CP7 Delivery Plan

2024-2029

Our approach to digital signalling in CP7

Contents

1. Digital Signalling - our 2024-29 plan

1.1. Purpose

The purpose of this document is to set out the delivery plan for digital signalling in Control Period 7 (CP7), building on our strategic business plan and subsequent consultation, and reflecting our continued focus on enhancing the affordability and deliverability of European Train Control System (ETCS). See Annex 1: Glossary and Abbreviations for further information and explanation of the terms used in this document.

1.2. Overview

As we set out in our Strategic Business Plan (SBP), during CP7 we will begin to migrate the rail network from undertaking signalling renewals using 'conventional' colour-light lineside signalling to the more modern digital 'in cab' signalling technology. Annex 2: Our strategy summarises why this is necessary.

To enable us to deliver ETCS-based signalling renewals in parallel across multiple lines of route will require vehicles to be modified with onboard equipment, business change to be implemented across Network Rail and operators, and the development of greater capability and capacity for digital deployment in the supply chain and across the industry.

Our CP7 plan includes provision to commence these activities through:

- **building the signalling market and delivering ETCS-based renewals –** expanding and diversifying the signalling market to enable ETCS renewals as set out in regions' plans.
- **vehicle modification & business change –** modifying vehicles with on-board equipment across passenger, freight, charter & heritage sectors and on track machines (OTMs) as required by schemes, and supporting operating businesses through ETCS migration.
- **driving deployment consistency –** maturing specifications, test labs and support tools to enable and assure consistency in ETCS product development and application.
- **solving problems once –** addressing challenging topics, such as approvals, integration testing, training approaches and procurement and commercial models at portfolio level to remove the burden of solving these from individual schemes.
- **establishing structure and governance –** directing digital renewals, fleet modifications and enablers through the newly-established digital signalling portfolio.

Our CP7 plans are developed using knowledge and experience from previous deployments and through the ongoing deployment of the East Coast Digital Programme (ECDP).

Digital signalling activities within CP7 are being delivered by many different teams in Network Rail and so are set out across several region and function delivery plans and supporting information. Together, these activities form the digital signalling portfolio and spend in each category is summarised in Table 1 below.

Our plans for each area are described in more detail in subsequent sections.

Table 1 – Portfolio summary costs (£m, post-efficient cash prices)

Portfolio cost item	Cost £m
Signalling renewals (regional plans)	545
Fleet modification (Industry Partnership Digital Railway, IPDR)	812
Enablers/capability building (IPDR)	115
Research & Development (Technical Authority)	47[1]
Training capability development (Route Services)	25
Network Rail-wide total	**1,544**

1.3. Plan development and context

Over the last two years, we have iterated our CP7 plans, developing detailed bottom-up plans that now reflect the funding available from Government for CP7. These plans also reflect our latest view on key assumptions such as our likely performance and asset position at the end of CP6, future passenger and freight demand, and the likely path of future inflation.

Our plan is developed within a national framework that sets the overall strategy and provides coordination and assurance across the business.

We have developed our CP7 plans at a time of significant uncertainty for the industry and the wider economy. This means that whilst our delivery plans reflect our best and latest view of the activity we will undertake in CP7, these plans will inevitably evolve as we respond to risks and uncertainties during the next five years.

To support efficient planning in CP7 and exploit the funding we have available, Network Rail has established ringfences around some of the programmes. The general principle for these areas of spend is that where funding is no longer required for its initial purpose during the control period, it should be returned to Group, where it can be re-allocated to other priority areas in our plans. Funding for the Digital Signalling Portfolio, including fleet modification is included in this 'soft ringfence'.

The fleet modification and enabler and capability-building aspects of our plan comprise c. £0.9bn (in cash prices). This will fund activity to support the industry in preparing for the rollout of digital signalling. Other CP7 priorities have required us to reduce the available funding for these activities by c.£0.3bn and slow the pace of deployment compared with what we previously set out in our SBP.

We will look for opportunities to supplement funding for train modification over CP7, including the use of risk provisions held centrally (should this be available and not required to fund risks that materialise during CP7) allow us to maintain progress into CP8.

All ETCS fleet modification costs remain assumed to be borne in England & Wales (and hence funded by DfT). Scotland's Railway will invest c. £11m in supplier and system readiness costs and contribute c. £2m to research and development projects to reduce the unit costs of ETCS

[1] Subject to further RD&I prioritisation. Please see the Technical Authority delivery plan and separate update on train protection and speed management systems for the current view of their funding.

but does not have plans, at this time, for ETCS implementation in CP7. The 'Signalling Scotland's Future' strategy defines the approach for signalling renewals in CP7 and beyond. We have discussed and consulted on our proposed arrangements for this with Scotland's Railway, Transport Scotland, DfT and ORR.

1.4. Building the signalling market and delivering ETCS-based renewals

Our CP7 signalling plans include £545m investment in ETCS renewals, funded through regional plans, as shown in Table 2 below. Changes to planned expenditure since the draft delivery plan reflect ongoing planning updates.

Alongside the growing number of digital schemes we are planning, a significant number of signalling renewals will still deploy conventional technology in CP7, where signalling assets need replacing before the industry can complete the transition of affected trains to operating with ETCS.

Table 2 – Overview of our CP7 expenditure on signalling renewals (post-efficient £m, cash prices)

Renewals by region	Eastern	NW&C	Southern	W&W	E&W Total	Scotland	Network Total
ETCS renewal	233	305	7	0*	**545**	0	**545**
Conventional signalling renewal, refurbishment and minor works	530	756	738	418	**2,442**	286	**2,728**
Total	**763**	**1,061**	**745**	**418**	**2,987**	**286**	**3,273**

*rounded down to zero, but there is a nominal amount for early development in Western.

Our renewals activity in CP7 comprises ETCS-based signalling renewals activity in:

- **Eastern region:** continuing delivery on the East Coast Main Line (ECML) South as part of the East Coast Digital Programme. The Northern City Line out of Moorgate was commissioned in 2023 and is planned to operate without lineside signals from 2025. The operational transition to ETCS will continue up the East Coast Main Line in 2025 (Welwyn to Hitchin), with train operators ready to operate 'no signals' from 2027 and gradual staged transition to 'no signals' between Kings Cross and north of Peterborough planned to be completed by 2030. ECDP is part-funded through signalling renewals funding for relevant infrastructure work in CP7. In addition, early development of ETCS on the Midland Main Line will support scheme delivery in CP8.
- **North West & Central region:** progressive development and delivery of ETCS between Carlisle and Warrington from late CP7 into CP9 as part of the West Coast Main Line North programme, Trilink.

- **Southern region:** development of a scheme planned for commissioning on Brighton Main Line in CP8.
- **Wales & Western region:** early-stage development of CP8 renewals at Paddington to Hayes.

With the exception of the ECML South, which is being delivered as part of the ECDP which commenced in CP6, other renewals begin in CP7 and are planned to be completed in CP8 and CP9.

As our plans have matured, and to further align infrastructure and fleet modification, we have updated our signalling plan for ETCS renewals starting in CP7 since our SBP. This has included a review of deliverability leading to reducing and reprofiling of some digital signalling infrastructure renewals on the West Coast Main Line (North) as part of the Trilink programme. As regional infrastructure plans continue to evolve during CP7, we will maintain alignment of those schemes with enabling train modification plans.

1.4.1. Market application readiness

Our plan includes market readiness activity in early CP7, following on from the award of the Train Control Systems Framework (TCSF) in late CP6, to support the appointed ETCS trackside suppliers through their product development process to confirm their solutions comply with GB specifications for ETCS, in line with our response to ORR's signalling market study.

1.4.2. Unit costs

Our ETCS renewal costs are based on our unit cost model which is subject to ongoing development and which will continue to be refined to take account of data from ongoing ETCS delivery projects as they progress, engagement with suppliers through the TCSF, and to apply the emergent outputs of the Target 190+ (T190+) research and development programme which is focused on bringing down unit costs below today's rate. In CP7, our anticipated costs for ETCS renewals reflect the lower costs of ETCS as a system, combined with market intelligence acquired from ECDP, and recognise the requirements for new market entrants – and the industry as a whole – to climb the learning and efficiency curve on new schemes.

1.5. Vehicle modification & business change

We have continued to mature our fleet modification plans to take account of emergent ECDP experience and supplier and operator feedback and to maintain alignment with any changes to regional infrastructure schemes.

We are planning only such fleet modification as is required for CP7/CP8 schemes based on lead times to support modification and driver training to be ready for operation as the ETCS schemes go live. Modification of fleets required for schemes later in the Long Term Deployment Plan (LTDP) will need to continue beyond CP7.

1.5.1. Passenger

Our current plans are that we will begin to modify the passenger trains required by the schemes being developed in CP7 or, where lead times require, in CP8. This includes selected Northern and Transpennine Express fleets for Trilink, CrossCountry fleets to support the Transpennine Route

Upgrade[2], Southern and Gatwick Express fleets for the Brighton Main Line deployment and East Midlands Railway fleets for future schemes.

Some fleet modification is being delivered by others, such as under the Transpennine Route Upgrade, or as part of existing or new vehicle commitments by DfT.

We are working with the DfT and operators to monitor the impacts of planned fleet cascades or rolling stock changes that could affect our deployment plans. Some of the fleets we currently plan to design or modify in CP7 will be towards the end of their expected life at the time ETCS is required for these vehicles. We will continue to engage with operators and the DfT to confirm whether their modification so late in life represents the best-value solution. However, until such time as replacement vehicles are confirmed, we have assumed that design or modification work must progress.

1.5.2. Freight

We will continue the national ETCS freight modification programme that began in Control Period 6 (CP6), which will modify qualifying freight vehicles operating across the network. The priority in CP7 will be on modifying vehicles required to support the ECDP, then for those schemes being developed in CP7 for CP8 commissioning. Thus our CP7 expenditure on passenger and freight fleet modification is complementary to the continuing enhancement funded modification to enable ECDP.

1.5.3. On Track Machines and Heritage and Charter

We also plan to modify, or make arrangements to run, those on track machines (OTMs) – vehicles such as tampers and grinders that we use to maintain the railway – which operate regularly over the areas where ETCS will be deployed. We plan to continue with modification of heritage and charter vehicles in line with the outcome of the pathfinder on ECDP.

For non-passenger fleets, our plans assume that migration can start prior to full modification being completed. The scope and timing for these modifications will continue to be developed in early CP7.

1.6. Developing capability, driving deployment consistency and solving problems once

The migration to ETCS requires us to develop a range of technical capabilities to enable and support deployment across the network, to develop new processes, tools and competences, and work to broaden the capability across industry to transition to ETCS.

Within our CP7 plan we have therefore included activities to:

- Run the market application readiness process, as described in 1.4.

[2] Most TRU-related train modification is enhancement funded under TRU and therefore falls outside Network Rail's CP7 settlement. However, CrossCountry fleets were previously planned to be modified for a CP7-funded Southern Region scheme at Salisbury, where modification would have been funded in CP7, and were not included within TRU's business case.

- Build on experience from ECDP and other deployment schemes to improve and make repeatable the processes involved in fleet modification and deploying to a no-signals configuration, developing guidance on these areas for future schemes.
- Continue to maintain and support network systems, such as test facilities and fault reporting tools, as well as our specifications and associated governance, to allow us to effectively manage digital signalling deployment across track and train and assess and assure consistency of operation across schemes and vehicle modifications.
- Consider and develop options to allow drivers to maintain their ETCS competency once trained. Early schemes are deploying overlays to assist with the maintenance of driver competency in ETCS before signals are removed.
- Address other identified and emergent challenges associated with ETCS migration, or policy challenges, at portfolio level to reduce the need for resolution by individual schemes.

1.7. Establishing structure and governance

The IPDR team has been set up to lead the transition to digital signalling across the network and is bringing together our funders, train operators, ORR, industry bodies, the supply chain and rolling stock companies. IPDR will manage the fleet modification and capability development activities as an industry portfolio alongside the renewals-based infrastructure modifications, to enable best co-ordination, monitoring, and governance of the deployment of digital signalling through CP7 and beyond. We have set up governance and stakeholder groups to enable this through CP6 and will continue to mature and develop these in CP7.

1.8. Digital signalling portfolio activities in other parts of our delivery plan

Alongside our renewals and enabling activities, we have research and development programmes led by Technical Authority which started in CP6 and are proposed to continue into CP7, to support and make more efficient the rollout of ETCS. This includes synthetic environment, which aims to use simulation and improved data flows to support ETCS scheme validation and optimisation throughout the project delivery lifecycle.

Route Services is delivering a workstream developing training capability in the maintenance, renewal, operation and enhancement of ETCS technology which started in CP6 to support delivery of ECDP and will continue in CP7 to support wider ETCS rollout.

IPDR is working with these teams as they continue to iterate and develop their plans, enabling us to manage resources efficiently and deliver enabling activities effectively.

1.9. Summary portfolio expenditure

We have summarised our planned expenditure for the portfolio across all parts of Network Rail in Table 3, below.

Table 3 – Network Rail-wide spend for ETCS in CP7, including IPDR's enabling activities (post-efficient £m, cash)

Portfolio cost item	Cost (£m)
ETCS signalling renewals	
Eastern	233
NW&C	305
Southern	7
W&W	0*
Scotland	0
Network ETCS renewals total	**545**
IPDR enabling activity	
Fleet modification	812
Enablers / capability development	115
Total ETCS funding allocated to IPDR in plan	**927**
Technical Authority R&D and supporting activity	**47**[3]
Route Services supporting activity – training capability development	**25**
Network Rail-wide total	**1,544**[4]

*rounded down to zero, but there is a nominal amount for early development in Western.

1.10. Next steps

As we look to the future, we know that to address the renewals bow wave arising from the increasing number of signalling assets needing replacement, we will need to significantly increase delivery activity through to Control Period 10 (CP10). This will require a concerted effort, in CP7 and beyond, to expand the supplier market and reduce unit costs, in order to meet the challenge.

Alongside our enabling activity for ETCS in CP7, we are also working with industry partners and government to support the wider rollout of ETCS through major enhancement schemes, including the TRU and High Speed 2.

We will continue to update and iterate our plan to reflect continuing work to align network enablers, fleet modification and regional support with maturing plans for infrastructure schemes, the finalisation of contracts within procurement of the TCSF and lessons learned from delivery of the ECDP.

[3] Subject to further RD&I prioritisation.
[4] Numbers subject to rounding

2. Outcomes

The outcomes we plan to deliver in CP7 include:

Eastern

- ECDP - Northern City Line moving from overlay to Level 2 no signals operation (see Annex 1: Glossary and Abbreviations for more information on these digital signalling transition stages).
- ECDP - Welwyn to Hitchin Level 2 overlay, including all fleet modification and operational migration to ETCS of train operators (Key Outcome 2)
- ECDP – Progressive rollout of Level 2 signals schemes on the ECML South, including commissioning of Biggleswade to Fletton and Hertford Loop.
- Start of First in Class (FiC) design work for EMR stock to support CP8 schemes.
- Begin early development of St Pancras scheme due to start in CP8.

North West & Central

- Trilink – Scheme development and delivery of initial deployment stages in CP7, concluding in CP9.
- FiC and modification for TPE and Northern vehicles required for the first Trilink stages.

Southern

- Development of the Brighton Main Line scheme, due to commission in CP8.
- modification of GTR fleets for Brighton Main Line.

Wales & Western

- Begin development of Paddington to Old Oak scheme due to start in CP8

Key enablers

- Progress four new ETCS suppliers through market application readiness, so they have products approved for use on and capable of delivering ETCS infrastructure schemes on the GB network.
- Passenger vehicle modification for future schemes – during CP7 we will modify c.180 passenger vehicles across six vehicle classes, with other vehicles being specified with ETCS or modified by others. This is the start of a programme of vehicle modification that will continue over future control periods.
- Network fleet modification to enable other schemes – as these modifications are prioritised by scheme, each reduces the modification demand for future schemes, as we continue the national freight programme, and modify - or make arrangements to run - OTMs and heritage and charter fleets.

- Complete development of network systems that enable the needs of future ETCS schemes e.g. DRACAS[5] and online key management system, as well as maintenance of the core specifications around trackside and onboard design.
- Develop synthetic environment (a Target190+ project, see Annex 1: Glossary and Abbreviations), including pilot testing on a CP7 scheme, and other key research and development projects to drive down the unit cost and speed up the delivery of ETCS to put signalling renewals on a more sustainable path for future control periods.
- Develop industry capabilities to deliver, operate and maintain ETCS through providing stakeholders with the tools to deliver a common, consistent, efficient approach to rail staff training for ETCS. We will do this by developing tools and materials, and standardising and documenting our approaches to infrastructure deployment, fleet modification and business change, so that future projects can apply these, rather than needing to consider how to do this each time.

The benefits of ETCS, following delivery of these outcomes and our ongoing rollout plans beyond CP7, are set out in Annex 2: Our strategy.

[5] Defect recording, analysis and corrective action system

3. Delivery for the year ahead (2024-25)

We have been scoping out the activities required to support and enable deployment of ETCS beyond the ECDP in CP7. Having established governance and stakeholder engagement frameworks, in the year ahead, we intend to develop a plan to enable the necessary investment in future years on fleet modification and other enabling activities and to build the industry capability building to allow infrastructure schemes and programmes to commission successfully.

Specific activities for the year ahead will include:

- **Market Application Readiness** - support the establishment of the TCSF following award in April 2024, taking successful suppliers through the market application readiness process, developing and testing ETCS functionality to enable their products to be deployed on our network for the first time.
- **Fleet modification –** continuing fleet modification and business readiness activities through the National Freight Programme, finalising commercial strategies and progressing procurement of passenger fleet modification needed for schemes starting in CP7, continuing OTM modification for ECDP (funded through CP7), commencing FiC activities and procuring modification materials for selected fleets.
- **Network systems** – continuing to develop our test facilities, updating them as required to accommodate forthcoming changes to GB and European specifications and feedback from schemes.
- **Establishing and sharing best practices and assessing efficiency opportunities** - making best use of lessons learned from ECDP (and other deployments as they progress), capturing and documenting model approaches to maintenance, operations and support, benchmarking, benefits realisation and cyber security and beginning to embed best practice from efficiency initiatives such as our T190+ R&D programme.
- **Developing more detailed plans** – noting the phased approach to fleet modification and infrastructure deployment in CP7, we will continue to refine and detail our plans for the later years in CP7 based on emergent experience, including setting out the relevant procurement and delivery strategies.

Annex 1: Glossary and Abbreviations

CP	Control Period, CP6 is 1 April 2019 to 31 March 2024 and Control Periods continue in five yearly blocks
DRACAS	Defect recording, analysis and corrective action system
ECDP	East Coast Digital Programme, deploying digital signalling along the ECML
ECML	East Coast Main Line
EMR	East Midlands Railway
ETCS Level 2	The Control Command part of ERTMS, European Rail Traffic Management System, that uses radio to pass train movement information to the driver in their cab, rather than relying on the lineside signals used by conventional signalling systems.
GB	Great Britain
GTR	Govia Thameslink Railway
HLOS	High Level Output Statement
IPDR	Industry Partnership Digital Railway, the Network Rail digital signalling portfolio team
Key Outcome 2	A stage in the ECDP when the line is ready to operate ETCS Level 2 without signals
LTDP	Long Term Deployment Plan
Online Key Management System	A secure signalling communications system used by ETCS
OTM	On track machines
Overlay	Where both conventional signalling and digital signalling work in parallel to allow trains to continue running before all drivers have been trained or before all trains have been modified to operate with ETCS. It will enable trains with no ETCS onboard to operate over the route but will not take advantage of all the benefits that the ETCS can bring as the layout must remain optimised for the fixed signals.
R&D	Research and development
SBP	Strategic Business Plan
Synthetic environment	A T190+ project to develop more efficient means of design, testing and validating digital signalling systems, also reducing disruption to passengers and freight users

T190+	Target190plus, a Network Rail R&D programme aiming to reduce the current whole life cost of signalling from a unit rate of £419,000 to the required £190,000 to improve the efficiency of the GB rail network
TCSF	Train Control Signalling Framework
Trilink	A major renewals programme on the West Coast Main Line (which includes deploying digital signalling) focussed on getting the railway between Warrington and Carlisle ready for the future.
TPE	Trans Pennine Express

Annex 2: Our strategy

Due to the timing of previous signalling renewals work and deferral of full renewals in recent control periods, a significant proportion of our signalling assets are reaching life expiry. Pursuing the conventional approach to maintaining and renewing them will lead to an undeliverable bow wave from the 2030s as well as being very expensive. However, our LTDP identified that migrating to ETCS at the point of a signalling renewal offers a way to deliver the higher signalling renewals volumes needed at a lower unit cost. Since more suppliers support digital than conventional signalling technology, migration to ETCS also offers the opportunity to increase our renewal capacity with new suppliers to address the coming bow wave.

ETCS is cheaper to deploy and maintain than conventional signalling and requires less infrastructure out on track. It is, therefore, less disruptive to install and more suppliers support the technology. In the longer term, this means we can replace more life-expired signalling in each control period, allowing us to renew the signalling equipment closer to the time we need to, helping us to reduce age-related signalling faults and failures. ETCS also allows us to improve the safety and performance of the network, as well as making the railway greener and more sustainable.

DfT's High Level Output Specification (HLOS) for England & Wales recognised the opportunities that ETCS presents and states that, at the point of renewal, replacing conventional signalling with digital signalling, is the most cost-efficient option in CP7 and beyond.

Transport Scotland has other strategic priorities at this time and has worked with Scotland's Railway to define its future signalling strategy within the 'Signalling Scotland's Future' strategy.

ORR's Final Determination supports the deployment of digital signalling across the network in England & Wales to help make signalling more financially sustainable in future control periods and recognises Scotland Railway's development of its signalling strategy.

The deployment of ETCS across the GB rail network (in addition to the fundamental enabling activities including train modification) contributes to Network Rail's strategic themes with further information in our GB delivery plan, and delivers benefits to passengers, freight, the environment and supports financial sustainability.

Table 4 - Summary of ETCS benefits contributions to Network Rail strategic themes

ETCS L2 benefit	Network Rail strategic theme	Description
Signalling unit and whole life cost reduction	Efficiency	• ETCS signalling provides both a lower unit and whole life cost than that of the alternative conventional multi-aspect signalling. • Learning from international cost benchmarking for the LTDP has led to the planning rate for renewal with ETCS in CP7 being £315k per SEU, compared to conventional costs of around £420k/SEU[6]. • The T190+ Programme is aiming to reduce the equivalent renewal cost of an ETCS SEU to £190k or less; this is dependent on a sufficient rolling programme of delivery to enable all trackside suppliers to gain delivery experience.
Safety	Safety	• The ETCS onboard calculates the permitted speed and braking profile of the train in real time such that the train remains within the safety envelope defined by the signalling system. ETCS can reduce the frequency of trains passing signals at danger, and can reduce the instances of overspeed, compared with conventional signalling. • The ECDP has modelled a significant reduction in risk for track and maintenance staff, due to less need to be trackside, improved communication, and remote maintenance opportunities. • The ECDP has modelled a very significant reduction in risk for third parties related to safety at level crossings.
Performance & capacity	Train service delivery	• Whilst the performance and capacity benefits of ETCS have not been quantified yet at a network level, ETCS offers significant performance opportunities, dispensing with signal positioning and sighting limitations and, through automatic train protection capability, allowing trains to run safely closer together. • The ECDP has modelled improvements in system capability through reduced headways, which could be used to increase utilised capacity, performance, or a combination of both, for passengers and freight users.

[6] Network average cost, at 2017/18 prices

ETCS L2 benefit	Network Rail strategic theme	Description
		• The ECDP modelled a reduction in delay minutes through increased system reliability and improved punctuality for passengers through more trains running on time compared to conventional signalling. • ETCS allows functionality such as bidirectional signalling to be implemented more easily, where infrastructure allows, and at reduced cost. • With ETCS in a no-signals configuration, the relationship between block length and train braking is removed allowing the block lengths to be optimised for capacity/performance. • Through the portfolio we will seek to measure and capture the benefits realised through schemes such as the ECDP to allow us to improve our benefits forecasting information and the realisation potential for future deployments.
Decarbonisation	Sustainable growth	• Decarbonisation of the rail system: ECDP analysis shows the whole life carbon footprint of ETCS signalling on ECML(S) is c. 40 % less than that of conventional signalling due to the reduction in the volume of lineside infrastructure required. • Decarbonisation of the transport sector: an improvement in the performance of the service offering will encourage modal shift in passengers and freight users from road and air.
Deliverability	Sustainable growth	• ETCS signalling requires less lineside infrastructure than that of conventional. This fundamental change results in the potential to deliver greater volumes of signalling renewals due to the reduced access needs. • Conventional re-signalling capability has at best delivered 1800 SEUs per year, whereas it is estimated that no signals ETCS renewal capability is around 3000 SEUs per year.
Other	Efficiency and Customers & communities	• Deploying ETCS technology aligns with the recommendations of the ORR Signalling Market Study, facilitating new supply chain entrants and greater competition within the signalling market. • By committing to and supporting a long term plan to deploy ETCS, we can provide continuity to our supply chain, enabling them to invest in developing a digital skills pipeline improving capability in the UK workforce.