Andrew Fennell
andrew.fennell@networkrail.co.uk
Mob: 07710 940 238
Our challenges

• How do you understand what’s happening on 40,000km of railway when passenger numbers are expected to double by 2030 and access time for maintenance & inspection is severely limited?

• How can you predict where problems might occur when their cause is often outside the boundaries of the railway?

• How do you understand the whole ecosystem in which the railway exists from the weather systems that might effect it to the geology it sits on?

• How do we bring together all of the data required to address the above?
Addressing our challenges

This is how we organise ourselves...
Addressing our challenges

This is how we plan...
# Addressing our challenges

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<th>Political</th>
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**Past**

- **Government**
- **DFT**

**Industry**

- **Space**
- **Air**
- **Rail**
- **Road**

**Future**

- **Portfolios**
- **Programmes**
- **Enablers**
- **Projects**

**A future driven by Innovation**
Addressing our challenges

A problem shared...

- Government
- DfT
- Rail
- Road
- Infrastructure
- RCM
- Satellites
- Real time HD imagery

Projects
Enablers
Programmes
Portfolios

A future driven by Innovation
Here’s how it works

- Portfolios
- Programmes
- Enablers
- Projects
Whole Systems Approach

- Better energy use
- Enhance design
- Increased data and information flow
- Modelling and decision support
- Monitoring, adaptation, and optimised maintenance
- Seamless end to end journey
- Transformation

Enablers
- Developing a technical approach to transition
- Developing generation of trains
- Developing high-speed capability trains
- Developing on-train infrastructure improvement
- Development of lightweight train systems
- Light rail vehicle system
- Light weight trains
- Next generation tram
- Optimising and reducing dwell times
- RCCA, Health and Safety, Monitoring, Systems to
- Reducing of delays caused by trains
- Refining and developing the wireless rail interface
- Right time services at points of conflict
- Squeezing up through and enhanced train utilisation
Optimising and reducing dwell times,

Traffic Management

Optimising station dwell time
In the future, control and command technologies will enable a safer railway with greater capacity and reliability, lower costs and improved energy-efficiency. Signalling and control functionality will be migrated onto trains, reducing the need for lineside equipment while also providing greater capacity and operational flexibility, both during normal operations and in the event of disruptions.
Real-time traffic management capability for increased capacity, energy efficiency and sustainability
A future driven by Innovation

Technology & Innovation Team

Presentation Title: Insert > Header & Footer

Real-time traffic management

- Algorithms for Intelligent traffic management
- 2030 vision
- Future Traffic Regulation Optimisation
- Junction algorithms development
- Vehicle positioning
- ComPASS

Traffic Management
Vehicle positioning

Real-time traffic management

ComPASS

Traffic Management
Vehicle positioning in order to increase the robustness of train location solutions (including COMPASS).
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