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ETCS Deployment in Belgium

**Navigating Challenges,
Integrating Technologies**

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ERA ERTMS 2024 Conference, Valenciennes



Pécrot
27.03.2001



Buizingen

15.02.2010



Wetteren
04.05.2013



Tempe - Greece

28.02.2023



The Belgian patchwork



TBL1+

Program terminated

± 7500 signals



ETCS 1

44 %

2783 km



ETCS 2

39 %

2361 km + 142 HSL



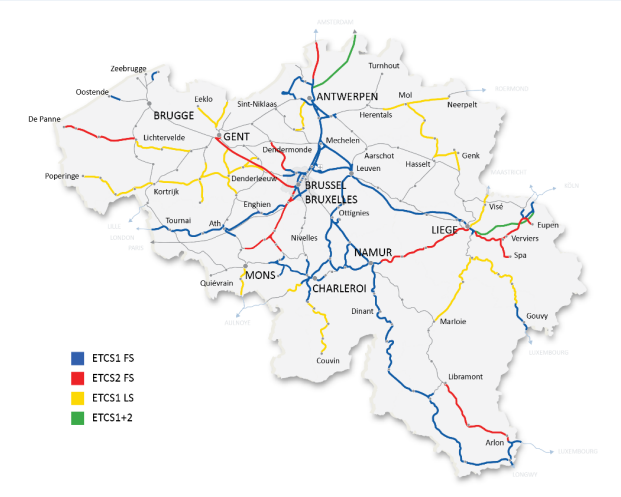
ETCS 1

Limited supervision

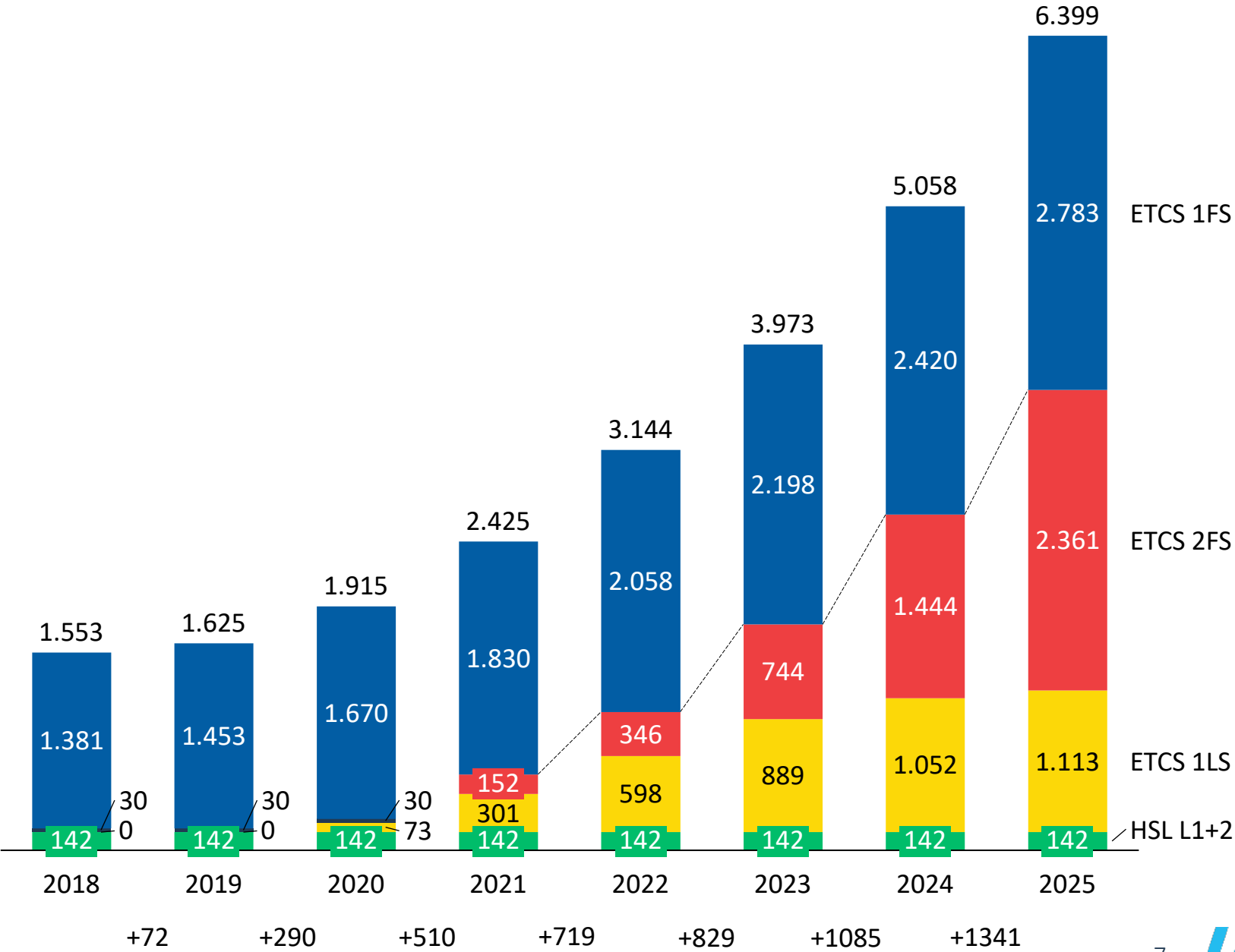
17 %

1113 km

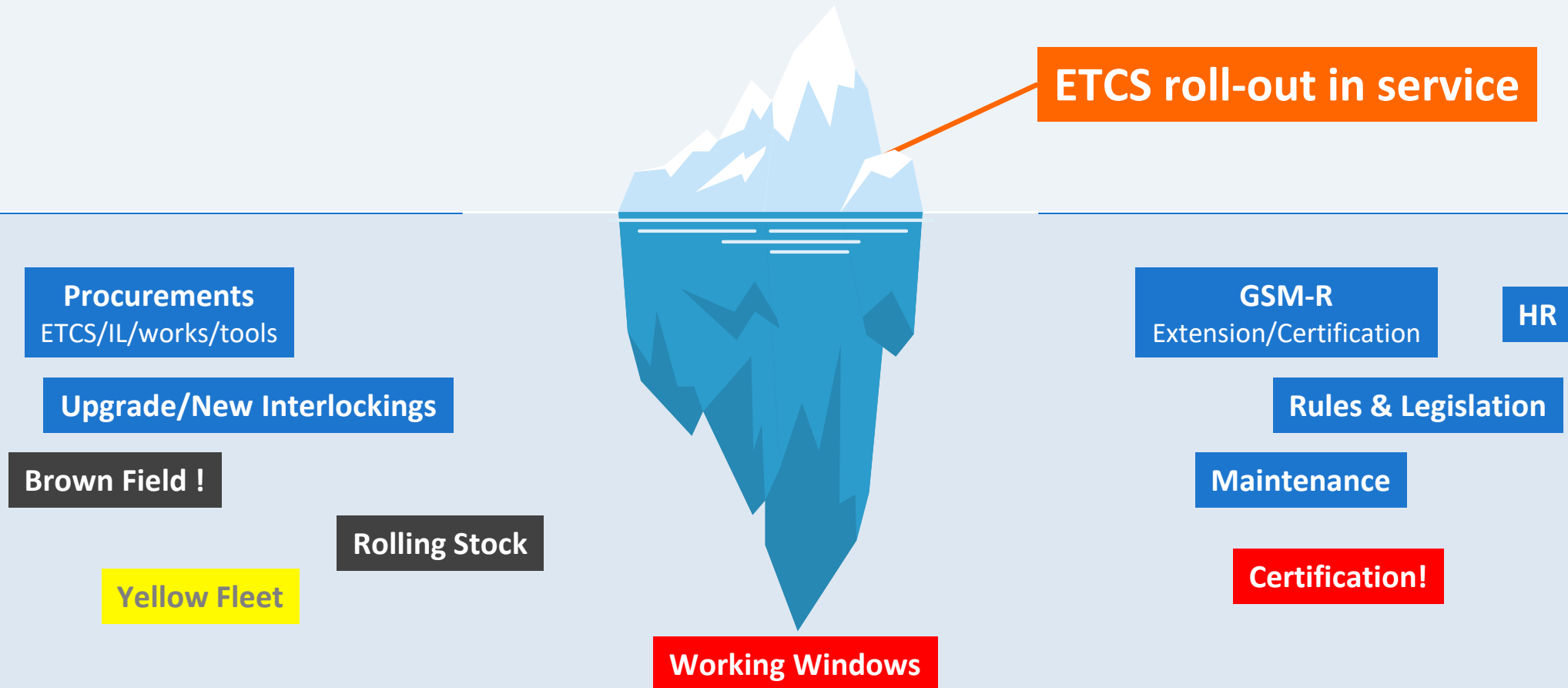
Actual status



	km in dienst en service	km einde Masterplan prévu par Masterplan	% al uitgerust déjà équipé
ETCS1 FS	2.198	2.783	79%
ETCS2 FS	777	2.361	33%
ETCS1 LS	889	1.113	80%
ETCS1+2 FS	142	142	100%
Tota(a)l	4.006	6.399	63%



National Deployment : more than the sum of roll-out projects



Six commandments of ETCS

I

*Interlocking
Renewal*

II

*Project
Traps*

III

*Human
Resources*

IV

*ETCS
Transitions*

V

*Suppliers
High*

VI

*ETCS
Modifications*

Our vision



Need for new protection & warning systems

Protect our workers as well as we do our trains

Minimizing capacity restrictions

“ETCS” for worksite protection & The challenge of ETCS

Mobile Balise Stop



May 2024



ATW-Tx

Since 2019



The one and only (SPI)

Launch 2026



Equipping the Yellow Fleet

INFRABEL



Do not forget
your Yellow
Fleet!

68 of 125 (107)
is retrofitted or
new build

7% (18) should be replaced
before the end of their
economic lifetime (wasted €)!

Contractors



No interest



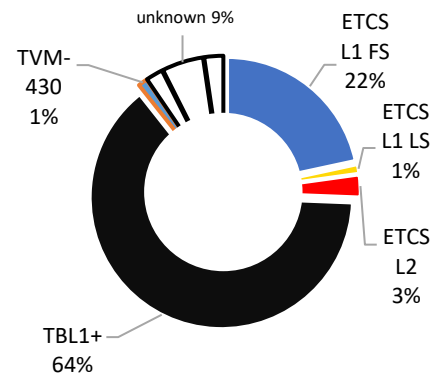
Too expensive to equip



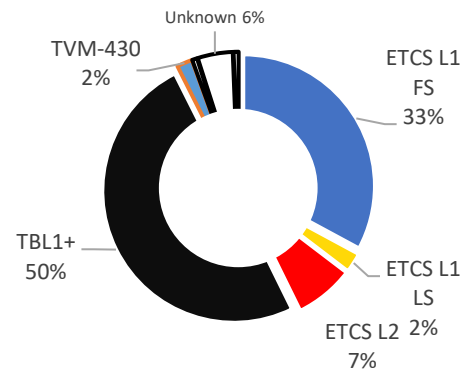
Rent ETCS loco to pull yellow fleet

ETCS driving: marriage track-train

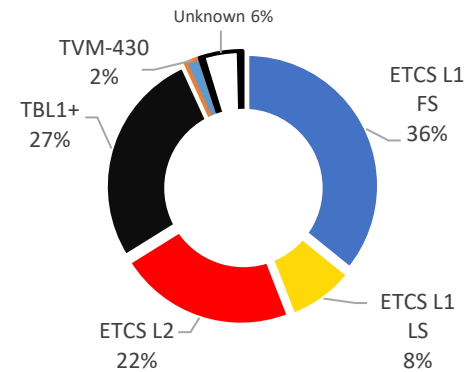
percentage of ETCS coverage in train-km



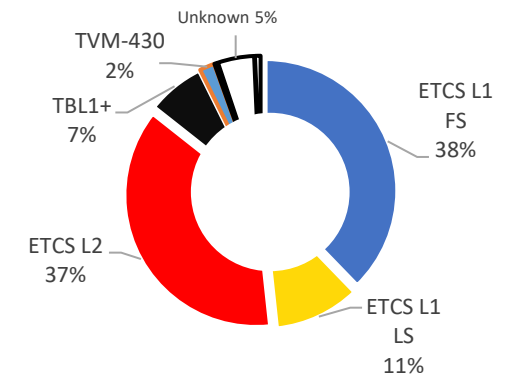
2022



2023



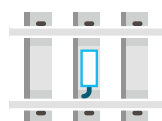
2024



2025

* Remaining 7% TBL1+?
No Roll-out planning available of Freight Operators

Activation of ETCS in strategic node Brussels and L96



359 km

In different phases **359km ETCS** was **activated** between Schaarbeek (FSR) and Soignies, including the strategic Brussel-North – South Axis:

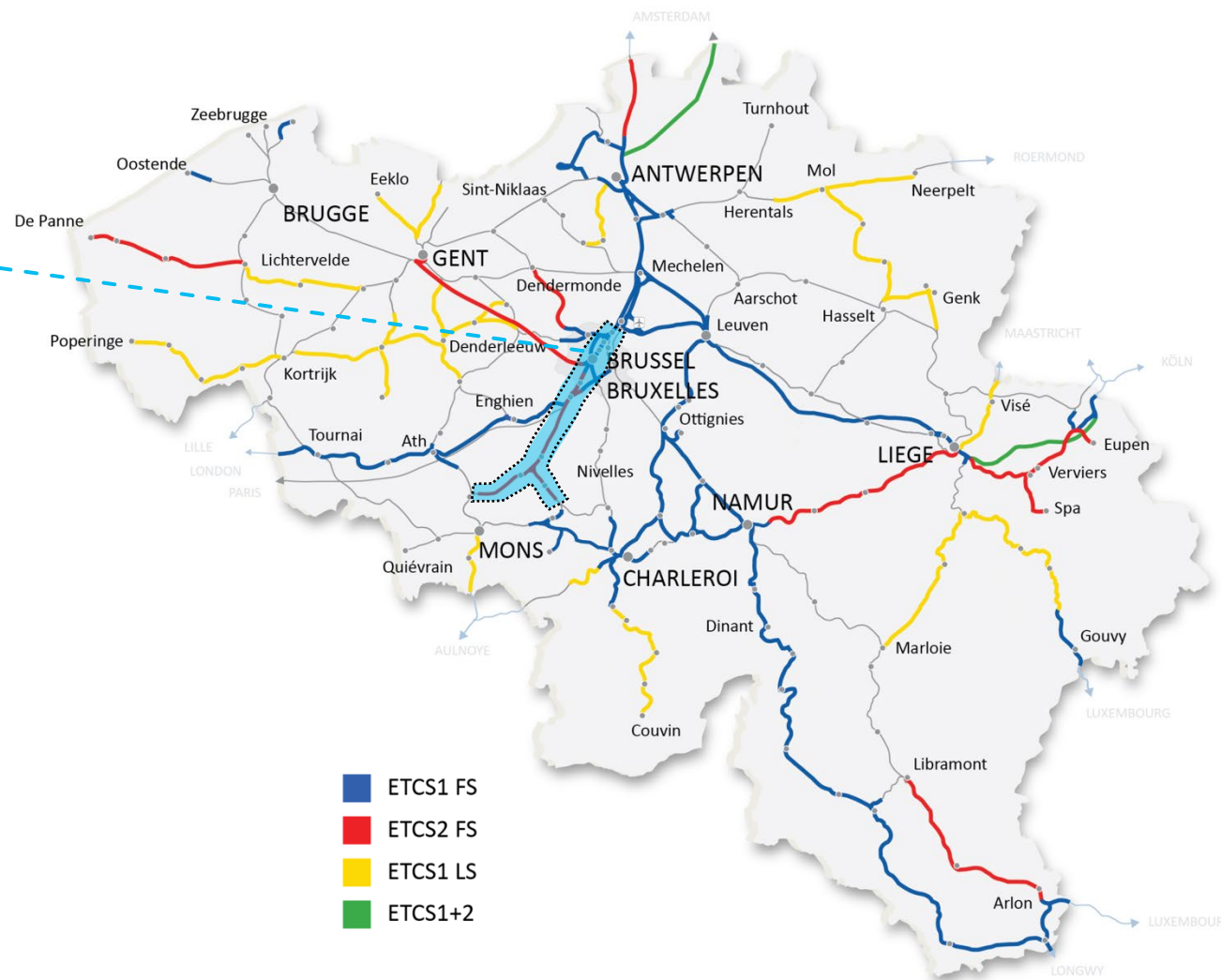


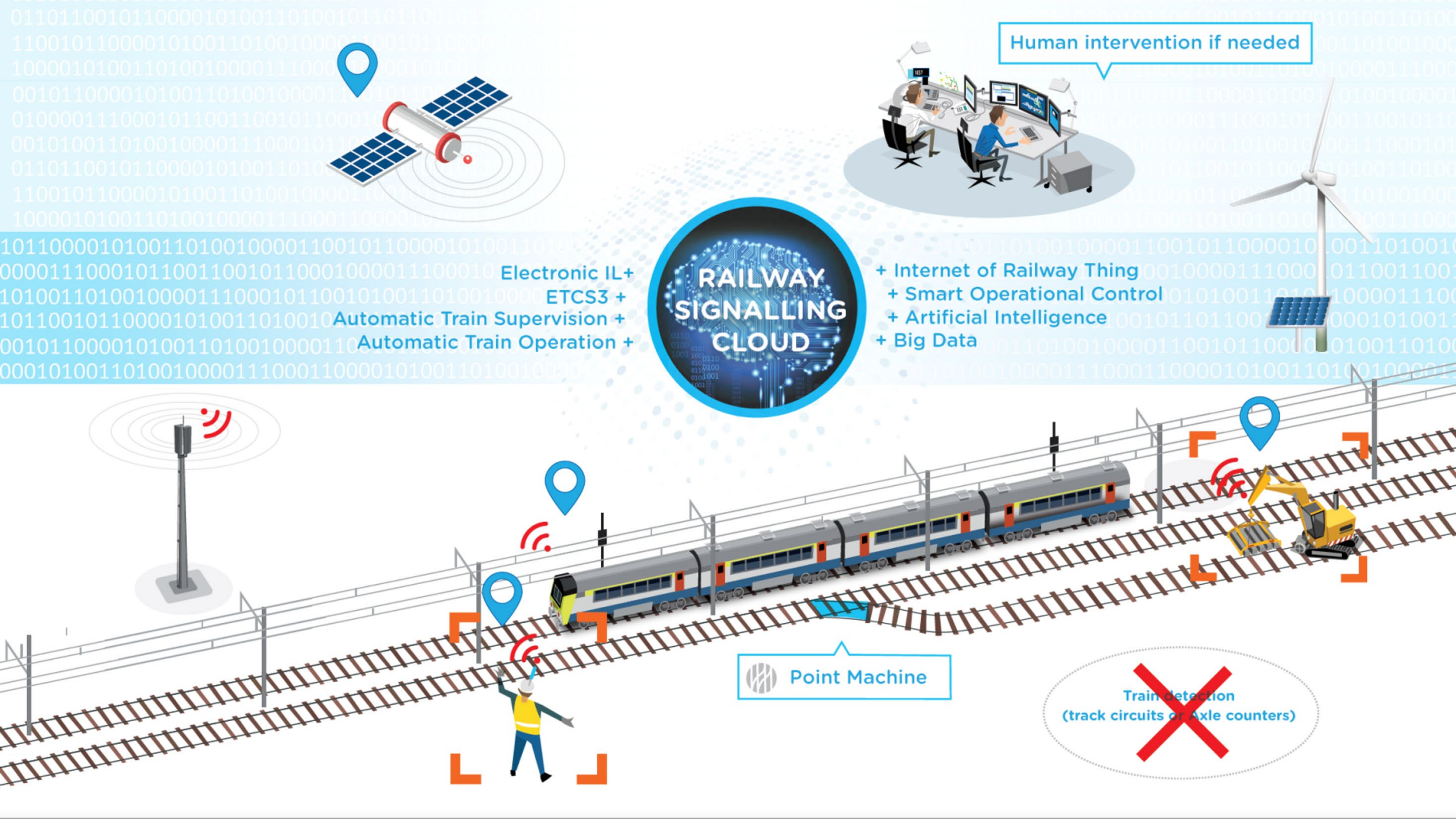
Mix of:

186 km ETCS L1 FS (North South Axis included)

173 km ETCS L2 FS

- +/- 1100 trains/day thru North-South Junction
- > 361.769 trains in 2023





Human intervention if needed

RAILWAY SIGNALLING CLOUD

Electronic IL+ ETCS3 + Automatic Train Supervision + Automatic Train Operation +

- + Internet of Railway Thing
- + Smart Operational Control
- + Artificial Intelligence
- + Big Data

Point Machine

~~Train detection (track circuits or Axle counters)~~



**Develops
Facilitates
Bringstogether**