

Boost railway workshop area maneuver safety with IoT



Work trains and workshop area

Key figures

500 people / night shifts

1 km track rehabilitated = **1.7 M€**

200 maneuvers / day

1,000 switching points monitored / day

1 lost day production costs = **1 M€**

Services

Your project will be handled by SCLE's **Digital Innovation team** who will provide their specialist expertise to help you design and test your innovative solution:

- A dynamic, dedicated, multi-disciplined team
- A solution tailored to your specific needs
- R&D expertise for the industrialization phase of your solution
- Production know-how of signaling safety equipment



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Contact

Nicolas KINDERSTUTH

Digital Innovation Manager, SCLE

nicolas.kinderstuth@scle.fr

+33 6 84 26 49 67



Digital TCO

Route and track occupancy control solution for railway workshop areas

Our Digital TCO solution was designed and tested as part of the **Rail Open Lab**, in partnership with **SNCF Réseau** and **Vossloh**.



SCLE SFE - Marseille Agency
 Parc des Aygalades - Bâtiment 10
 35, bd du Capitaine Gèze
 13014 Marseille - France
 Phone: +33 4 91 03 04 24 - erji@scle.fr

www.scle.fr

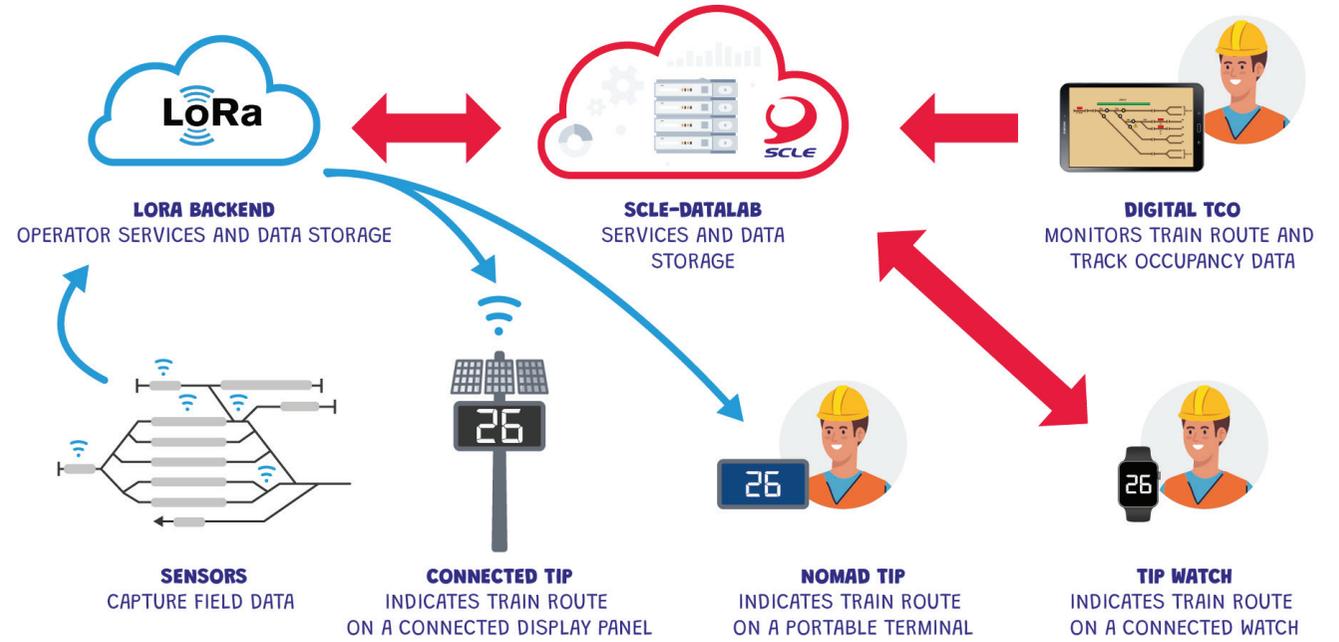
Commitment to sustainable performance



Route and track occupancy control solution for railway workshop areas



Solution architecture



The Digital TCO solution is designed to monitor compliance of work trains support base routing and track occupancy. It is a **decision-making tool** designed for operators to step up shunter safety.

The **sensor** technology consists of:

- Axle counters, used to determine the occupied / vacant status of each zone including locomotive garage areas
- Switch-point detectors and digital lever position detectors for monitoring train routes

The **display system** consists of:

- The **Digital TCO** web application for displaying the track layout
- A connected, luminous **TIP display panel** installed alongside the tracks to indicate train routes
- A connected **TIP Watch** displaying train routes

Key products



★ Contrôleur d'aiguille connecté



★ Compteur d'essieux connecté



★ Détecteur de position connecté pour leviers

Digital interfaces



Features



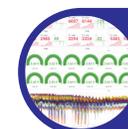
Monitoring of train route compliance directly from the lever station or control room



Monitoring of train route compliance in the field to boost shunter safety



Monitoring of train route compliance and track occupancy from the train driver cab



Data analysis for statistical and reporting purposes