

The Challenges Facing Track Maintenance

TME Conference 16/6/2022

Gareth Evans, NTH Track



Providing technical leadership

Maintenance challenges – as I heard them from you

Track access

Workload

Knowledge sharing

Authority

Capital works

Track Category changes

Standards challenges

Training and competence

Inspection technology

Maintenance equipment
and methods

Data and systems



NetworkRail

Actions

SRP Draft Minutes Action

Detailed what constitutes and acceptable level of asset inspection i.e. the conditions required for inspection.

(MJ - NTHs to specify what inspections need to be undertaken in daylight (or artificial lighting equivalent to daylight))

CTSCE Response

Feedback

Already specified for BVI, need formal assessments in place for other forms of inspection. We have a lighting specification for 'general' and 'detailed' inspection, need to align these requirements with specific forms of inspection – although there is still work to do to identify which lighting products on iStore meet these requirements. The increased time available to carry out an inspection in Green Zone will offset some of the potential issues linked to inspection at night.

An initial analysis of RBM failure modes concluded that work to scope certain types of maintenance repair may be less effective at night.

We are part way through a set of EVs examining the effectiveness of night-time inspection, findings need to feed into any future changes to the way track inspection, scoping of repairs and maintenance is conducted.

Action Plan

- Align inspection lighting requirements with track inspection types (April 2022).

Inspection Lighting level

NetworkRail

Actions

SRP Draft Minutes Action

What asset KPIs should STF be monitoring and who will monitor as BAU when the STF closes down? What threshold for action/escalation should be set for each KPI?

CTSCE Response

Feedback

In practice, this has been day job for a while and we have all monitored a suite of measures and made an engineering judgement as to whether the system safety is being managed and the railway can continue to operate.

BUT perhaps more focus on measuring the outputs of work rather than backlog. Are we seeing increases in repeat defects, are we seeing increased WSF due to failures in inspections regimes? Repeat twists, repeat suspects, increased geometry faults etc. Leading indicators on 'the things that cause defects' such as increased numbers of wetbeds / dip angles.

Likely to require better root cause analysis e.g. at audit, of WSFs. More 'deep dive' analysis of certain trends.

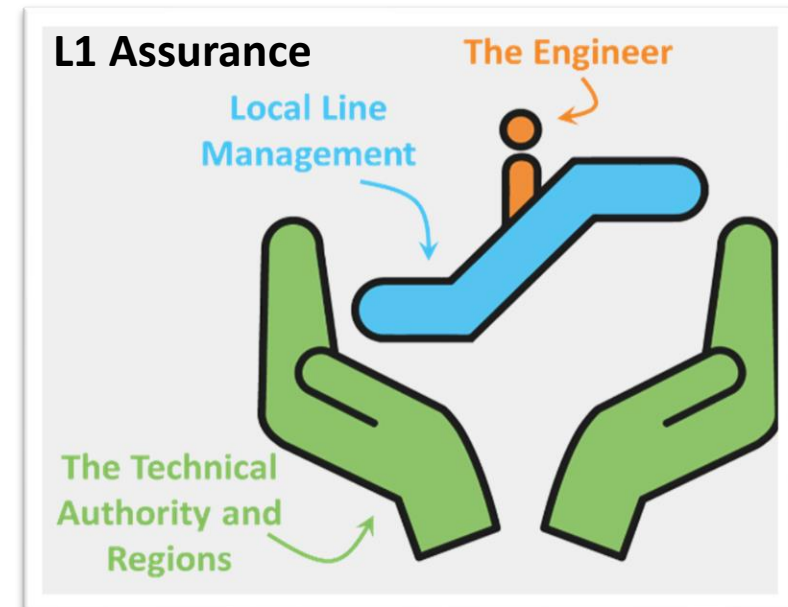
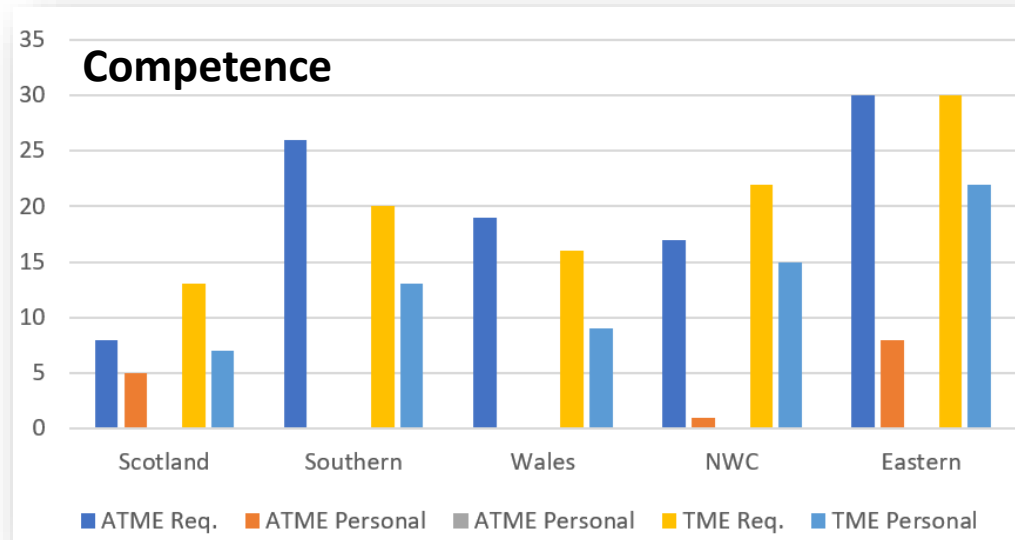
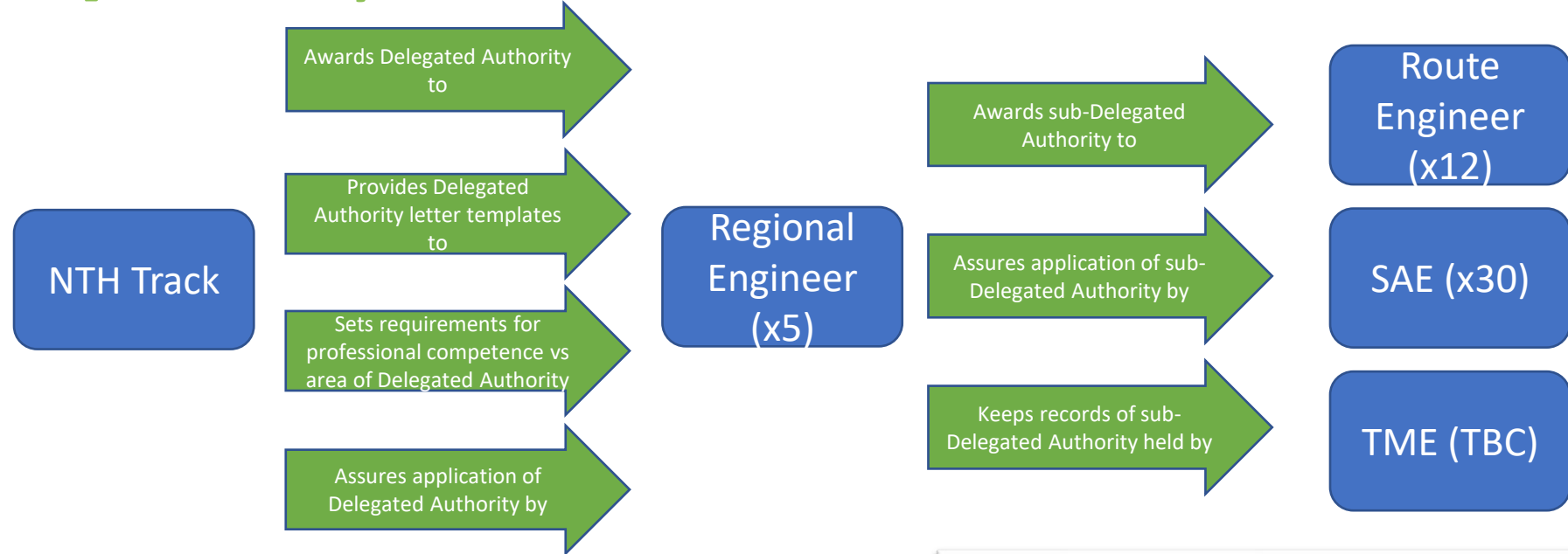
For TVs, the Southern Region "risk categorisation" is a helpful development, get past the headline numbers to understand if we are having to vary requirements for higher

New measures

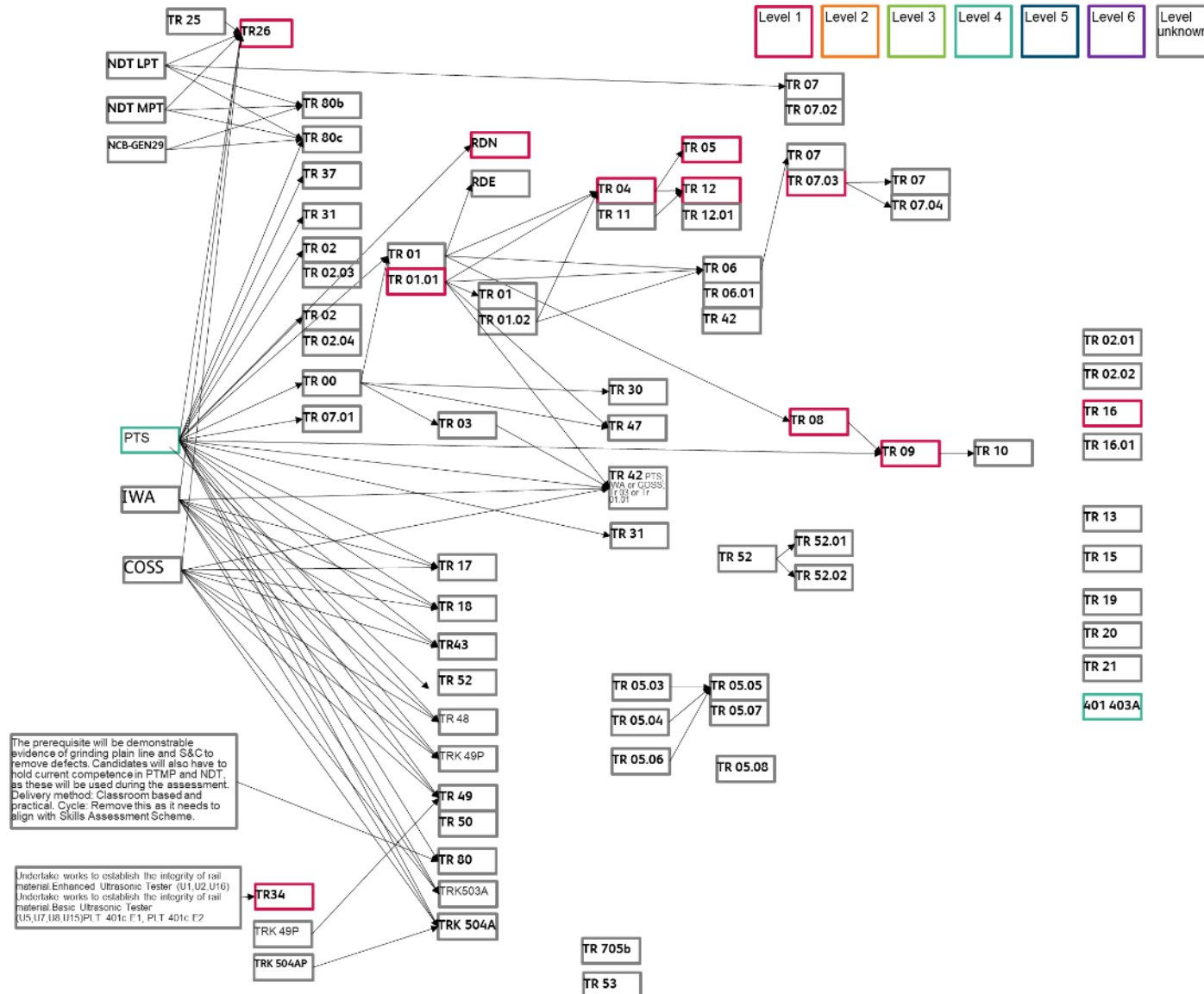
SRP Draft Minutes Action	CTSCE Response
Demonstrate the means by which people, who are new to managing assets, gain familiarity in high-risk locations. (MJ - How do you get people new to supervisor/TME role become familiar to their assets and high risk locations if unable to walk them in daylight.)	<i>Feedback</i> Risk-based approach for TME/SM area familiarisation is feasible (e.g. using TME Risk Registers), coupled with existing process (cab riding, trace review) and other enabling technology (AIVR). Strengthen hand over between TME and SM roles when personnel change. TME and SM walks are an important assurance activity and opportunity to mentor the team. <i>Action Plan</i> - Prepare an initial response explaining the existing processes by which supervisors and TMEs who are new to role gain familiarity with their assets and in particular high risk locations. Consider how this is achieved with the current access arrangements i.e limited use of unassisted lookouts and LOWS.

 Actions	
SRP Draft Minutes Action	CTSC Response
Create a guidance note to explain how track repairs can be checked remotely for jobs that would previously have been done under 'red zone'. Focus is geometry repairs and not being able to observe the track under load.	<i>Feedback</i> Plenty of instructions/training available. Issue here is selecting the correct repair method for the root cause and confirmation the repair has been effective. We are not good at this. We need to ensure all work is properly scoped (see previous comment about risk associated with doing this at night), work is delivered aligned to TWI/best practice and we define how to confirm repair has achieved desired output. Look at monitoring of repeats and enhancing rules around how to demonstrate quality of repair on those faults not fixed first time (see KPI feedback). May require enhanced intervention from SM / TME. Assurance – use of TIGER to track effectiveness of repairs, analysis of root causes, for repeating geometry faults. <i>Action Plan</i>

[Delegated] Authority

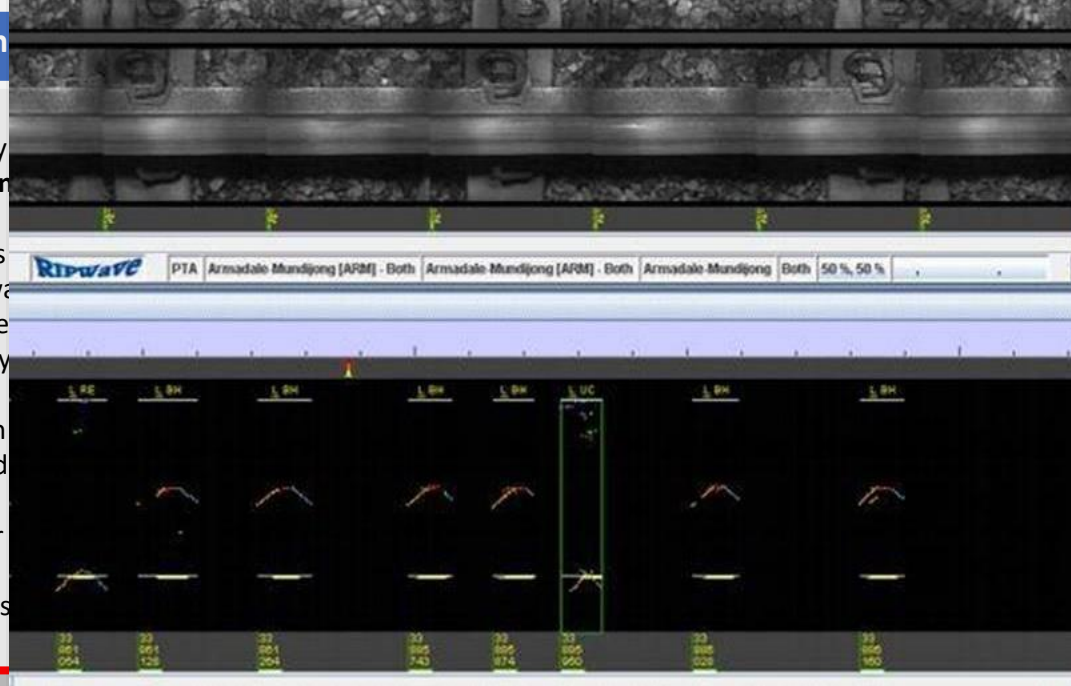


Competence hierarchy and pre-requisites

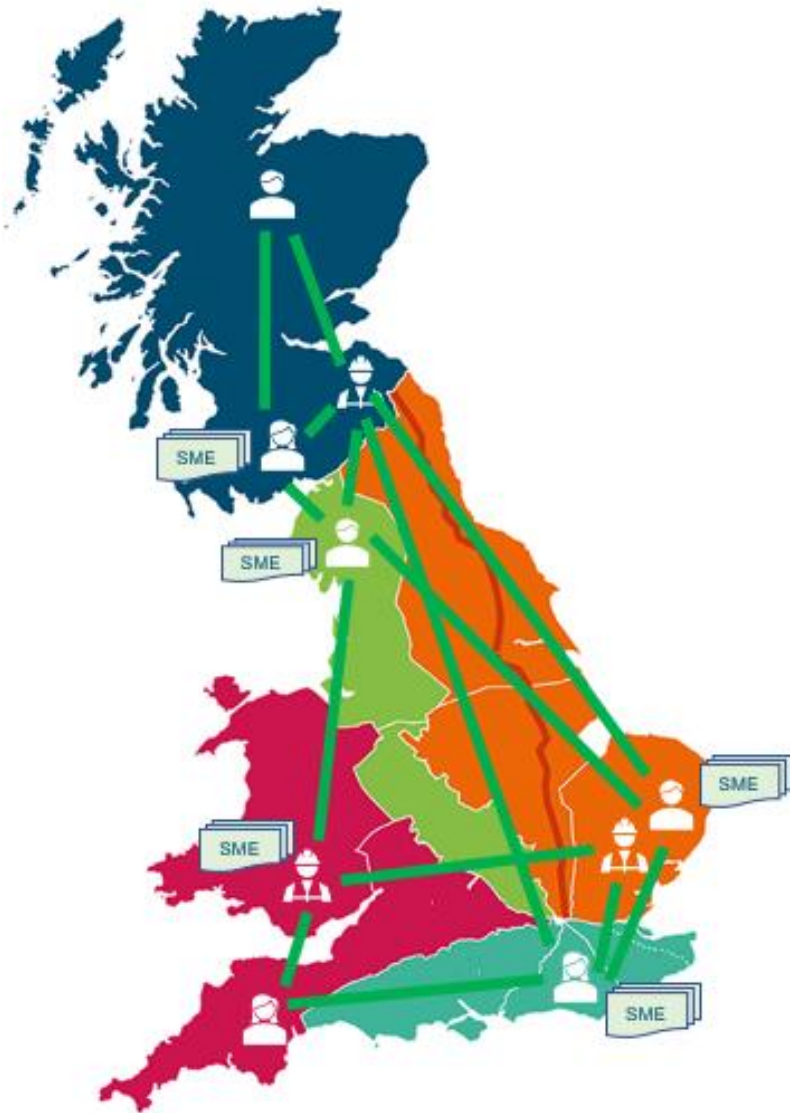


Count of Med Level
Row Labels
[-] RDE
⊕ Rail Defect Examiner.
[-] RDN
⊕ Rail Defect Nominee.
[-] Tr 00
⊕ Track Induction.
[-] Tr 01
⊕ Maintain permanent way assets.
[-] Tr 01.01
⊕ Maintain permanent way assets.Plain Line
[-] Tr 04
⊕ Restore track geometry by Manual Repair.
[-] Tr 05
⊕ Establish track geometry and restore to operational condition by Mechanised Repair
[-] Tr 07.03
⊕ Establish the operational condition of the Permanent Way by Detailed Inspection.S
[-] Tr 08
⊕ Restore Original Stress in Rails.
[-] Tr 09
⊕ Undertake Stressing of Plain Line.
[-] Tr 12
⊕ Confirm the track is fit for operational purposes following heavy maintenance.
[-] Tr 26
⊕ Scoping and specifying hand grinding activities and verifying compliance.
Grand Total

B-Scan approval

Milestones	Main		Owner	Due Date	
<u>Phase 1 – Tie up the loose ends</u> The Sperry RSU Ultrasonic Rail Testing System	Expiry Action		lete	BD/SG	Mid Feb
Software Upgrade programme for B-Scan Lite	Issues Softwa Quote Sperry			SG/WG	Complete
National Union Consultation	Union full ad Paper Works		road map to achieve rds / full briefing.	KE WG/SG	Mid Feb
				BD/SG/WG	Dec 21
				BD/SG	Complete
			SG	Complete	
<u>Phase 2 – Full Implementation</u>		1. B-Scan technology to be deployed as BAU following endorsement by Union Consultation (agreement in place) 2. B-Scan conversion training material NRT – Do we approve Sperry’s course material? (CDG Item CTM302) 3. Standards review – needs to amend 3416 / 1110 / 055 / 4. Complete software upgrade PA and roll out programme – PA05/01316	BD/SG	July 22	
			SG	July 22	
			BD/SG/WG	March 23	
			Sperry	Jan 23	
<u>G-Scan</u> <u>Eddy Current</u> <u>UT Training package</u>		WRM team are currently reviewing roadmaps and risk register so should this reflect our wider issues / gaps			

Communities of Practice launch



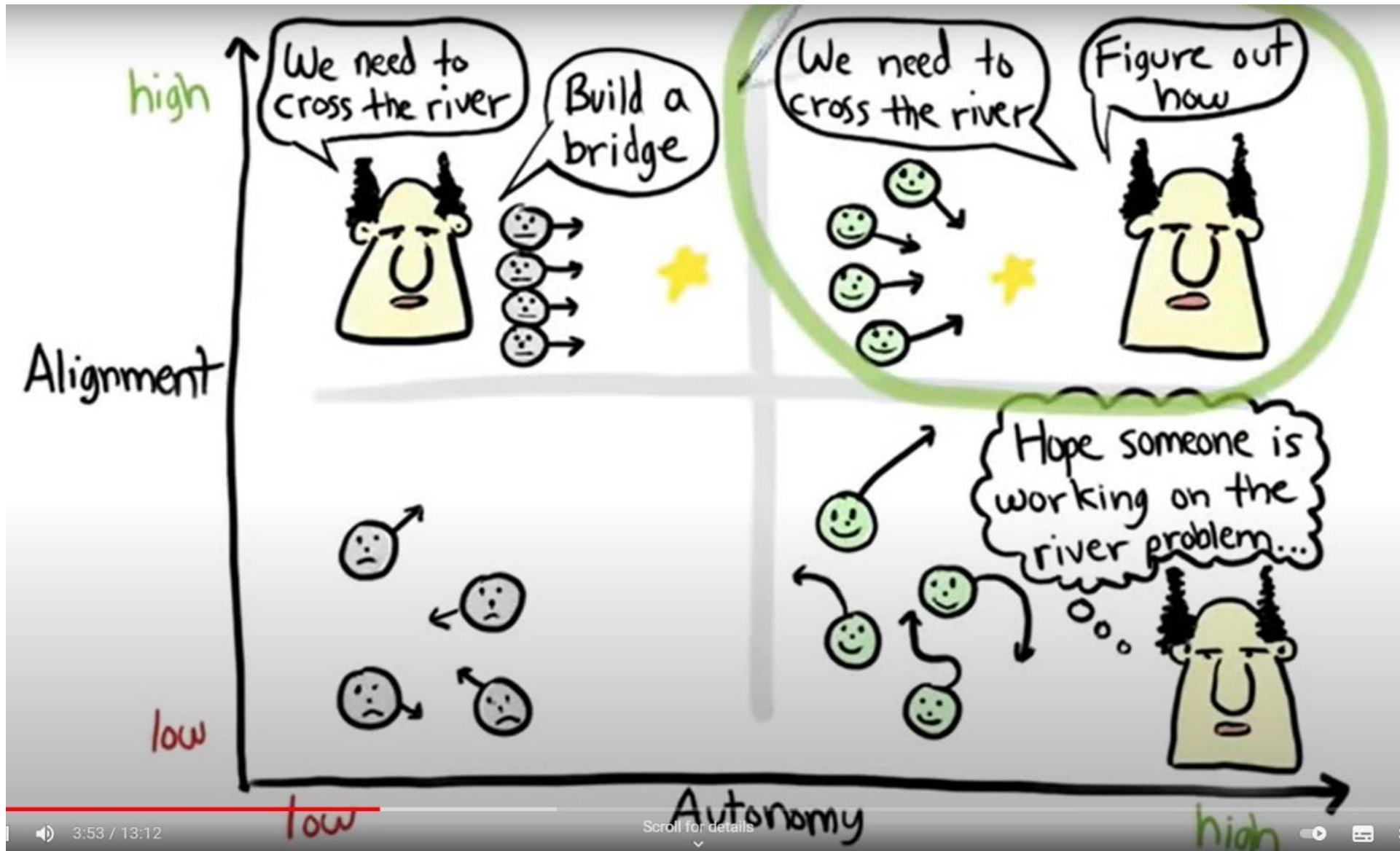
- The lead group of SMEs in a technical discipline
- Focus on network-wide development of knowledge, experience and expertise
 - Fostering creative thinking
 - Empowering our people
- Core activities:
 - Mentoring / coaching
 - Assessment of other L4/L5 candidates (and L1-L3 if needed by line managers)
 - Share knowledge
 - Enabling innovation and adoption of technology
 - Contribute, peer review and recommend and champion changes to standards and competence frameworks, R&D, systems
- Sub-group of Track Asset Technical Review

Track Discipline Review Group (Liam Jackson)
Rail Management (Sam Green)
Welding (Bob Cox)
On-Track Machines (Gary Smith)
Gauging (Mark Ward)
S&C System (Steve O'Brien)
Hot weather management (Ian Coleman)
Longitudinal bearer systems (Richard Gibson)
Data Quality & Systems (Ian Dean)
Asset management (Mark Bradbury)

[Communities of practice \(sharepoint.com\)](https://sharepoint.com)

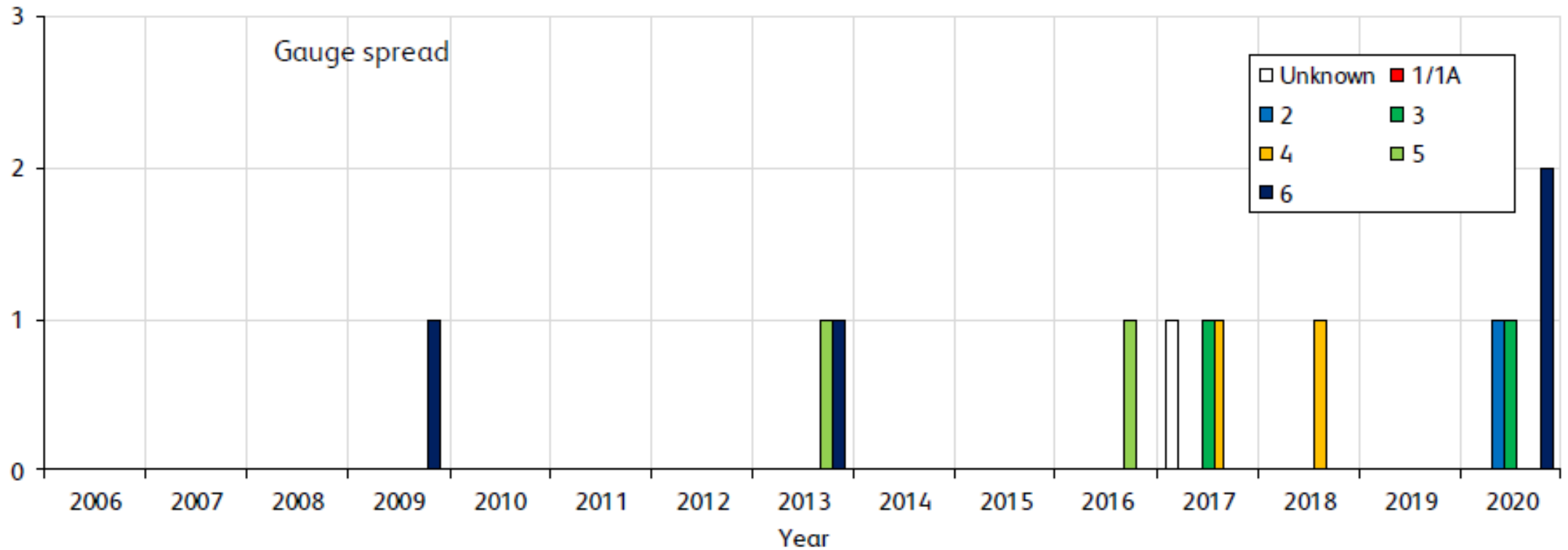


Communities of Practice – purpose

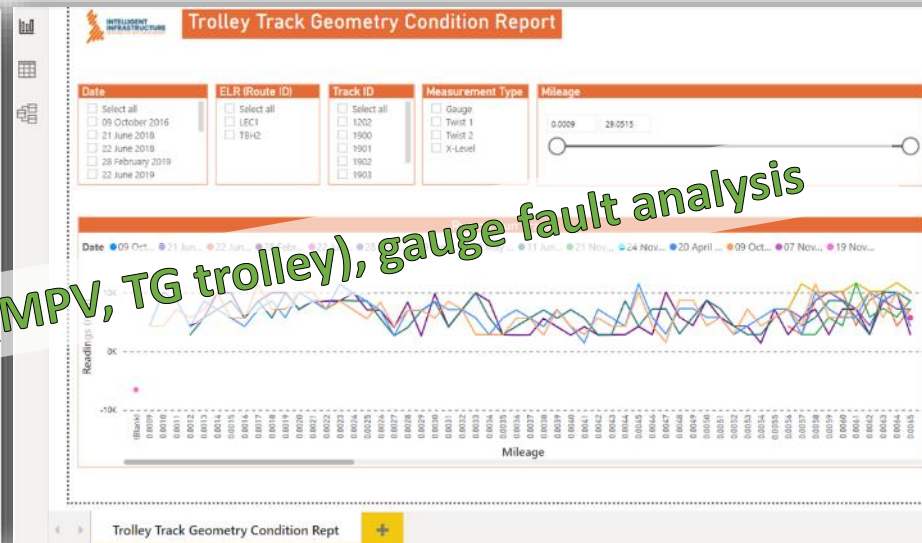
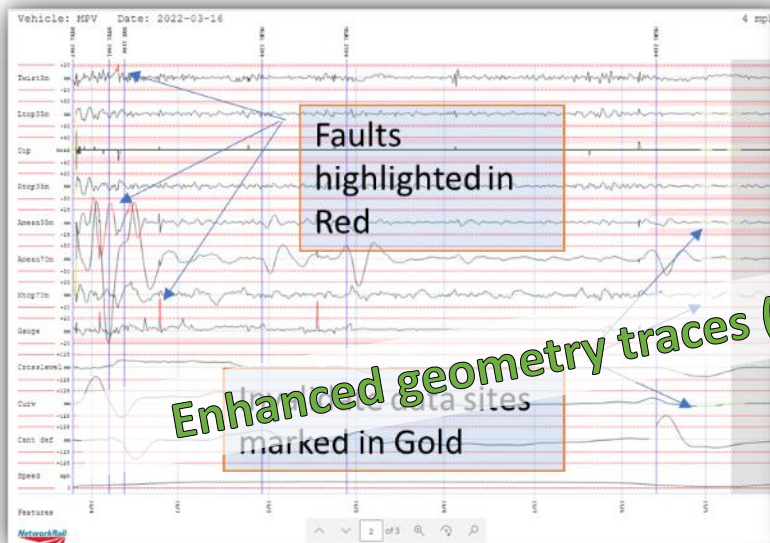
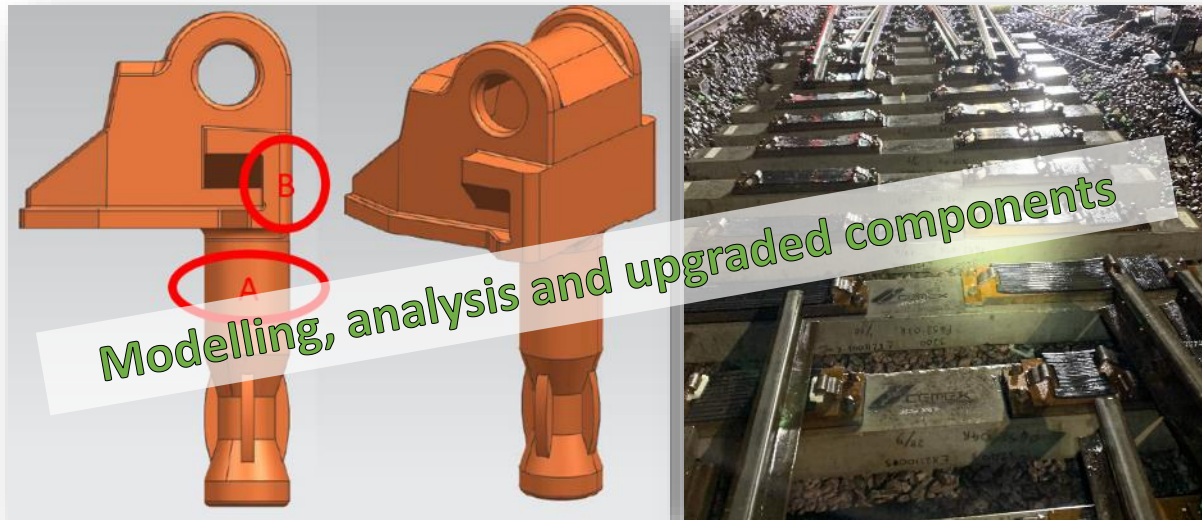




Derailment due to gauge spread increasing in frequency



Derailment due to gauge spread increasing in frequency



Amber Trolley Track Geometry Recording

DOCUMENT REFERENCE: 3rd February, 2022

Scope: Amber Trolley Track Geometry Recording

Preparation:

- Pre-site office work:
 - Review MST for patrol and confirm if recording frequency suitable
 - Review previous work
 - Review plant items required but not limited to:
 - Patroling diagram
 - Amber recorder and Handheld Device
 - Metric Slap Gauge (for track gauge)
 - TGPB track gauge
 - Dynamic gauge
- Work planning considerations:
 - Arrangements for safe system of work
 - Inspection theme

Pre-Recording Calibration:

1. Remove the Amber recorder from its case and fold open to assemble.
2. Confirm Amber recorder is within factory calibration date and there are no obvious signs of damage.
3. Check measuring rollers are clean (free from grease/dirt) and free to move.

