Great Western Route Modernisation
Industry Systems Integration

The Railway as a System

Tim Coffey
European Railway Benchmarking

Passenger Safety

Public Safety

Figure 2: Railway fatalities and weighted serious injuries per million train-km (2007–2012)

Figure 29: Fatality risk at level crossings: Level-crossing fatalities per million train-km (EU-28: 2010–2012)
UK is the fastest growing railway
The UK is investing more than anyone else in Europe

Data from EU RMMS 2014
UK performs well on punctuality

Data from EU RMMS 2014, 15 minute delay on long distance services
But as passenger demand increases, passenger experience has stalled…
**GWRM Programme aims**

- Increase **passenger capacity** into Paddington for both long haul and short distance journeys
- Deliver **shorter journey times** into Paddington
- **Improve performance** and passenger experience through the introduction of electric rolling stock
- Reduce the **carbon footprint** of rail
- **Increase services** in the West and South-West of England
- **Reduce operating costs** through electrification of the Great Western main line
- Replacement of ageing rolling stock
GWRM: Programme Wide Interactions
Industry System Integration

The GWRM Programme brings together infrastructure works, rolling stock procurement and cascade, train operating company franchises and concessions, timetable development, depot & stabling facilities, maintenance strategies and operational plans into a railway operational system.

DfT appointed Network Rail to lead this Industry Integration role
Scope of the Role

- Migration Planning
- Configuration States
- Governance Support
- Systems Architecture
- Requirements Specification
- Integrated Schedule
- Requirements Management
- Integration Risks, Assumptions, Issues, Dependencies
- Interface Management
- Performance Support
- Industry Change Management
- Operations Support
- Maintenance Support
- Industry System Safety Assurance
Train to Infrastructure Interfaces

- Traction Power / Regeneration
- Single Pantograph
- Two Pantograph at 125 mph applicable to 2 x 5 car formations
- OLE
- Pantograph Raising & Lowering at up to 125 mph
- Route Availability (Axle Loadings)
- Bridge Resonance
- Gauging
- 17m Bogie Centres
- 25.9m Driving Pantograph Trailer (DPT)
- 26m Carriage
- Maximum 260m Super Express Train (2x5 Car formation)

A better railway for a better Britain
## Learning to date: key themes

<table>
<thead>
<tr>
<th>Theme</th>
<th>Observations / Comments</th>
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</thead>
<tbody>
<tr>
<td>Governance</td>
<td>A governance structure appropriate to the complexity of the programme.</td>
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<td>An agreed approach to industry wide decision making</td>
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<tr>
<td>Programme Scope &amp;</td>
<td>Clear understanding on the full scope required to deliver the programme outputs and</td>
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<tr>
<td>Accountabilities</td>
<td>outcomes.</td>
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<td>Clear understanding on the accountabilities for the delivery of scope</td>
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<td>Communication</td>
<td>Consistent and timely communication of key programme decisions to all industry</td>
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<td>stakeholders</td>
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<td>Approach to communication must respond to the preferences of stakeholders</td>
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<tr>
<td>Resources</td>
<td>Key resources appropriate to the complexity, scale and risk of the programme.</td>
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<td>Balance of skills – technical and other</td>
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<tr>
<td>Programme Management</td>
<td>Industry processes may need to be adapted for complex programmes or suspended</td>
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</tbody>
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Contributors to Success

Collaboration

Coordination

Communication

Tools & Techniques