

Smarter asset management with Fugro RILA

The £3.5 billion efficiency challenges set by the Office of Rail and Road for Control Period 6 come at a time of unprecedented growth in passenger and freight demand, which in turn is driving an increased need for resilient infrastructure

Longer trains, heavier axle loads and the introduction of new rolling stock to meet the growth all mean that we need better, quicker and smarter assessment methodologies and asset management information to manage the network efficiently.

To support this asset management need, Fugro, a world leader in the acquisition and analysis of geospatial data, deploys its innovative RILA train-mounted survey technology to obtain accurate geodetic XYZ coordinates of rail assets in a safe and affordable way. The RILA system can be attached to most rolling stock or on-track plant to measure the track and rail corridor at speeds ranging from 10mph to 125mph. This versatility allows the RILA system to cover several hundred miles a day on any rail network without disrupting normal traffic, a huge advantage on our busy network.

RILA is an integrated system of positional sensors, lidar scanners and video cameras that captures standalone assets (signals, overhead line masts, etc.) and linear assets (rail, overhead line wires, platforms, etc.) to produce a geodetic-positioned digital twin of the railway corridor that has a positional XYZ accuracy of 10mm or better.

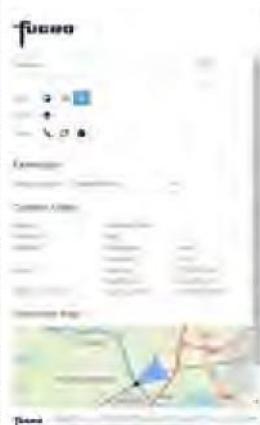
RILA applications

The RILA digital twin provides asset engineers with a powerful tool capable of delivering positional and condition data related to all assets in the rail corridor. The basic application is location awareness – video footage of the track and surrounding area much like Google Street View but for railways – but more specialist and valuable applications include:

- Absolute track position in XYZ coordinates which allows track designers to optimise or create new track alignments and is often used for track renewals.
- Relative track parameters: versines of level and horizontal chords at variable chord lengths, super elevation, twist and track gauge.



Piggybacking on scheduled passenger trains reduces carbon footprint and pressure on line capacity

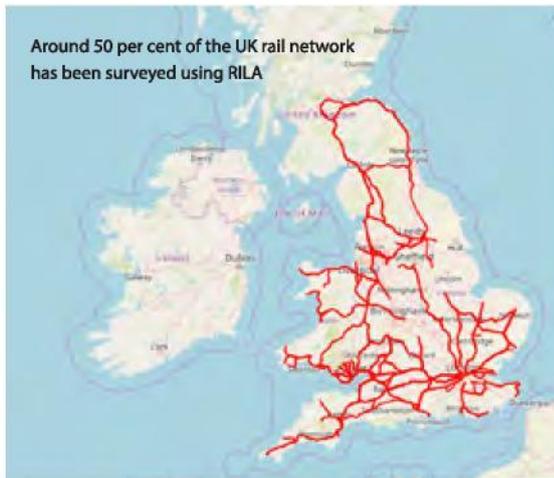


- Gauging profiles, such as SCX (six foot), SCO (structure gauging) and SCP (platform gauging), which can be determined to high levels of positional accuracy. The recent Intercity Express Programme and Crossrail project used Fugro's RILA data to support new trains

- entering service.
- Overhead line equipment management details, such as height and stagger or detailed cross section at a structure. Large electrification projects utilise this information to validate or redesign the routing of the wires.



RILA unit benefits from three different sensors



Around 50 per cent of the UK rail network has been surveyed using RILA

- Vegetation management information, where trees and shrubs can potentially encroach on track clearance profiles. RILA's video data combined with the point cloud data allow the type of tree and shrub to be determined. This information can then be linked with known vegetation growth rates to determine the optimum time for pruning before any problems occur.

Smart benefits

According to Mark Thomas, Fugro's UK

Rail Manager, collecting track and asset data using RILA is a smart maintenance choice. The system is faster, safer and more environmentally friendly than conventional surveys and it dramatically reduces the need for surveyors working on-track. Piggybacking on scheduled services significantly reduces the carbon footprint and avoids disruption. It also improves project lead times and significantly reduces costs, with savings of up to 20 per cent on the general maintenance budget likely to ensue.

RILA technology has been used in the UK since 2013 and in that time Fugro has surveyed around 50 per cent of the network. Under a 'survey once, use many times' ethos, acquired data can support other track and maintenance applications so there is a reasonable chance data may already be available where you need it, enabling you to analyse track and associated assets with unprecedented accuracy to future-proof your railway asset management and significantly drive down costs.

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