Intelligent Infrastructure

Providing technical leadership

Intelligent Infrastructure in Network Rail

We are using technology to turn **data into intelligent information** so our teams can **work smarter** and **more safely** to deliver improved services for passengers and freight customers.

People & culture transformation
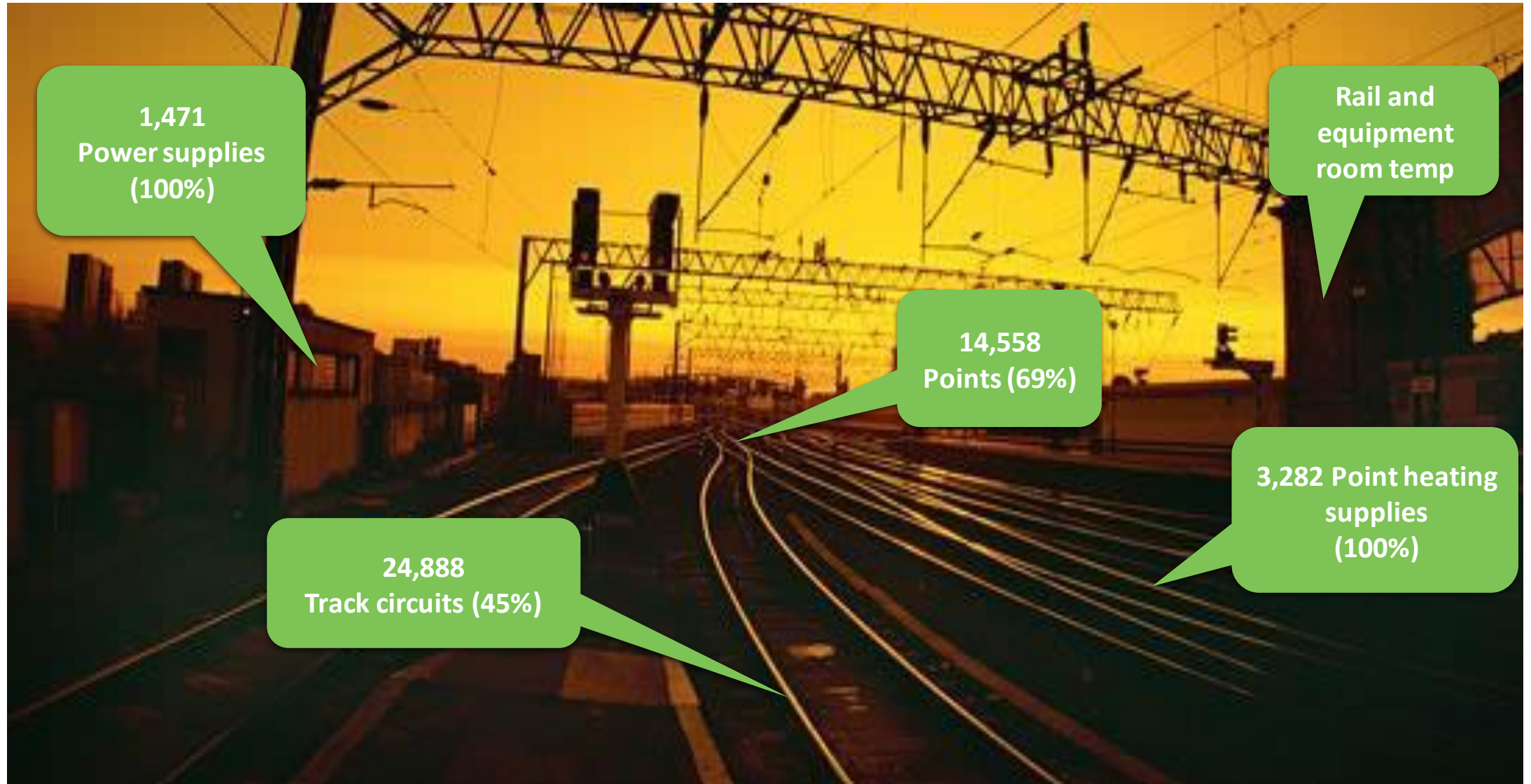
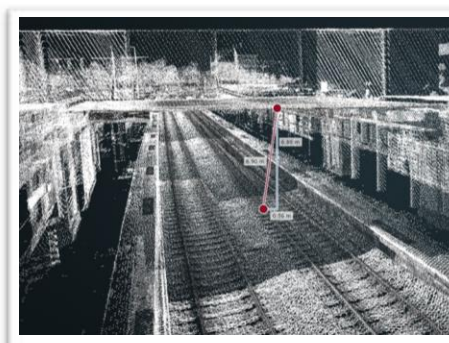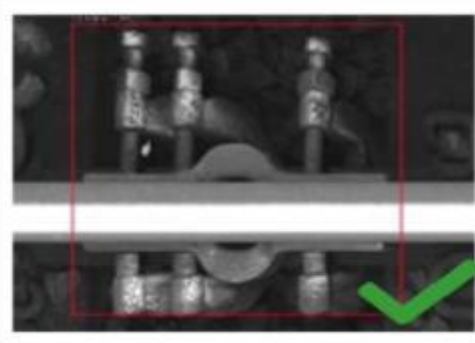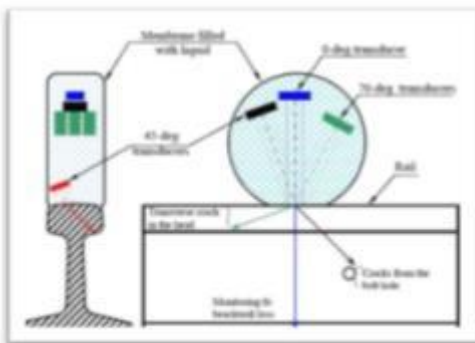| Engineering assessment | Monitoring | Analytics | Planning | Execution |

Continual feedback to evolve to meet the needs of passengers

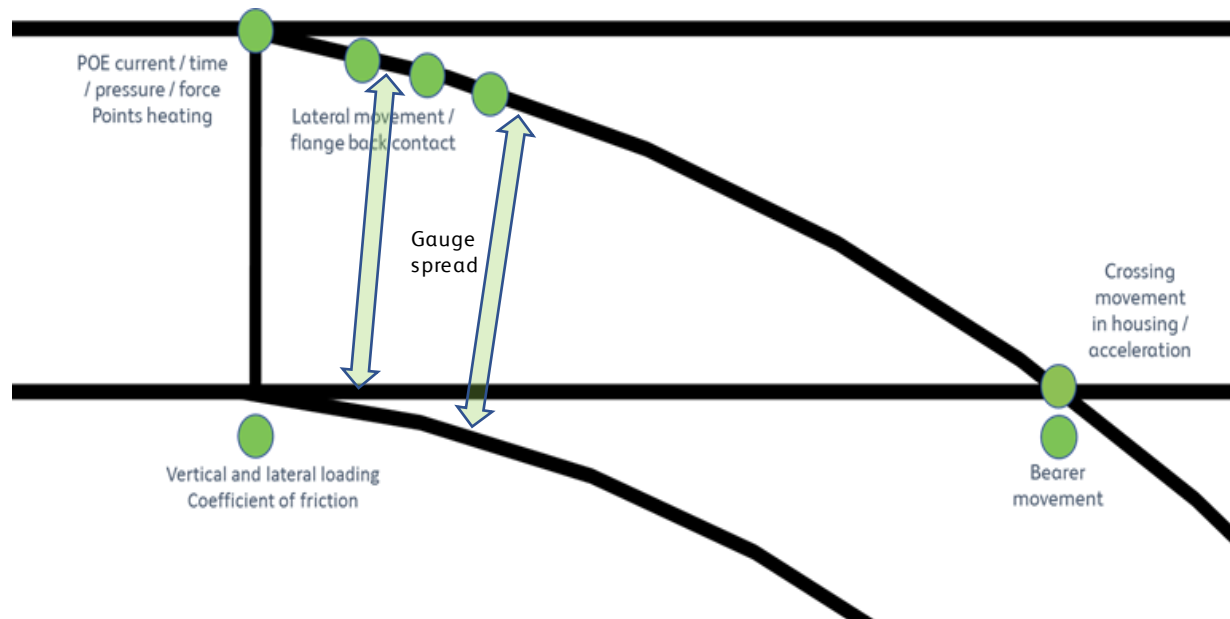# Remote condition monitoring coverage

Integrating existing and bringing in new solutions
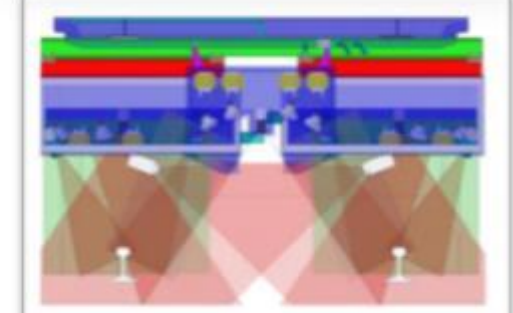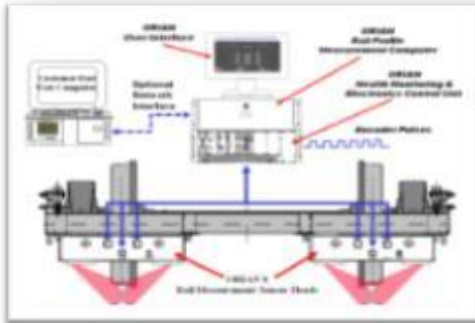
Specifying our requirements

- We need to do more to tell the supply chain what we need – an additional level of detail compared the challenge statements

- Detailed requirements being developed for S&C monitoring so suppliers understand what we need, rather than having to guess!

- We also need to change how we buy things

POE current / time
/ pressure / force
Points heating

Lateral movement /
flange back contact

Gauge
spread

Crossing
movement
in housing /
acceleration

Vertical and lateral loading
Coefficient of friction

Bearer
movement

Analytics development

- Focused on using Advanced Analytics and Machine Learning (ML) to improve prediction of faults:
    - Deliver analytics solutions for the workstreams for deployment in the Insight tool
    - Diagnosing faults that will support making the correct intervention to reduce delays
    - Deliver proof of concept (POC) outcomes to inform the customers of the 'Art of the Possible'.


Scope

Pilot

Prototype

Track and Signalling entering Prototype phase

POC

Time
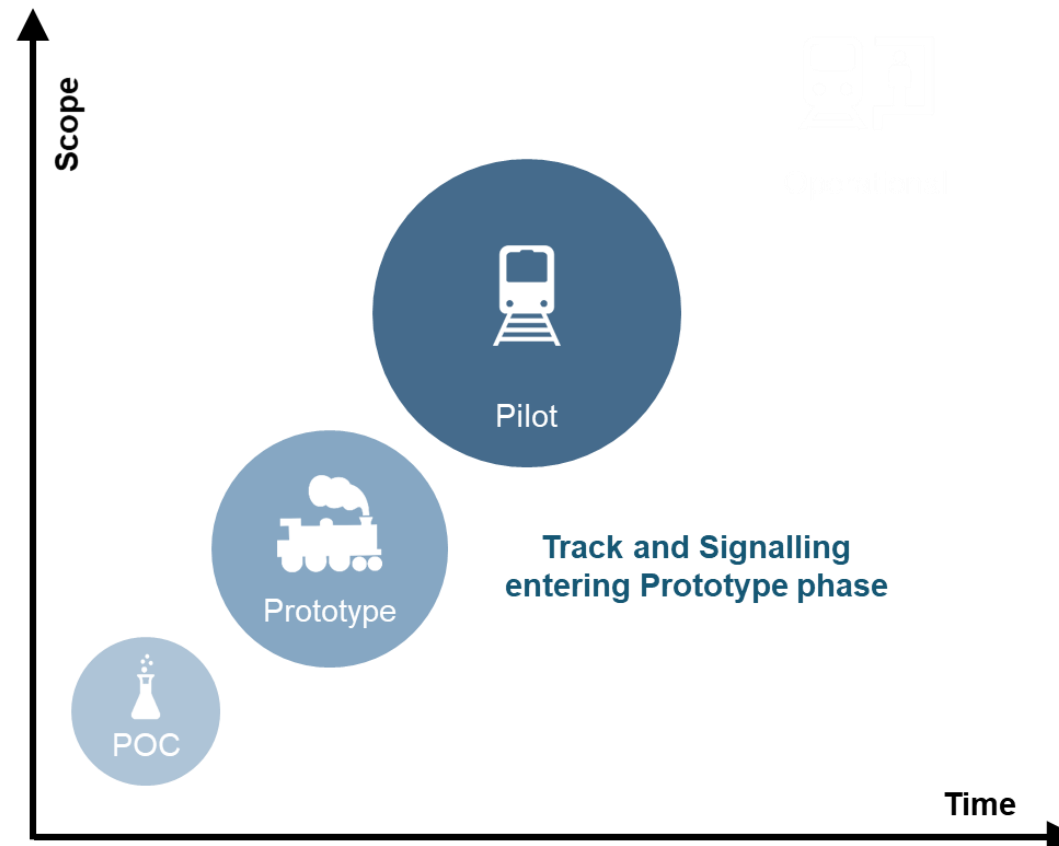
Using agile to deliver faster

Start

Design
Frontline colleagues agree the prioritised product roadmap…

Build
…and help us to build the tools to meet their needs.

Test
A prototype is then fully tested with a wider community…

Deliver
…and regularly provide updated versions.

Iterate
…we listen and respond to the feedback…

The Insight Tool

Insight is our tool for presentation of information to Engineers and Section Managers. In our first release we have aligned track geometry trace data and built algorithms so users can understand when a threshold will be exceeded
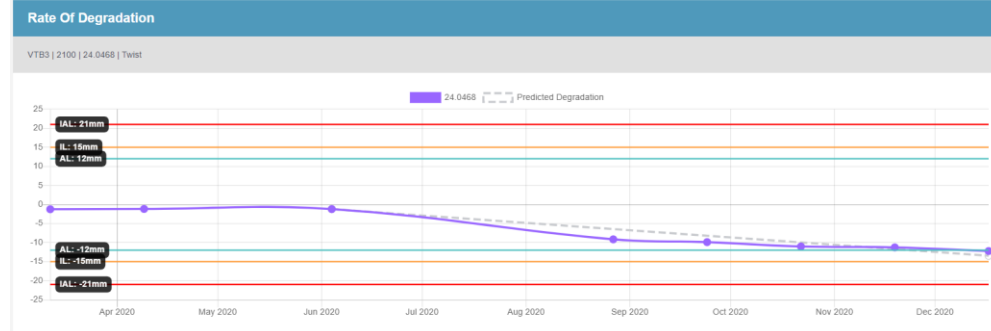

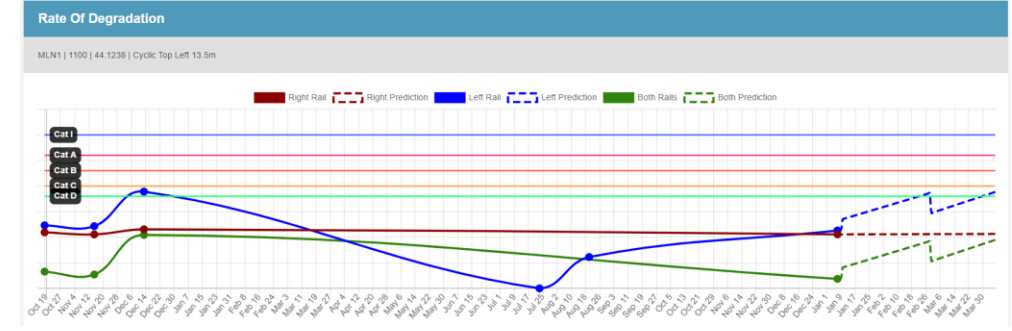**Automatically aligned Track Geometry Traces**
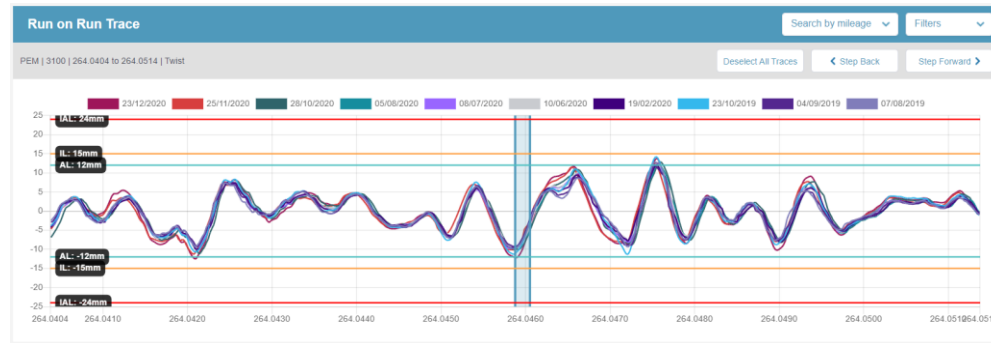
Visualising Cyclic Top Faults
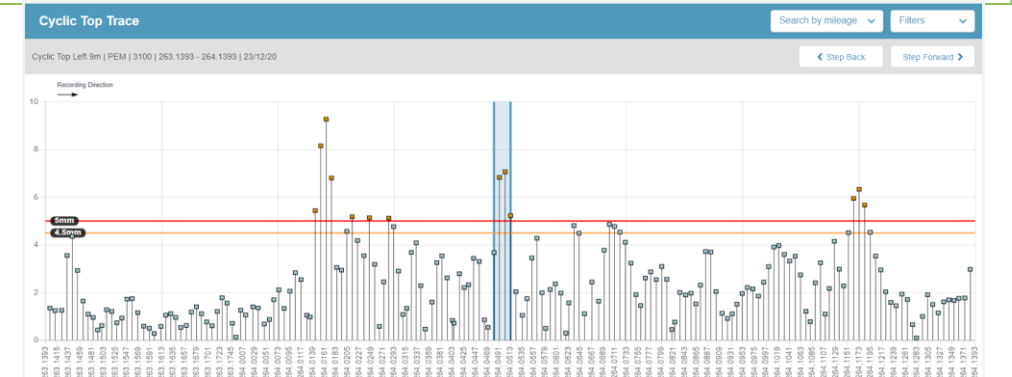
Predicting Track Geometry Threshold Exceedances

Predicting Cyclic Top Threshold Exceedances

Delivering for the frontline

- User focused, simple to use tools

- Automating manual tasks

- Remote monitoring to understand current asset state

- Predict time to failure and root cause

- Providing data when and where it is needed

- Safer delivery of planned activity

- Right work, in the right place, at the right time

everyone
home safe
every day

NetworkRail

Technical Authority

Providing technical leadership