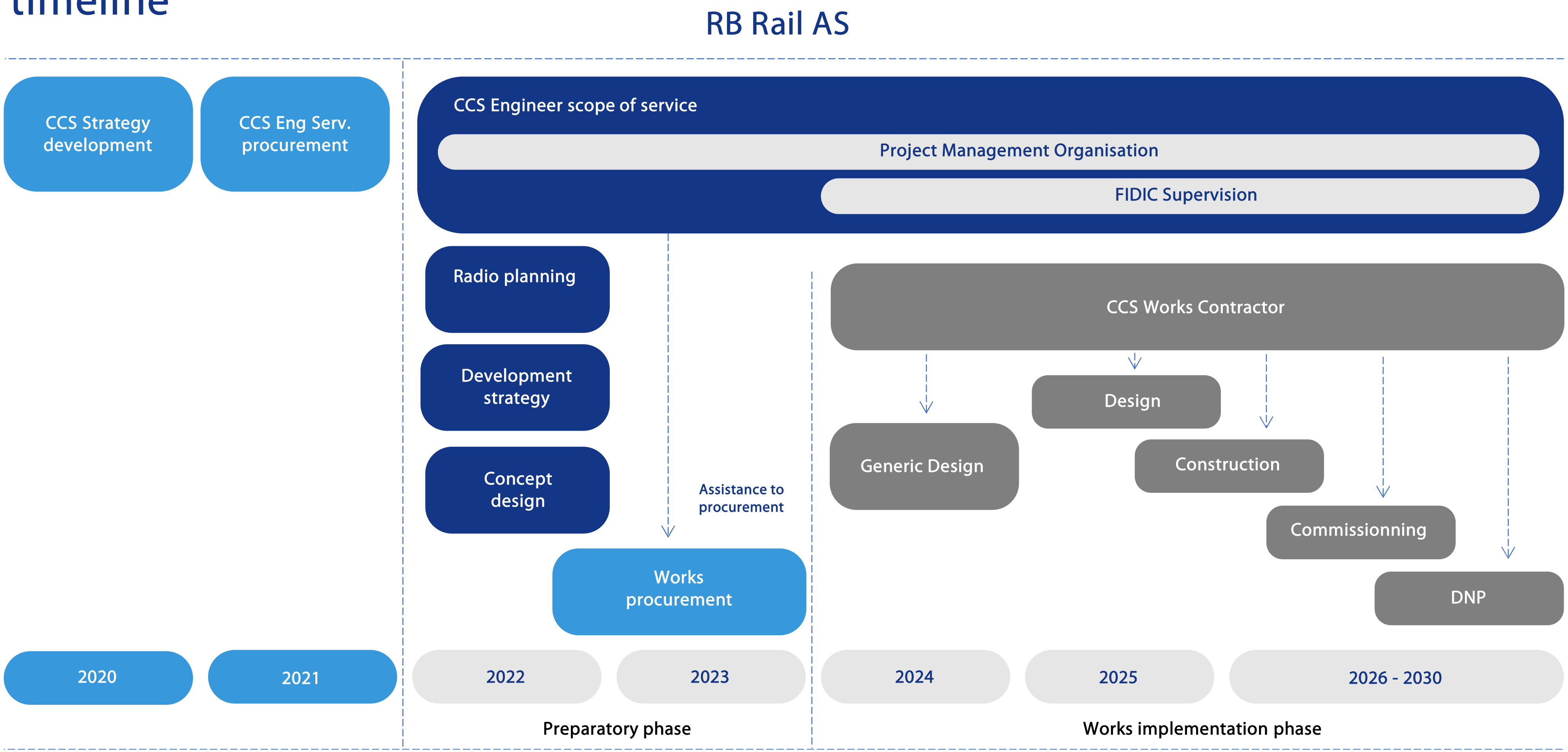
One unique set of **National Values**

One unique set of **Engineering Rules**

One unique set of **Operating Rules**

ERTMS of Rail Baltica can coexist with adjacent 1520 railway networks (share of radio frequencies, gauge interactions in few locations, potential gauge-changing trains in the future…)

Rail Baltica CCS deployment timeline



Key market trends for CCS

		Impact on market	
		1-3 years	4-10 years
Regulations	Increasingly moving back to rail with the aim of reducing the environmental impact	↑	↑
Digitalisation	The impact of digitalisation has meant the creation of new value and services. This can particularly be seen in the emergence of an increasing number of small sub-suppliers.	↗	↗
Market consolidation	A consolidation of the market will make it more difficult for new/smaller players to establish themselves in the ETCS market. However, it is difficult to foresee how consolidation will influence the market.	→	↘
Automation	Reduces the operating costs, increases reliability, and optimises energy consumption. In the short term, this will benefit autonomous vehicles, but till tech matures, the impact will be limited.	→	↗
5G networks	High bandwidth, low latency, and massive connections. Faster connectivity and increased data exchange enable real-time analysis of data in the cloud.	↑	↑

Potential split for CCS suppliers

CCS

ETCS Trackside	FTN	RCS	TMS
1 supplier	1 supplier	1 supplier	1 supplier

One supplier for each subsystem to reduce interfaces

Individual tenders for each subsystem allowing more specialised contractors to bid

Suppliers allowed to bid on multiple contracts