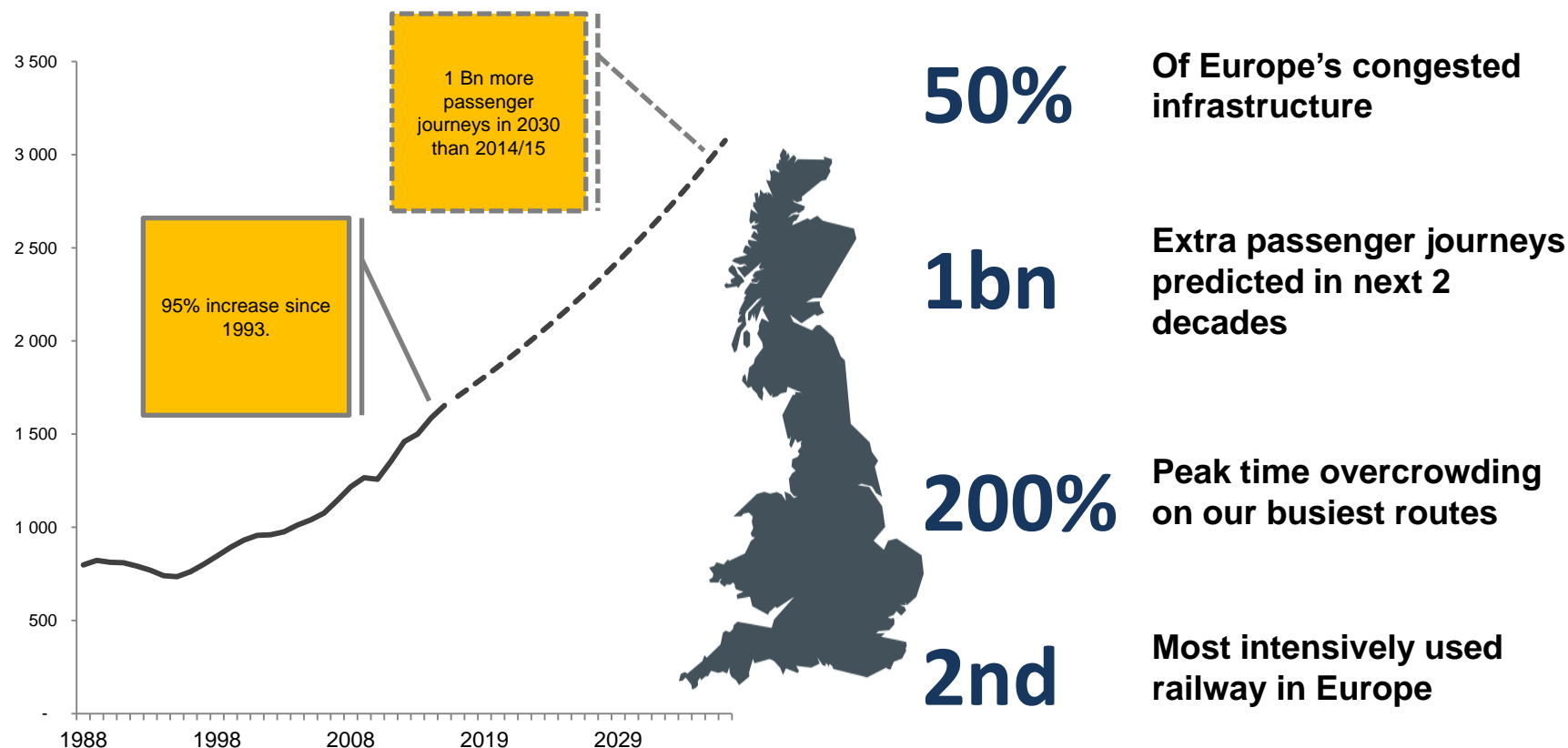# Virgin Trains East Coast and Network Rail

Preparing for ERTMS and the Digital Railway on the East Coast Mainline

Paul Boyle
Head of ERTMS
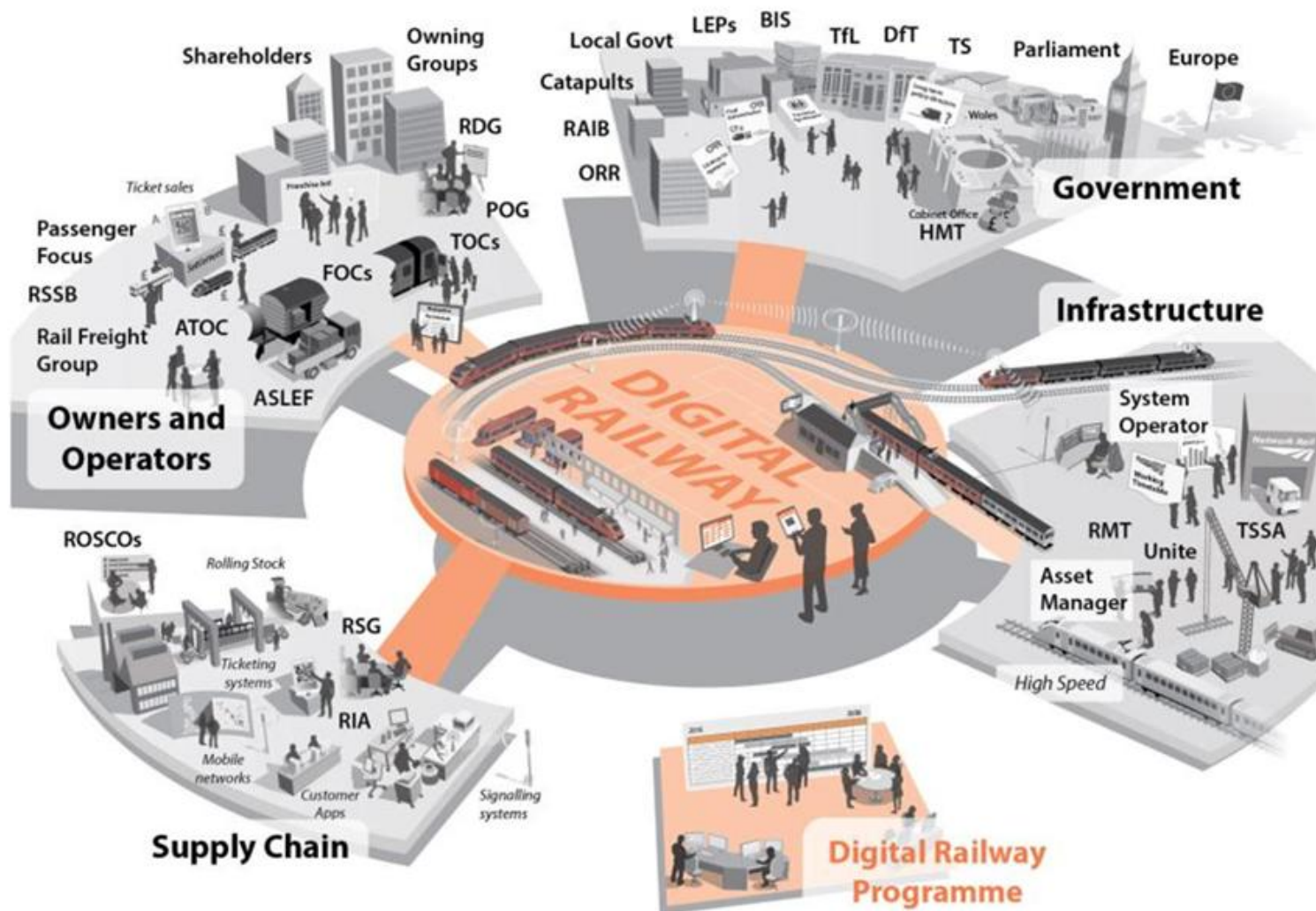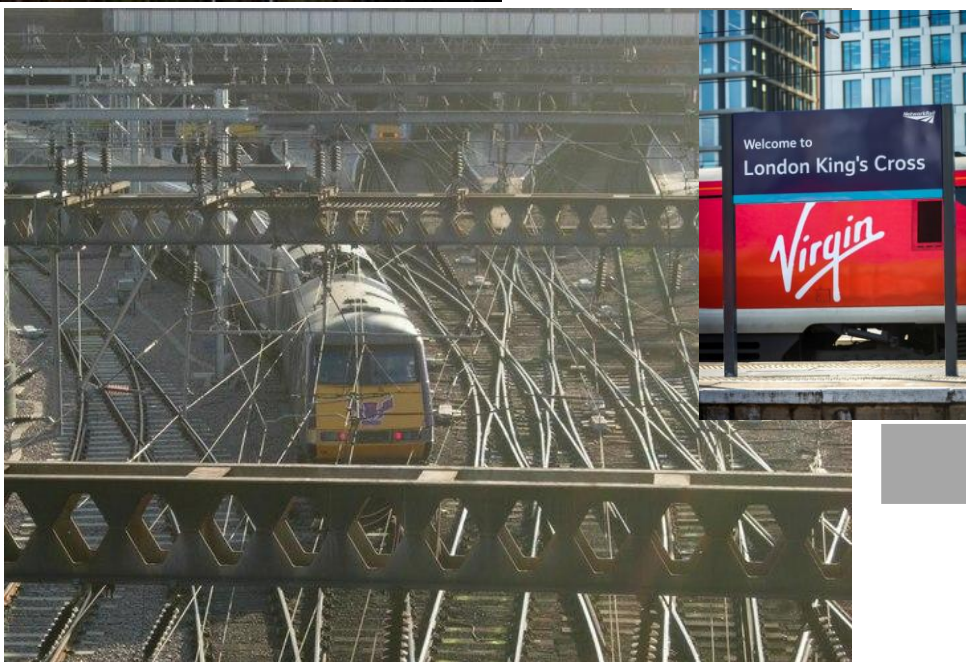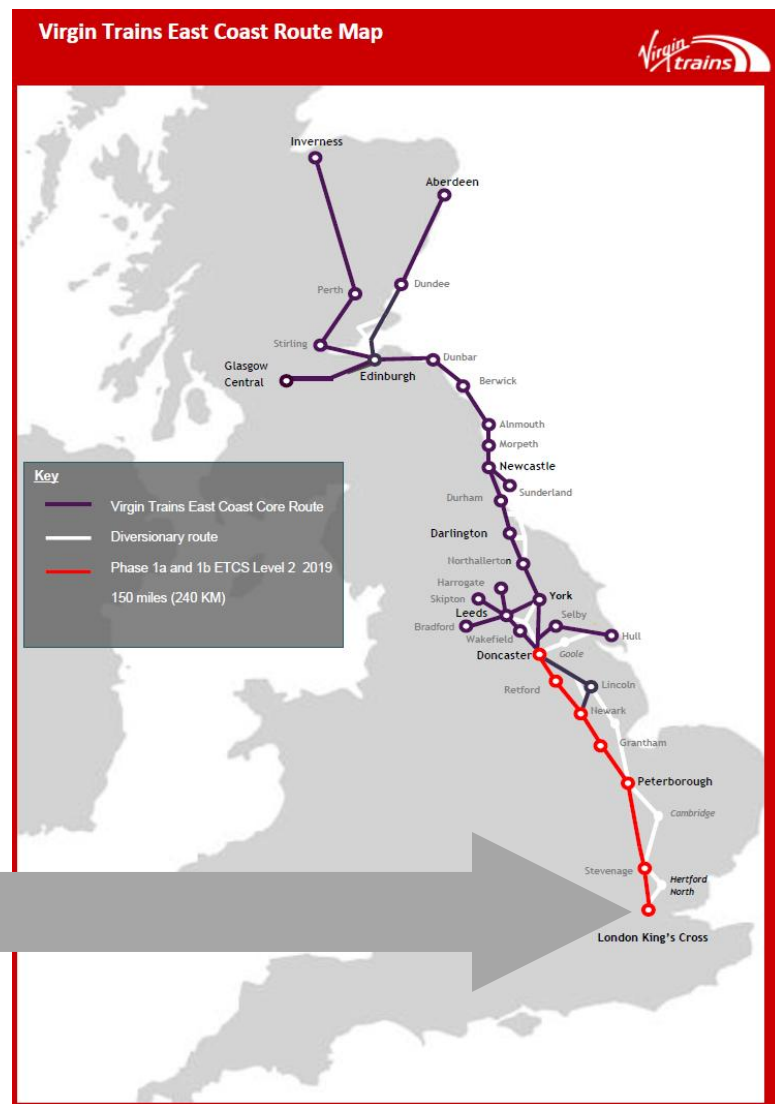**Virgin Trains East Coast**

Laura Doughty
Head of Business Change
Digital Railway

Why do we need to change in the UK?

3 500

3 000

2 500

2 000

1 500

1 000

500

-

1988   1998   2008   2019   2029

1 Bn more passenger journeys in 2030 than 2014/15

95% increase since 1993.

50% **Of Europe's congested infrastructure**

1bn **Extra passenger journeys predicted in next 2 decades**

200% **Peak time overcrowding on our busiest routes**
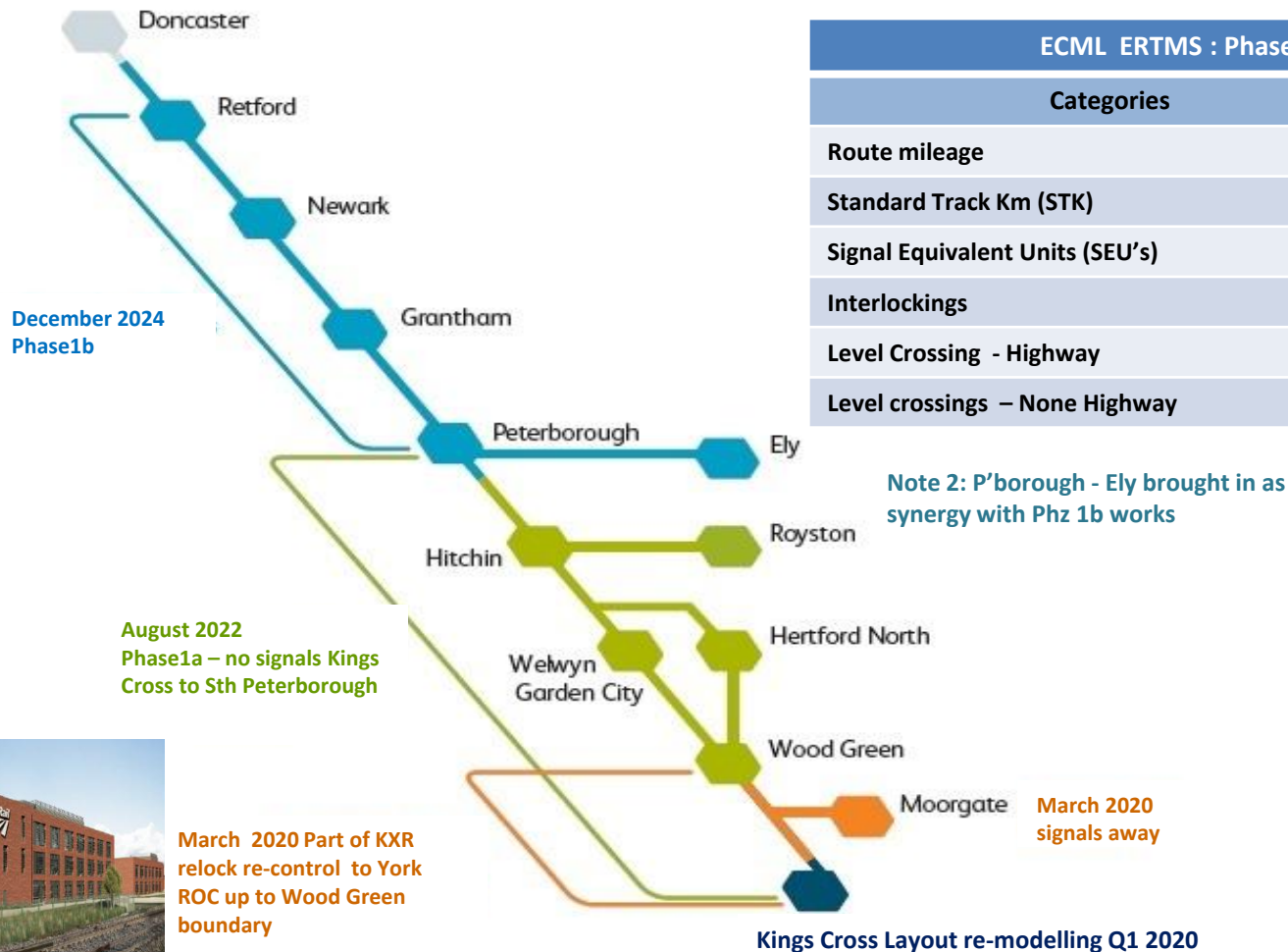
2nd **Most intensively used railway in Europe**

Who Is Involved

Size of the Challenge…. the Cambrian line to Kings Cross

LNE Route - East Coast Main Line (ECML) ERTMS - deployment timeline

December 2024 Phase1b

August 2022 Phase1a – no signals Kings Cross to Sth Peterborough

March 2020 Part of KXR relock re-control to York ROC up to Wood Green boundary

March 2020 signals away

Kings Cross Layout re-modelling Q1 2020

ECML ERTMS : Phase 1a & 1b	
Categories	**Quantities**
Route mileage	**210 miles**
Standard Track Km (STK)	**961km**
Signal Equivalent Units (SEU's)	**2024**
Interlockings	**32**
Level Crossing - Highway	**56**
Level crossings – None Highway	**68**

Note 2: P'borough - Ely brought in as synergy with Phz 1b works

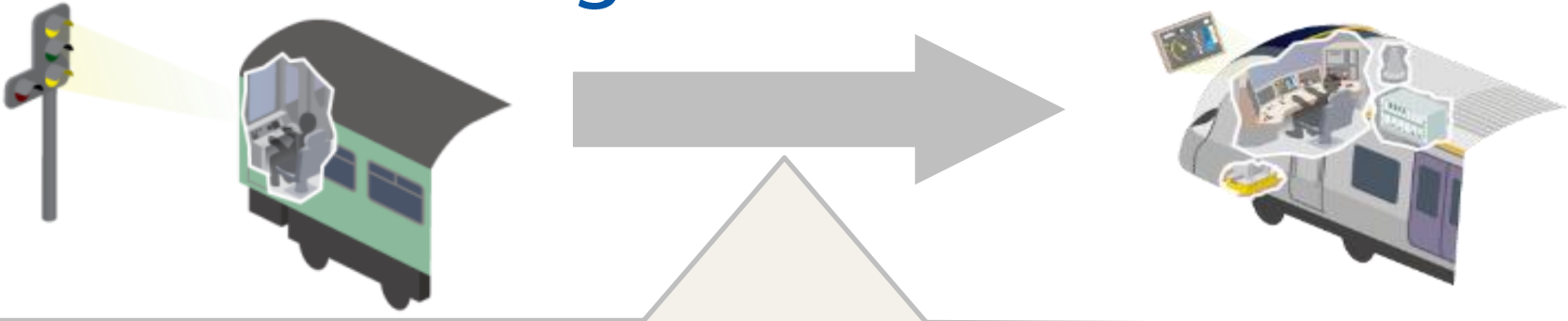# The Virgin Trains Journey

Virgin Train consider it as 2 journeys we are on:

The "Digital" journey

and......

The "People" journey

Changes to our Trains

First in class
Bespoke design and fitment for our Class 91/82 Trains

Fleet fitment
New Hitachi Class 800/801 Trains will come with B3 R2 ETCS

Testing and commissioning
Thorough testing at Rail Innovation Development Centre

Maintenance
Shift to data/technology support, new skills needed

Changes to our People
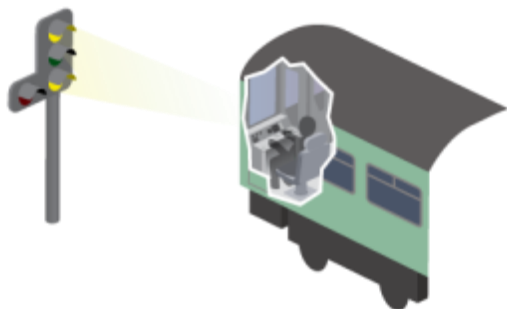
Scale of driver recruitment
c.40% retirement anticipated over next 7 years in UK

Training time for New Drivers "Street to seat" =
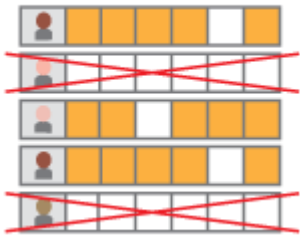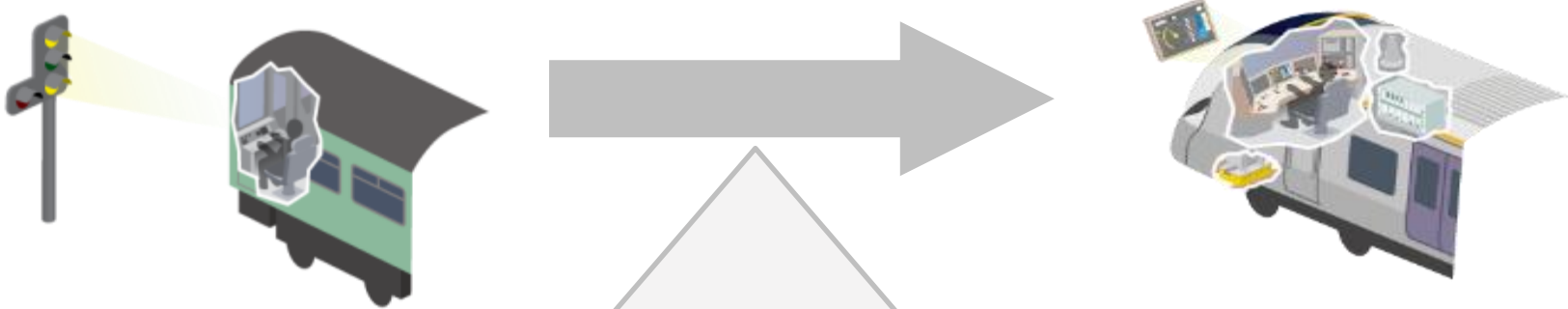18-24 months
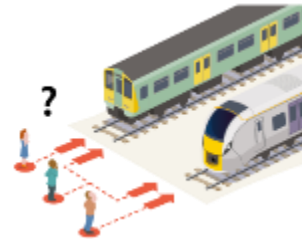
Competency management
New framework needed

Simulation facilities
Time between ETCS training and deployment needs managed
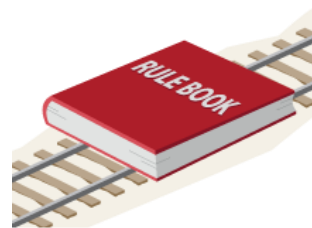
Changes to Day to Day Operations

Impact on rosters
Training for 15,000+ existing drivers

Phasing
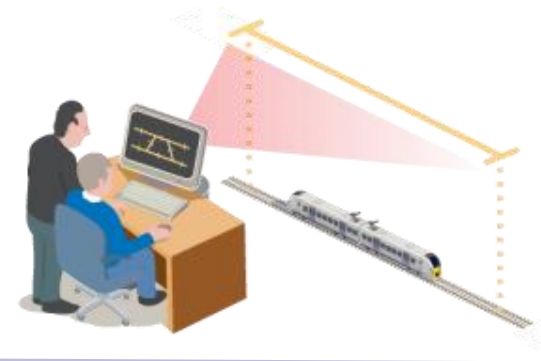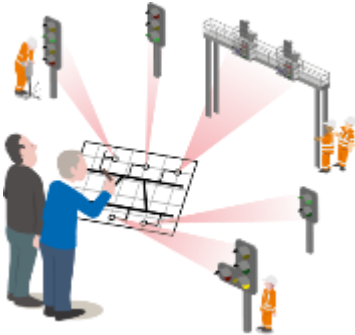Matching drivers to correct level of ETCS equipped trains

Train performance
Adapting to new driving characteristics

what no signals?

Procedures
Rewriting rule book, roles & responsibilities for ETCS

RULE BOOK

Control Systems : Changes to a new signalling data model

Skills development needed
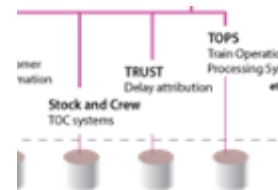Training / recruiting sufficient staff for new signal design paradigm

Data quality
ETCS/TM performance dependent on reliable, secure and fit for purpose data

Network design
Automation needed to meet volume and timeframe

System integration
to Link Traffic Mgt with CIS, TRUST, TOPS, stock and crew etc.

Control Systems : Capability Changes

System changes
800 signal boxes/
control points conso-
lidated in 11 ROCs

Retraining
c. 7,000 signallers and
controllers; c. 12,000
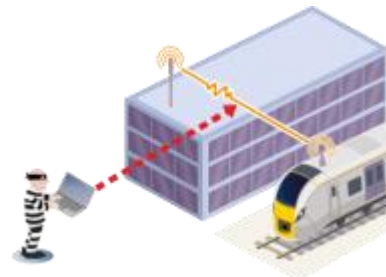maintenance employees

Culture change
Co-location of controllers / signallers
Different skills and operating model
will require significant business
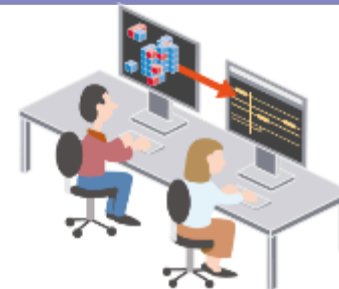change
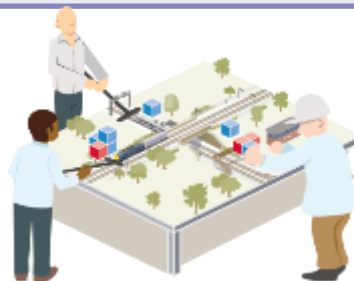
Control Systems : Operational Changes

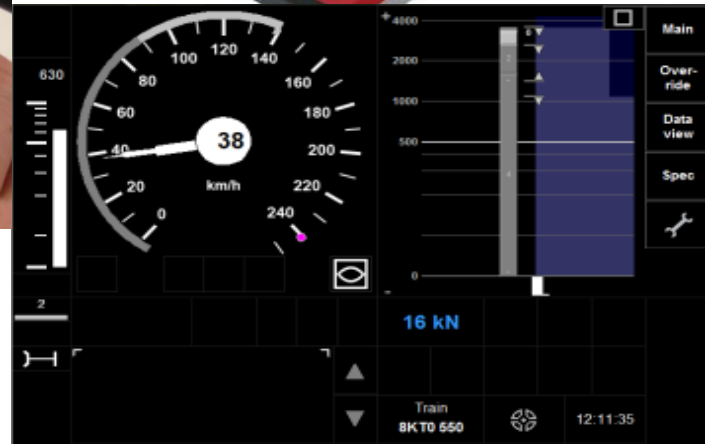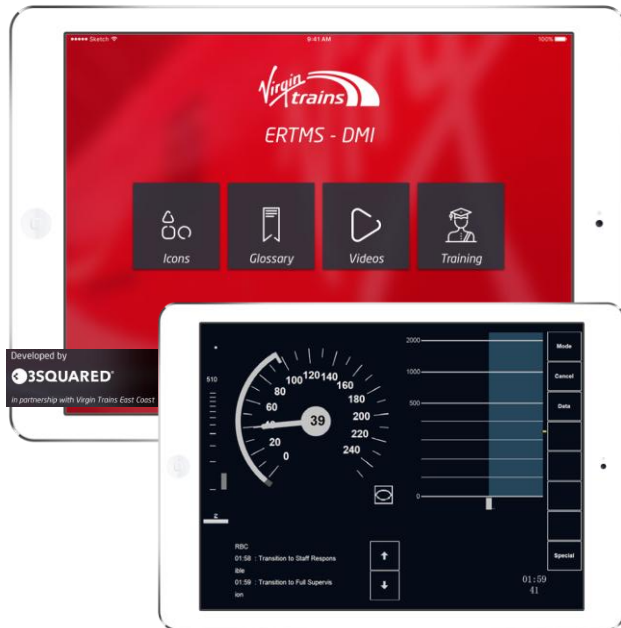**Delay attribution**
Changes to the Delay Attribution Guide

Cybersecurity
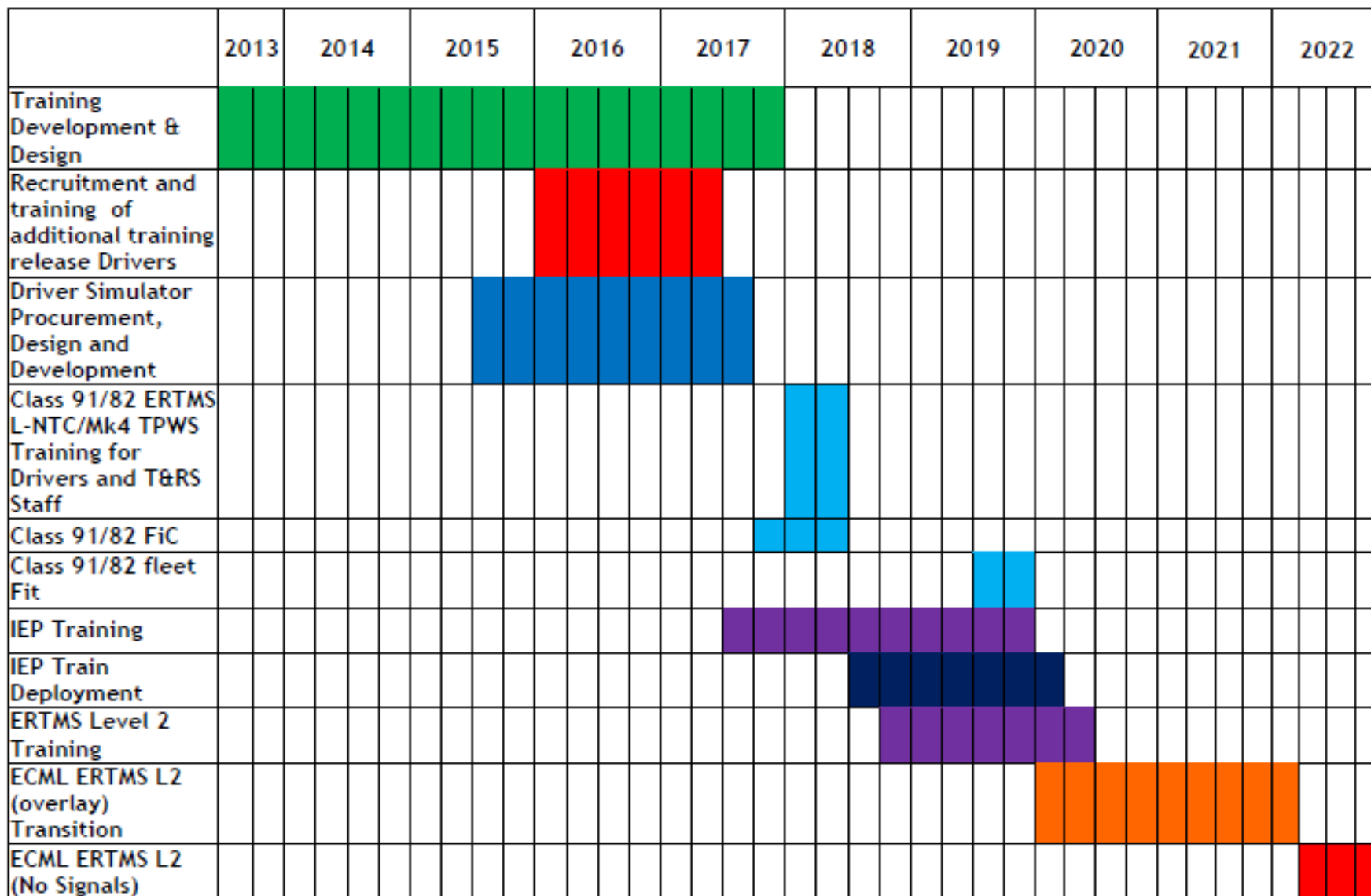Different mindset needed for digital security

Train planning
Processes based on old rules will need to be re-designed

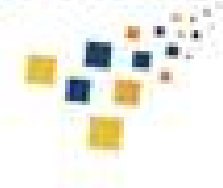# Virgin Trains East Coast – How we are preparing

VTEC New Trains and Training Timeline

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Training Development & Design										
Recruitment and training of additional training release Drivers										
Driver Simulator Procurement, Design and Development										
Class 91/82 ERTMS L-NTC/Mk4 TPWS Training for Drivers and T&RS Staff										
Class 91/82 FiC										
Class 91/82 fleet Fit										
IEP Training										
IEP Train Deployment										
ERTMS Level 2 Training										
ECML ERTMS L2 (overlay) Transition										
ECML ERTMS L2 (No Signals)										

Thank You for listening