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Innovative Technology for Today's Smart Station

Real-world challenges are being addressed with smart technology and trials are now underway at six major UK stations as part of an initiative from Network Rail Telecom - TSIP (Train and Station Innovation for Performance). Leeds, Reading, Euston, Glasgow, Manchester Piccadilly and Waterloo station are all contributing data and test environments.

Through vigorous use case testing, TSIP is accelerating the time to deployment for new digital, connected technologies. Working with innovative technology partners such as Intel, Cisco, Telent and others, Network Rail Telecom (NRT) is bringing compute power and connectivity to smart devices. So, what does this mean for your customers and your staff? How

will technology change their travel experience or working environment? Let's look at some of the changes TSIP technology is bringing.

Return of Crowds

Passengers want to feel safe when they travel and, in these post-COVID

times, many people want to avoid crowded situations.

Events such as concerts or football matches can lead to a build-up of passengers in certain zones. Major stations are using smart analytics, cameras, and sensors and, using the SiYtE service to monitor this and alert staff at the relevant time. This allows action to be taken quickly

and relevant crowding plans put in place. For example, if crowds are building up around escalators station operators can configure escalators as 'up' or 'down' or redirect people to other routes.

Using historical data, the SiYtE service can then begin to deliver insights that can help predict and prevent certain events or issues.

Another Missed Delivery

Having visibility of deliveries being made ensures the station runs smoothly. Sometimes deliveries are unloaded without staff supervision, items are left unattended, maybe inside blocking access or outside exposed to the elements.

Reading station will trial technology for delivery notifications. A smart camera installed above the delivery bay and will send an alert to the relevant personnel when a vehicle approaches. In addition, a sensor will be placed on the access gate so staff can be alerted if this is left open before public trespass occurs. This is also then applicable to lost luggage, or suspicious packages.

Trespass on the Lines

Whether it is people on tracks or in restricted areas there is a need to distinguish trespassers from legitimate railway business activity. No one wants to stop trains as operators check the safety of the track following trespass incident and no passenger wants to hear their incoming train has been delayed due to an incident hours earlier.

Imagine if cameras monitored the

trespass hotspots, and sensors were installed on restricted gates and doors, what would this mean? Alarms sound when restricted doors are opened, and alerts are triggered when camera coverage identifies an out of place person; additionally, a timestamp is added to expedite any subsequent investigations. Ultimately this leads to safety and security events being detected in time for mitigation and with event timestamping rather than scouring footage and data after the event. It also brings near real-time visibility to the business costs associated to the intervention.

Cleaner Air

Euston station is using smart technology to measure environmental conditions. Air quality is being monitored for temperature, humidity, dust, pollen and particles of diesel and carbon monoxide caused by the rolling stock. Sensors are connected to an innovative and intuitive dashboard where the data feeds are aggregated and show where air quality is poor. Alerts are set up based on thresholds for individual or combined measures to trigger action. Again, using historical data, SiYtE can start to diagnose likely contributing factors and help prevent these spikes in poor air quality, in and around the station.

Customer Insight

Reporting on passenger behaviour is interesting for retailers. Knowing the demographics of customers visiting the store at various times can determine which products to stock, how to price and where to place for the greatest return. These

insights can also improve digital displays, fine-tuning them once the audience is known to bring better ROI.

Digital Insights for the Data-Driven Railway

The SiYtE service aggregates data that's integral for use case analysis and enables stations to transform this data into evidence-based business benefits to routes, stations, operators and executives.

Insights gained will improve compliance, safety, environmental impact, operational efficiencies and passenger experience.

Future decision-making will have the support of empirical and auditable data and successes will be integrated into the NRT Service Catalogue.

As a result of outsourcing innovation to industry partners Network Rail has been able to deliver on innovation. Using IoT to monitor the railways brings improvements to passenger experience and employee safety, helping Network Rail to achieve their vision of 'Putting passengers first', ensuring it delivers the best-possible service to its passengers and freight customers.

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