

Space technology can digitise any track on earth

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By Krucial

Rail operators have a greater choice of effective, low-cost industrial IoT (IIoT) devices than ever before to measure and monitor operations and assets. Network Rail alone uses more than 30,000 IoT devices and Allied Research estimates that the rail maintenance management system market could reach more than \$30bn by 2031 due to a rise in IoT use and digitization.

Connectivity is, however, an ongoing challenge. 90% of the earth's surface has no cellular connectivity and in some of the biggest economies on earth, huge swathes of land remain unconnected to terrestrial infrastructure, including areas through which rail networks pass to transport people and goods.

In the context of a country like Canada, this can mean the only way of monitoring a track is by sending a train, car or even helicopter out to survey a track before sending a passenger or freight train on the route. This method is time-consuming, labor intensive and very expensive.

While IIoT solutions are designed to monitor assets remotely, many rely on cellular connectivity, or

simplistic point-to-point networks. This presents gaps in data—from patchy coverage to network downtime. The result is an inability to properly plan ahead due to lack of data on asset condition and environmental circumstances across a line.

Space technology holds the answer.

Using a combination of satellites and any existing cellular, a private drop-in hybrid communications network can be deployed in hours, quickly digitizing an area.

Satellite-enabled communications company Krucial has developed a drop-in hybrid solution that can utilize multiple connectivity options – cellular and satellite – and automatically switch between the two depending on what is available. The hybrid system is LoRaWAN capable and therefore works with almost any compatible off-the-shelf sensor, and its API-first architecture means it can integrate seamlessly with existing and future business systems.

There's no longer any excuse for communications blindspots – especially on infrastructure as critical as the rail network. Any inch of track can be monitored using technology already at our disposal. It's now up to operators to take advantage of that technology.

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