What is the situation?
Trespass on the rail network is a key generator of both primary and reactionary lost minutes which negatively impacts upon railway operations. In 2018/19, the total performance delay costs associated with trespass and vandalism amounted to £55m.

What is the challenge?
Reducing anti-social behaviour which affects railway operations and causes delayed minutes and associated costs. Detailed disruption data indicates that:
- Trespass disruption has increased significantly for the last 6 years
- Trespass disruption accounts for 42.4% of the total lost minutes for all disruption categories

Why is it a challenge?
There are 13,500 incidents on the railway each year, affecting over 400 trains daily. There are various factors influencing why people trespass – please see the details in the analysis of cases section below. It should be noted that 70% of the XA trespass occurs within 100 metres of a train station. There are several measures to combat trespass but relatively few are new. Some fresh thinking is therefore required. Trespass incidents have increased over the last 5 years, as shown in the hot spot map. The challenge is to address the causes of disruption, minimising the effects on the railway operations and to obtain a lasting improvement using innovative and technological improvements.

### Incident reason code
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Disruption per year (avg 2011 - 2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA</td>
<td>Disturbance due to trespass</td>
<td>164.176 lost mins</td>
</tr>
<tr>
<td>VB</td>
<td>Vandalism or theft</td>
<td>274.430 lost mins</td>
</tr>
<tr>
<td>XR</td>
<td>Cable vandalism or theft</td>
<td>132.190 lost mins</td>
</tr>
<tr>
<td>XB</td>
<td>Vandalism or theft (including the placing of objects on the line)</td>
<td>110.491 mins</td>
</tr>
<tr>
<td>VC</td>
<td>Fatalities and injuries sustained on platform result of struck by train or falling from a train</td>
<td>23.140 lost mins</td>
</tr>
<tr>
<td>XA</td>
<td>Trespass</td>
<td>380.861 lost mins</td>
</tr>
<tr>
<td>XC</td>
<td>Fatalities or injuries caused by being hit by train</td>
<td>426.427 lost mins</td>
</tr>
<tr>
<td>XD</td>
<td>Level Crossing Incidents including misuse</td>
<td>61.378 lost mins</td>
</tr>
</tbody>
</table>

### Analysis of causes

#### Factors & Injuries
- Suicide
- Accident
- Vandalism

#### Anti-social Behaviour resulting in Trespass
- Physical assault
- Vandalism
- Theft

### Specific priority problems
- Rail passengers are committing trespass to evade ticket blockades.
- Groups of youths are committing trespass offences in the spring/summer at high impact disruption locations in line with Bank and school holidays.
- Trespass-related disruption events include suicidal trespassers or failed suicide attempts.
- Alcohol and travel fraud are significant contributing factors towards railway disruption.
- Identifying the exact location and details of a trespass can be problematic.
- Clear location and causal data is often hard to ascertain due to quality and delays in submitting reports.

### Specific research needs
To address these challenges, and gain the associated benefits, it is expected that R&D actions will need to address the following aspects:
- Existing or newly developed technologies (e.g. trembler alarms and motion-activated cameras) could be utilised to target specific hot spot trespass locations.
- Improvements in technologies with particular emphasis on solutions for Hot Spots and station platform ends.
- Developing solutions to address trespass that occurs along the lineside or in remote areas such as footpaths crossing the railway.
- Developing technology solutions which effectively prevent anti-social behaviour or its effects.

There is an important need to not only tailor solutions to problems at a local level but for those solutions to be future proofed and sustainable.