

IIOT

KEOLIS AND THE INDUSTRIAL INTERNET OF THINGS

From the USA to France, to Australia, Keolis is harnessing the power of connected objects to provide world-class comfort, service, and safety to passengers and staff.

The Industrial Internet of Things (IIoT) refers to systems of inter-networked objects— sensor-equipped vehicles and mobile phones, for example—that can be used to transmit and exchange data. With connected-object solutions already present in Boston (USA), Rennes and Bordeaux (France), and Melbourne (Australia), Keolis is poised to deploy IIoT across the 16 countries in which it operates. OpenData's ability to provide detailed infrastructure analysis, real-time information, and vehicle statistics will enable Keolis to offer a safer, faster, and more cost-effective travel experience to passengers around the globe.

THE FOUR COMPONENTS OF IIOT 📱

Sensors:

embedded in vehicles, along railway tracks or in parking spaces, **sensors collect vast amounts of data** about everything from temperature, to vibrations, to passenger count.

Network:

long-range mobile networks allow devices to **transmit and share information**, for example in reduced-mobility parking in Rennes (see next page).

Processing platform:

once collected, Keolis data analysts **process and interpret IIoT data** to be used by engineers for infrastructure works, as in the case of Melbourne's Yarra Tram network (see next page).

Operation & management:

passengers, engineers, and service staff all benefit from information provided by IIoT.

CASE STUDIES

BOSTON – MBTA COMMUTER RAIL

Using a host of sensors, Keolis Commuter Services was able to provide riders with real-time passenger counts, and engineers with vibration, temperature and decibel monitoring, decreasing crowding and enabling staff to anticipate infrastructure issues.

RENNES – RENNES MÉTROPOLE

As part of its commitment to accessibility, in 2016, Keolis Rennes installed parking-space sensors that detect the presence of vehicles in spots reserved for reduced mobility passengers. Drivers could then access this information directly via an app, saving them time and reducing unnecessary travel.

MELBOURNE – YARRA TRAMS

In May 2018, Keolis Downer was able to carry out the most comprehensive infrastructure analysis in the history of the Yarra Trams network. Over 10 nights a tram fitted with infrared cameras, laser scanners and vibration sensors captured data on 250km of double track and overhead wires. All of the measurements were synchronised using GPS to provide specific locations for each result. Yarra Trams will now use the data collected to better target planned maintenance of tracks, trams and the removal of vegetation where it's needed most.

For further information on the solution, please contact: remy.couanon@keolis.com



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MBTA – Real-time passenger counts



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Yarra Trams – video cameras and laser scanners capturing data of the tracks



SMART SOLUTION