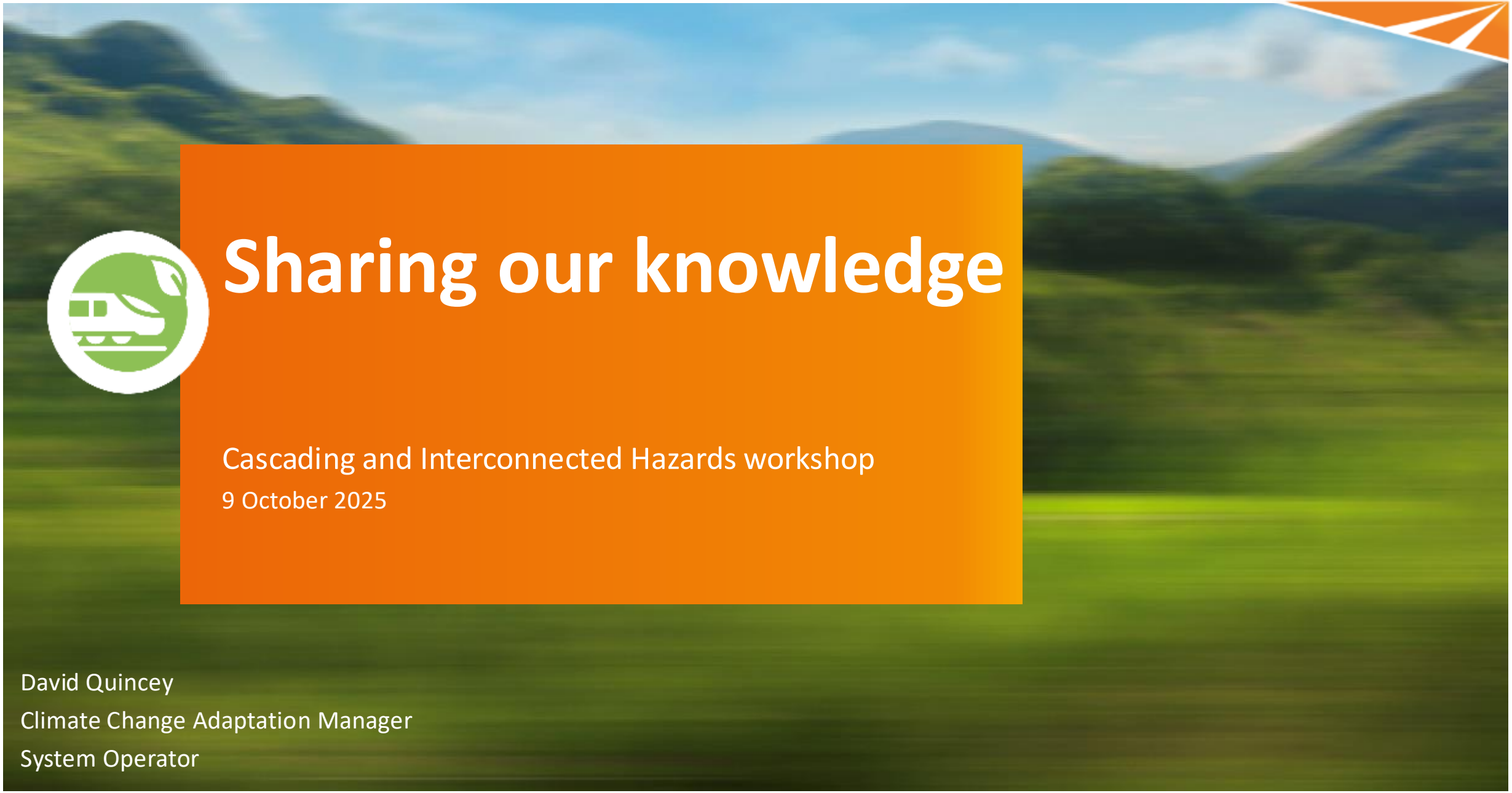


Sharing our knowledge

Cascading and Interconnected Hazards workshop

9 October 2025

David Quincey
Climate Change Adaptation Manager
System Operator

Who are we?

- A public sector, arms-length body of the Department for Transport
- Regulated by the Office of Rail and Road
- We manage the railway infrastructure across the whole of Great Britain
- A devolved organisation with 5 regions and 14 routes
- We operate infrastructure that is up to 200 years old;
    - Roughly 20,000 miles of track,
    - 30,000 bridges, tunnels and viaducts
    - Thousands of signals, level crossings and operational buildings
    - we own all of the stations, managing 20 of the largest
- Our tracks run through towns and cities, hug the coast, cross rivers and are exposed to the extremely variable British Weather

How does the weather and climate affect us?

Waves can damage coastal infrastructure

Heavy rain can cause embankment failure and landslides

Rivers and heavy rain can flood the track

Flooding can cause erosion, destabilising bridges

Heatwaves can cause track to buckle

Snow can block tracks and affect electrical connectivity

Wind can blow objects onto the track

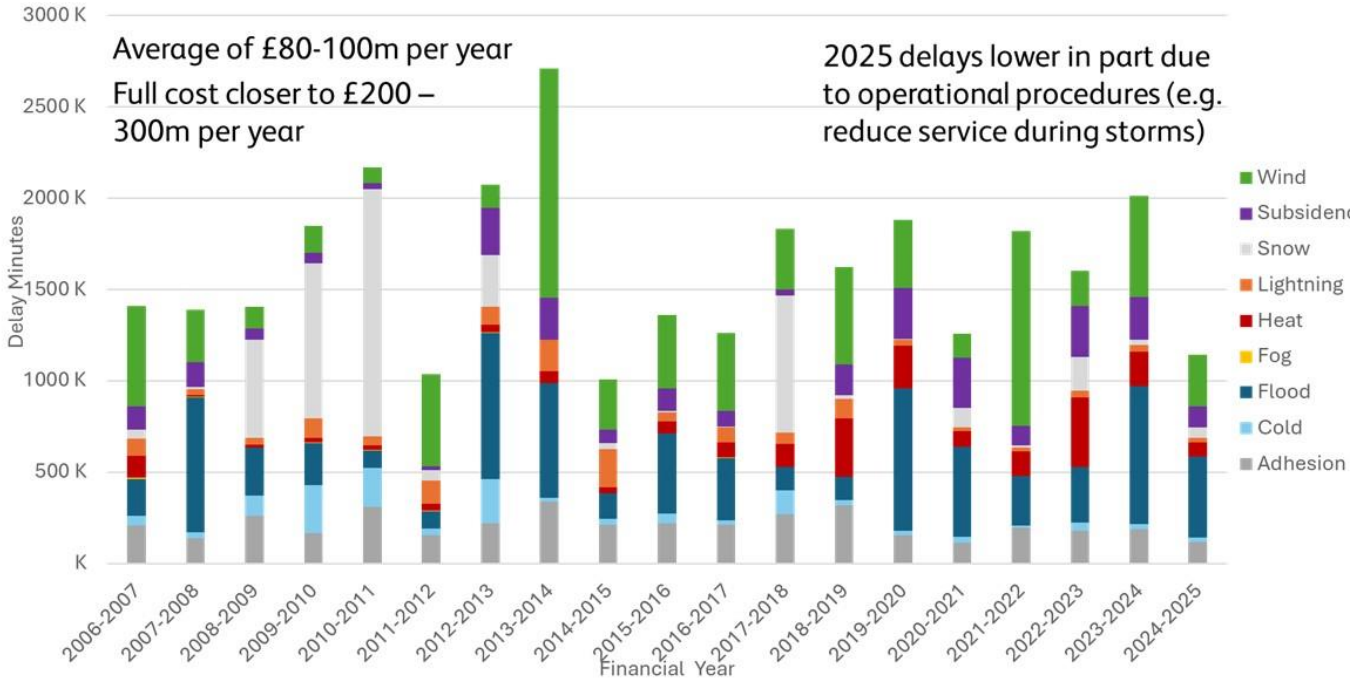
Wind can blow trees onto overhead lines and the track

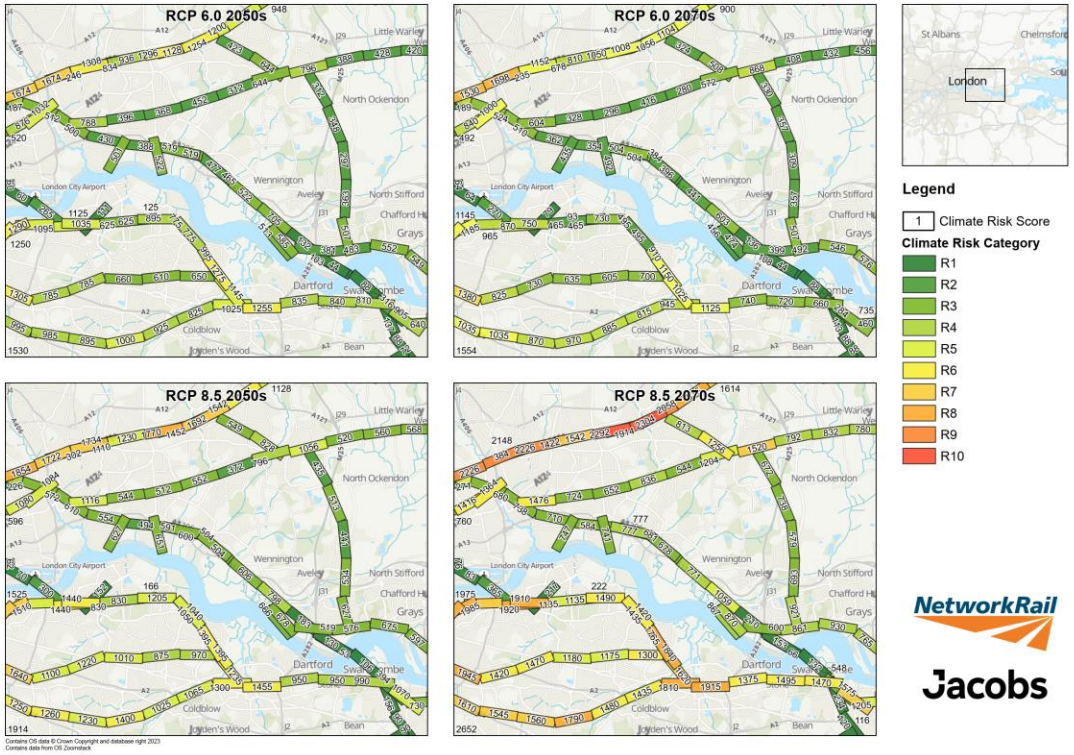
Leaves on the line make tracks slippery and affect connectivity

Lightning can damage signalling and electrical equipment

How does the weather and climate affect us?

OFFICIAL





Who do we need to share what with?

High level

Internal	Content	Format/how
Board	Metrics/reporting – overview of performance/dashboard, decision papers, policy/strategy papers	Emails, links/shared documents, paper copies, online/in person presentations
General communications	Policy/strategy changes, updates, subject overviews/introductions	Policy and strategy documents, briefing notes, awareness campaigns, news letters, pod casts/videos, email, web/hub sites
Training	Subject introductions, basic training, subject overviews	In person one-one/group sessions or online, how to guides, e-learnings, email e.g. safety bulletins
External	**Content**	**Format/how**
The public	Announcements/news stories, 'about us' information, awareness campaigns	Press releases – paper/ online articles, web site and other digital media, TV
Customers	All of the above and station announcements	All of the above and display boards/TV, Tannoy, apps/SMS…
Government, ORR, RSSB	Policies/strategies metrics/reporting, progress/performance briefings	Paper and electronic reports, in person/online meetings presentations, email web links
Events	Usually subject specific presentations or briefings	In person/online meetings, presentations, reports, emails/linked documents

Who do we need to share what with?

Detail/technical

Internal	Content	Format/how
Business units	Metrics/reporting – detailed analysis of performance e.g. asset failure rate repots and analysis, investment delivery, weather related delay impacts	Briefings, in person/online meetings, written papers/reports – both paper and electronic, data sets - dashboards, excel, power BI, direct documents and shared sites/hubs
Subject Matter Experts	Subject specific data sets e.g. asset registers, asset condition assessments, climate projections data, monitoring logs/reports, analysis outputs, design standards and manuals, models and model outputs	Both paper and electronic, data sets - dashboards, excel, power BI, direct documents and shared sites/hubs, bespoke modelling software/IT
Training	Technical training courses	Informal courses and formal certificated courses, CPD, In person one-one/group sessions or online, how to guides, e-learnings,
External	**Content**	**Format/how**
Government	Metrics/reporting – detailed performance analysis e.g. asset failure rate reports/analysis, investment delivery, weather related delay impacts, regulatory reporting	Periodic reports, briefings, in person/online meetings, written papers/reports – both paper and electronic, data sets excel, power BI, direct documents email, transfer sites
Subject Matter Experts	Subject specific inputs - from external bodies e.g. climate projections data, data from Train Operating Companies, EA flood data, power use/network status/billing data, - to external bodies e.g. timetable data, asset data	Usually electronic data e.g. GIS files, excel, power BI or other data base reports/files/extracts, direct documents email, transfer sites. Could also be reports
Contractors	Subject specific data - from external bodies e.g. waste management data, modelling outputs, weather forecast data - to external bodies e.g. Asset location data, modelling outputs	Usually electronic data e.g. GIS files, excel, power BI or other data base reports/files/extracts, direct documents email, transfer sites. Could also be reports
Consultants	All of the above depending on the project	All of the above depending on the project
Academics	All of the above depending on the project	All of the above depending on the project
Interdependencies	e.g. power companies, Local Resilience Forums, National Infrastructure and Service Transformation authority - Asset data – location, condition, connections, planned activity, resilience/vulnerability and continuity plans	All of the above depending on the nature of the dependency. Forums e.g. Infrastructure Operators Adaptation Forum, Transport Adaptation Steering Group, Ad hoc/informal contact e.g. collaborations with Transport for London, East West Rail, National/regional collaboration e.g. Cat2 responder etc. BUT limited!

What are the challenges?

- Resource
  - £
  - People
  - Time
- Technology
  - Availability
  - Compatibility
  - Management/capability
- Data
  - Availability/accuracy/completeness
  - Compatibility
  - Sensitivity

- The last two are heavily linked with the first two!