8 November 2023

SAFETY WEBINAR

Objects left on the Line

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INTERNATIONAL UNION OF RAILWAYS

RAIL SAFETY AND STANDARDS BOARD

Objects on the line: Understanding risk and priorities for the railway in Great Britain

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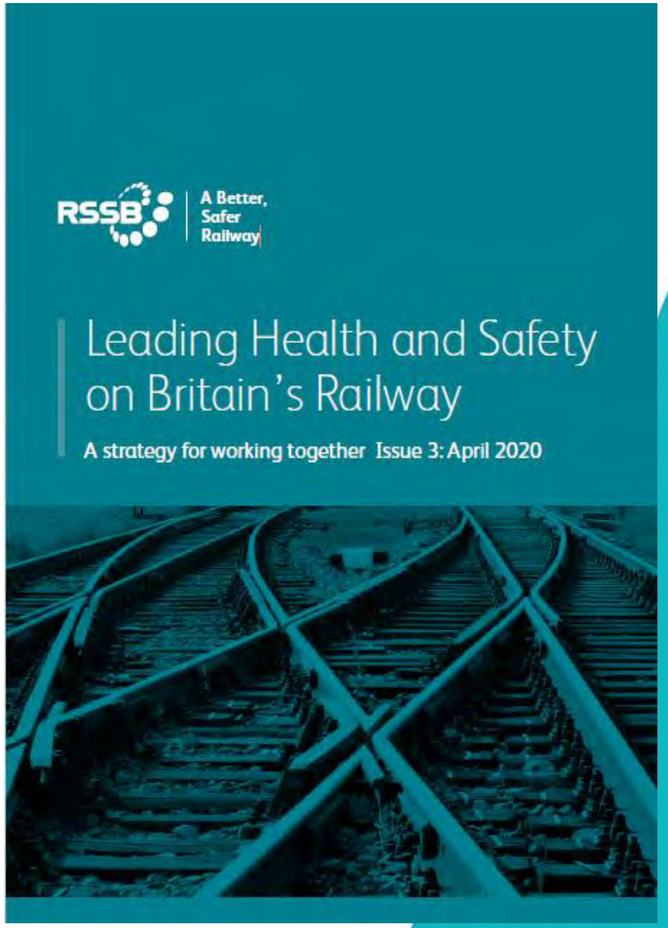
Context: how companies in GB rail work together to manage health and safety

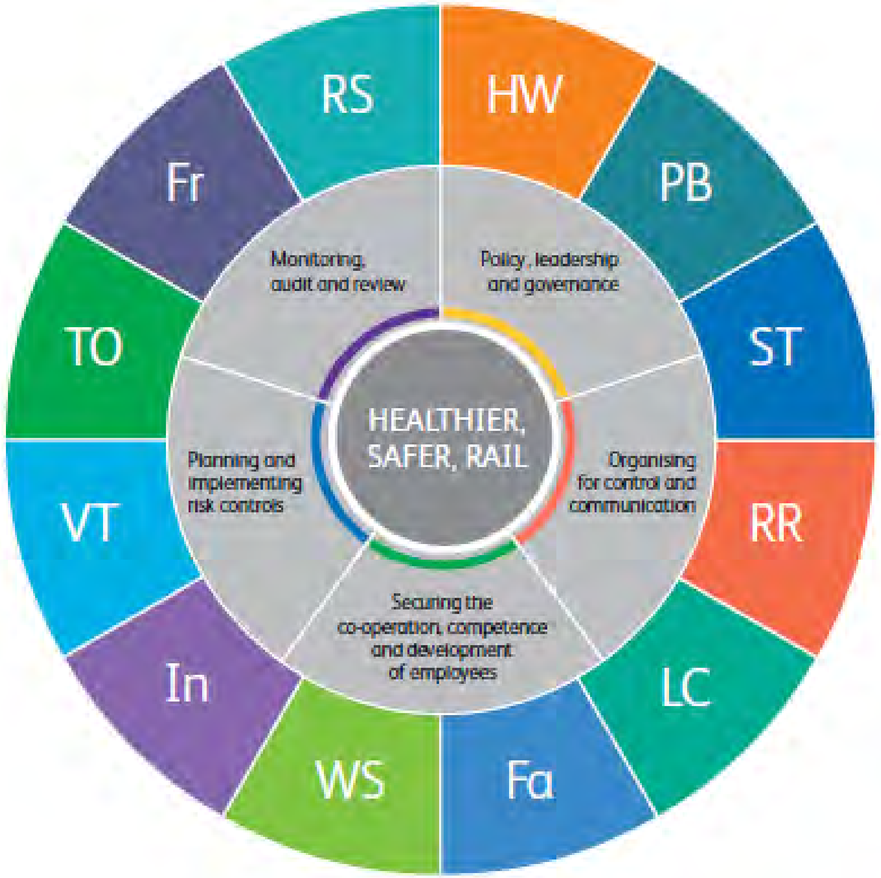
The GB Rail Industry's Health and Safety Strategy

- Sets the future vision for health and safety in GB rail
- Identifies strategic improvement priorities
- Encourages collaboration between companies

- Updated strategy to be launched in January 2024:
  - Supported by detailed road maps for each key risk area
  - Includes a call to action for industry leaders



The Strategy's Structure and Collaboration Framework

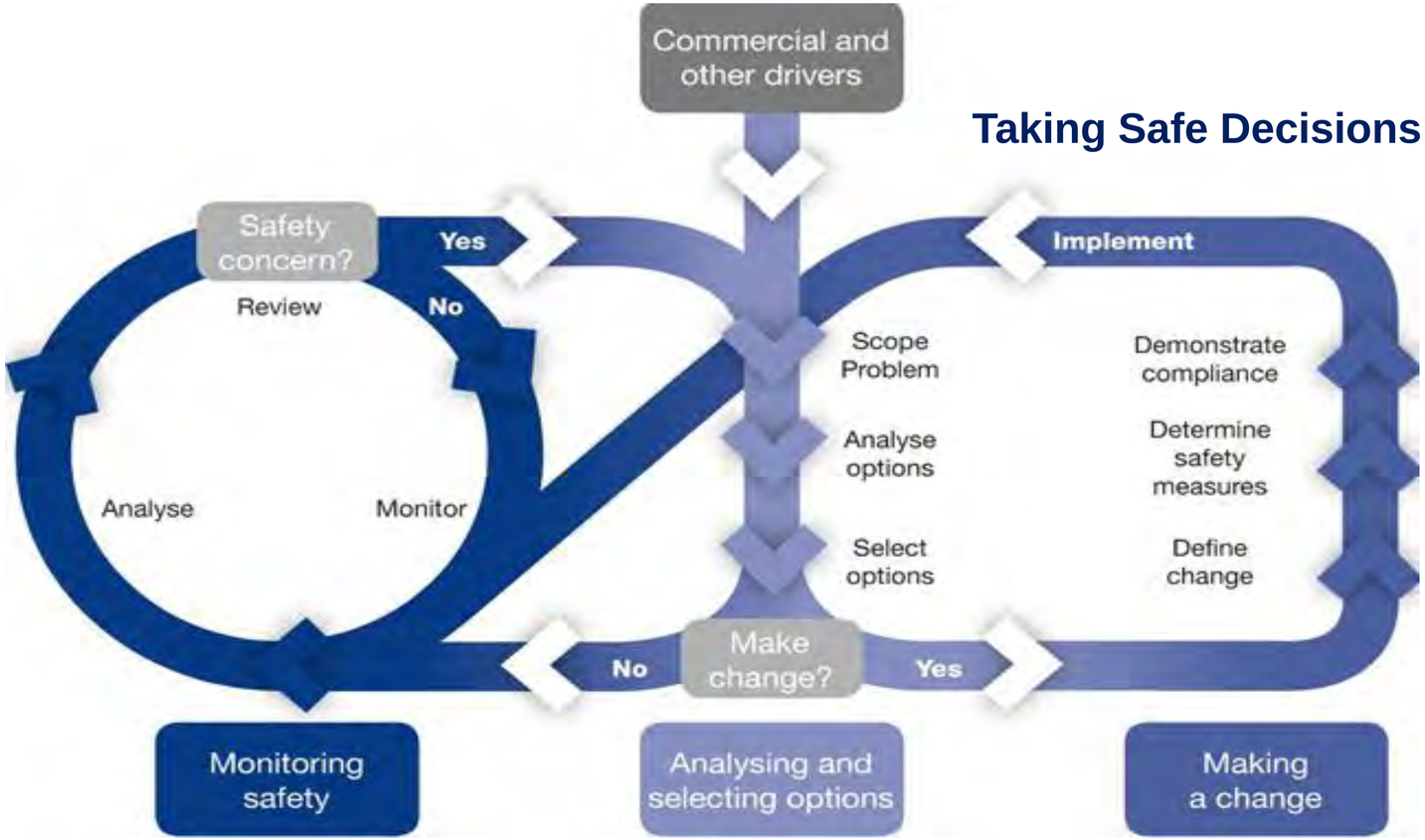


HW	Health and Wellbeing	WS	Workforce Safety
PB	Public Behaviour	In	Infrastructure asset integrity
ST	Station Operations	VT	Work-related violence and trauma
RR	Occupational Road Risk Management	TO	Train Operations
LC	Level Crossings	Fr	Freight Derailment
Fa	Fatigue Risk Management	RS	Rolling stock asset integrity

Train Accident Risk Group

The Strategy's Structure and Collaboration Framework

Duty holder companies



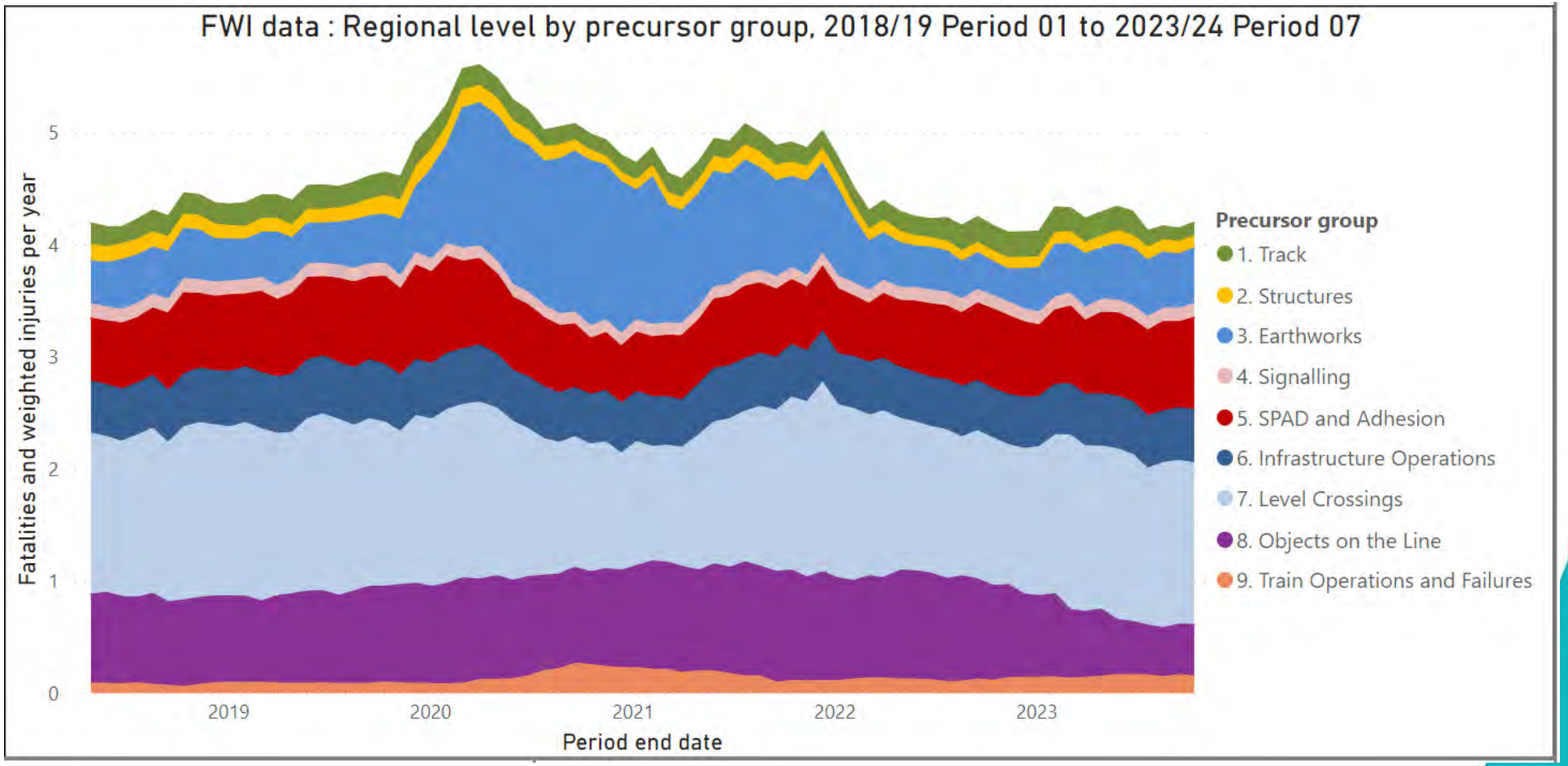
Industry risk groups

System-wide safety monitoring

Prioritising and planning cross-industry improvement activity

Supporting and embedding change

Train Accident Risk Group: monitoring



Train Accident Risk Group: risk profile

Group	Includes	Risk (FWI/year)	% of TARG risk scope
Objects on the line	Collisions with non-rail vehicles that egress the line by means other than level crossings, animals, trees, items blown onto the line, items left on the line by maintenance staff, items placed on the line by vandals, snow and ice. Also derailments following collisions with these objects.	0.838	37.5%
Signal passed at danger	All causes of collisions and derailments following signals not protecting level crossings which are passed at danger.	0.654	29.2%
Operating incidents	Collisions following misroutes or On-Track Plant (OTP) outside possession limits. Permissive working collisions due to operating staff errors. Buffer stop strikes due to operating staff errors. Derailments due to shunter errors, train marshalling errors, severe braking/snatch, and running into maintenance vehicles.	0.374	16.8%
Runaway trains	Derailments and collisions following runaways due to human error.	0.267	12.0%
Speeding[1]	Speeding leading to a derailment or a collision between a train and an OTP incorrectly outside of possession limits.	0.100	4.5%
Adhesion	Buffer stop strikes and permissive working collisions due to low adhesion.	0.002	0.1%
	Total TARG risk (FWI/year)	2.23	
	As a % of all potentially high risk train accidents	41%	
	As a % of all accidental risk	2%	

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Risk from objects on the line

Major accidents

Carmont, 2020

3 fatalities.

Derailed running over debris washed from a drain during heavy rain.

Great Heck, 2001

10 fatalities.

Derailed after striking a road vehicle that had run down a motorway embankment onto the railway.

Polmont, 1984

13 fatalities.

Derailed after striking a cow, which had probably accessed the railway via fencing damaged by trespassers.

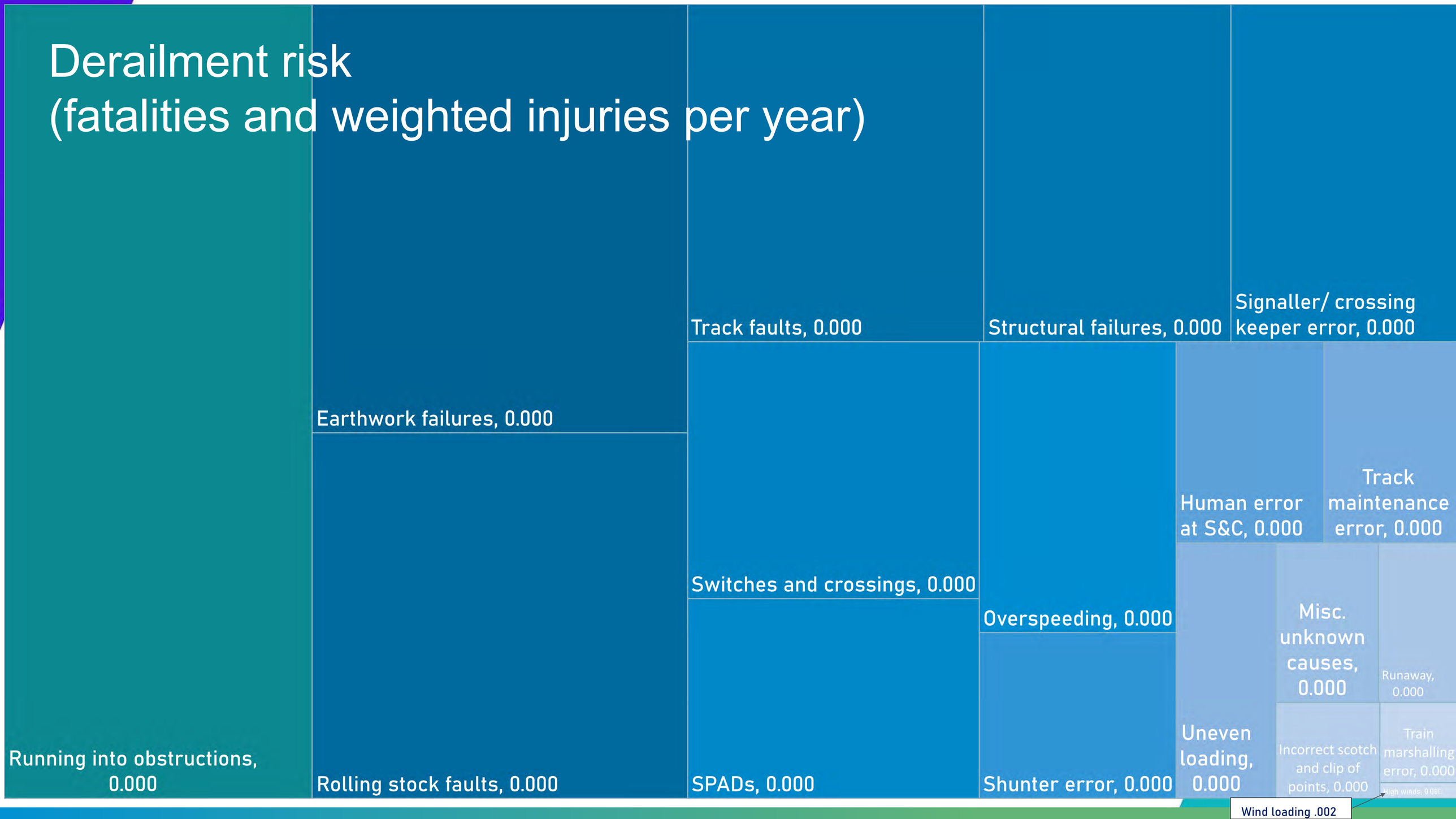
The Safety Risk Model (SRM)

Supporting a risk and evidence-based approach to safety management

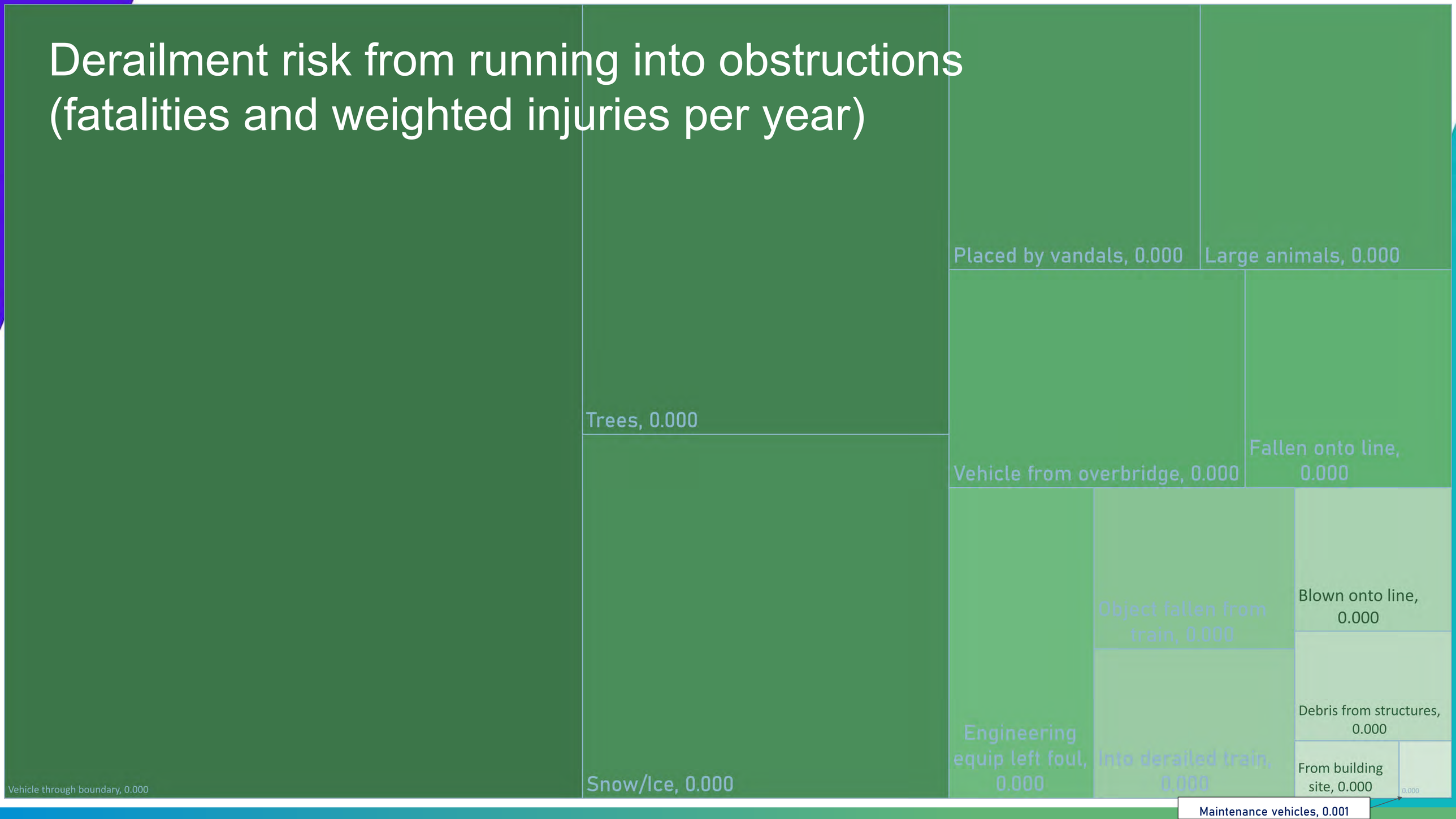



- Provides structured, quantified estimates of underlying safety risk
- Common approach: pooling data and experience from across GB rail
- Consistent means of assessing risk from different hazards
- Grounded by the reality of events that have happened, but not constrained by the past

Derailment risk (fatalities and weighted injuries per year)



Derailment risk from running into obstructions (fatalities and weighted injuries per year)



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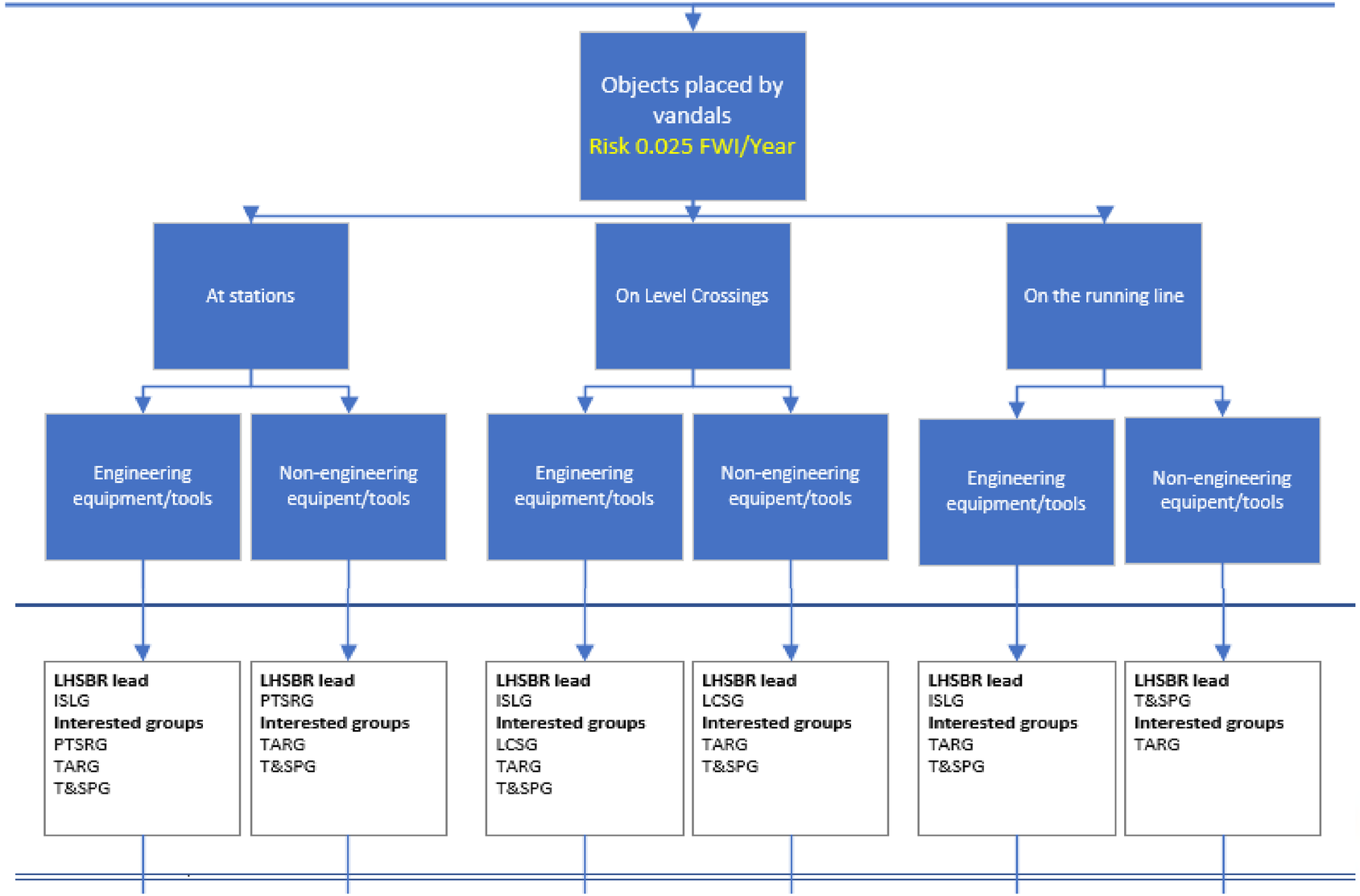
Strategic review of objects on the line

Strategic Review of objects on the line

RSSB is undertaking work for the industry's Train Accident Risk Group to:

- Review how we categorise and structure risk from objects on the line
- Clarify arrangements for monitoring and reducing risk from objects on the line within the cross-industry collaboration framework
- Further investigate the risk and opportunities for safety improvement:
  - Accidents, incidents and precursor events
  - Key risk controls
  - Risk influencing factors and how they vary across the network
  - Changes over time
- Enhance the Safety Risk Model and Precursor Indicator Model

Industry risk groups and their interfaces



Understanding and improving risk controls

Preventing objects from obstructing a line open to traffic.	Identifying when objects are on the line (or there is a heightened risk) and putting operational mitigations in place.	Reducing consequences if a train runs into an object.
E.g. project on maintenance equipment left foul	E.g. optimising the operational response to extreme weather events	E.g. research on guidance for derailed trains

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Conclusions

Conclusions

- Objects on the line make a significant contribution to train accident risk in GB.
- Diverse range of causes with different controls and different “risk owners”.
- Risk can be reduced through prevention, identification and response, and consequence mitigation.
- GB rail benefits from a risk and evidence-based approach to safety management. RSSB is improving the structure and granularity of risk information to better support management of objects on the line.
- Understanding risk and prioritising improvement requires systems thinking and collaboration between functions, organisations and industry groups.

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THANK YOU FOR YOUR PARTICIPATION!

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