

Improving safety and security on railways: apply for contracts

[Network Rail](#) is to invest up to £3 million in innovative projects that could help to improve efficiency and safety by automating the examination of rail tunnels and by using data analytics to minimise disruption from security incidents.

The company is responsible for more than 600 tunnels with a combined length of 335km. Examinations are carried out by humans and are expensive, time-consuming and dangerous. Network Rail wants to automate them to make them more efficient and safer.

Incidents in its stations often cause significant delays. Network Rail wants to investigate how it could use data analytics alongside its existing security systems to improve safety and reduce delays.

Funding for the 2 competitions is from Network Rail under the Small Business Research Initiative (SBRI) and managed by Innovate UK, part of UK Research and Innovation.

Tunnel examination must be demonstrated on railway

This competition is seeking projects that develop an automated solution for examining tunnels and demonstrate it on the live railway.

The system must:

- reduce the need for manual examinations
- remove human-centric bias
- inspect both surface and sub-surface defects
- use machine learning to identify and track defects
- remove the need for human review and analysis
- align with Network Rail IT systems and condition-marking systems
- allow engineers to view and analyse results

Competition information

- the competition opens on 16 September 2019, and the deadline for registration is at midday on 6 November 2019
- organisations of any size may apply
- we expect projects to be awarded contracts of between £350,000 and £500,000
- [a briefing event takes place on 19 September 2019](#)

System must identify a range of security risks

This competition aims to develop systems that can identify loitering, undesirable behaviour, hostile reconnaissance, crowding, and high-risk abandoned objects such as bags and suitcases.

It is in two phases. Phase 1 projects are expected to develop and demonstrate an analytics system using pre-recorded data. Successful projects will be able to trial their ideas in a live station in the second phase.

They must show they can:

- handle feeds from 20 to 30 cameras in a variety of station environments
- process 720p and 1080p image quality
- work without external connectivity on the cloud or internet
- comply with Network Rail security, technical and data standards
- work with the station management system after the trial
- give audible and visual alerts to operators, show the location in the station and identify the camera location
- monitor all day, every day

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