

Railway LiDAR & Mapping Solutions

Our services

- Topographic LiDAR & photo surveys
- Visual & thermal network inspection
- Digital twin generation for:
 - Network maintenance
 - Vegetation & ballast monitoring programs
 - New line design & construction



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Transforming your infrastructure into living assets

Corridor Mapping Services

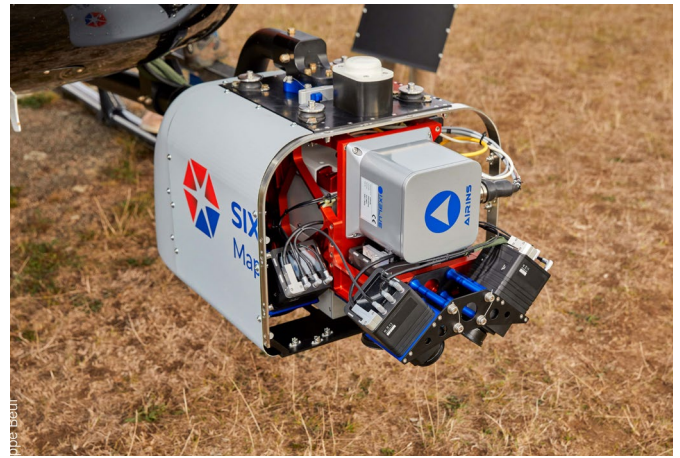


Swiss precision LiDAR

Modular high-tech sensors for your needs

Since 2005 Sixense Helimap has been combining cutting-edge technology, knowledge, experience & proficient skills to perform the best LiDAR and photogrammetry services on the 6 continents.

- High-precision & accurate topographic surveys
- Versatile and effective LiDAR and digital photogrammetry services in all environments
- Very dense point clouds
- High-resolution imagery for mapping and visual inspections



Flexible data capture

Non-invasive airborne mapping

- Non-invasive high-precision aerial LiDAR & imagery
- Helicopter, plane or drone depending on project dimension
- Simultaneous acquisition of all your needed data in a single flight, including nadir and oblique views of the infrastructure

Rail-based mobile mapping

- LiDAR point clouds and very high-resolution 360° images captured on the rails, even in tunnels and under structures

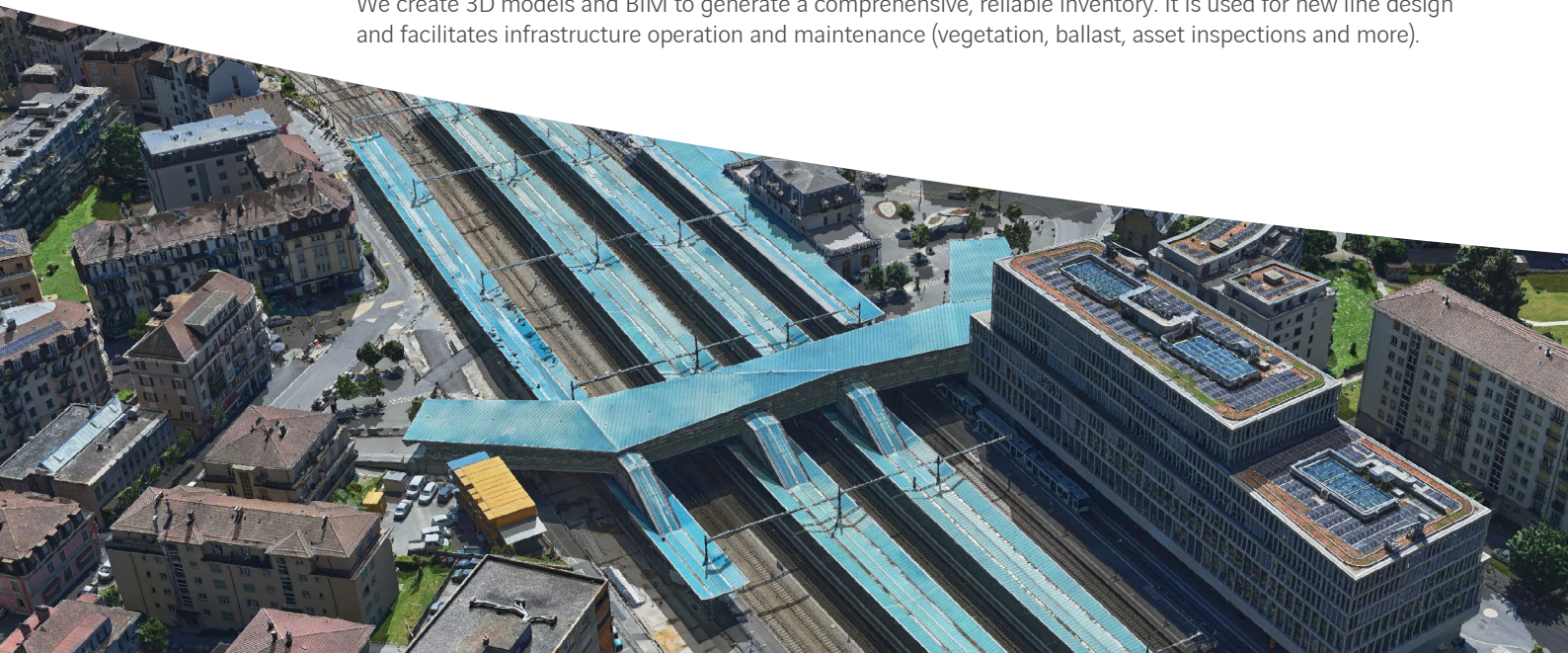
High-resolution imagery & network inspection

- Exclusive data capture techniques and cutting-edge technology for high resolution & custom inspection: Nadir & oblique imagery, thermal, near-infrared (NIR), 360° and multi-cam

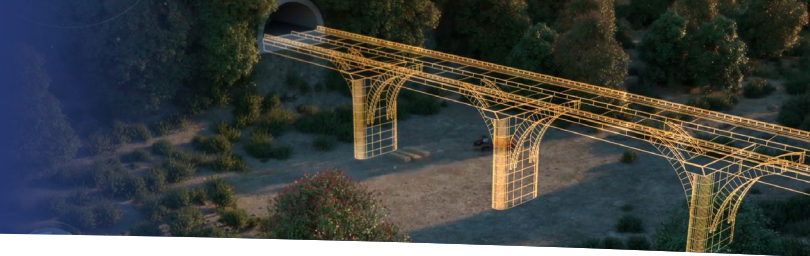
Railway digital twins

Survey, design, analysis and maintenance of railway networks

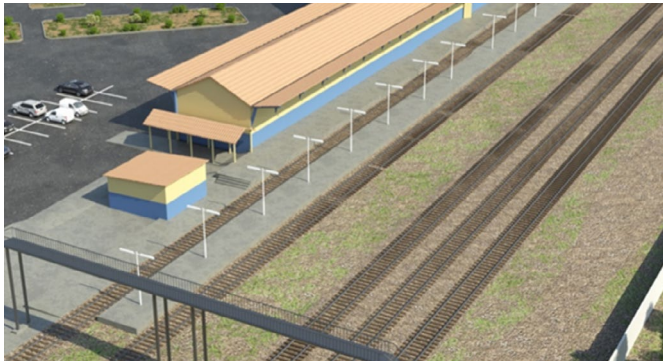
We create 3D models and BIM to generate a comprehensive, reliable inventory. It is used for new line design and facilitates infrastructure operation and maintenance (vegetation, ballast, asset inspections and more).



Applications & Services



Custom LiDAR solutions for railways



A broad spectrum of data products

In a single pass, a variety of data is collected simultaneously and processed into specific data products like:

- Classified LiDAR point clouds and digital terrain models
- 2D and 3D topographic maps
- Photorealistic 3D models, BIM and visualizations
- Oblique imagery and visual/IR inspection reports

The data products tailored to the individual project serve as the basis for the applications described below.

Network maintenance

From the reactive approach to data-driven maintenance: Regular surveys help detect and monitor hazardous vegetation and other anomalies at an early stage to ensure proper functioning of the network.

Benefits:

- Improved safety
- Enhanced operational efficiency
- Predictive maintenance reduces down-time and costs (outage costs, emergency repairs, longer lifespan of assets)



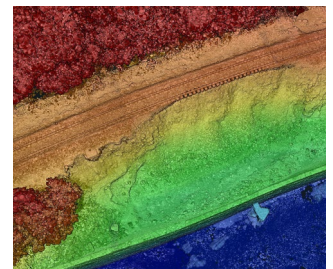
Vegetation control



Ballast monitoring



Inspection of infrastructure

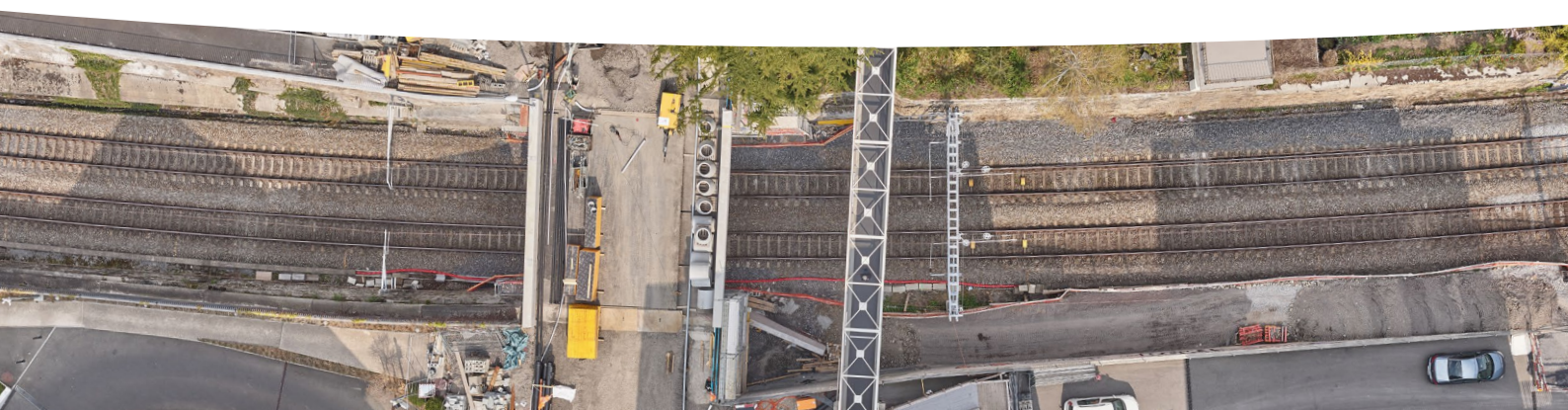


Natural hazards

Asset management, new line design and optimization of existing infrastructure

As-built model to support decision-making at any stage in the entire lifecycle:

- Planning & design
- Simulation (energy efficiency, environment, risks) and photorealistic visualization of scenarios
- BIM and effective asset management
- Collaborative environments



Our Capacities

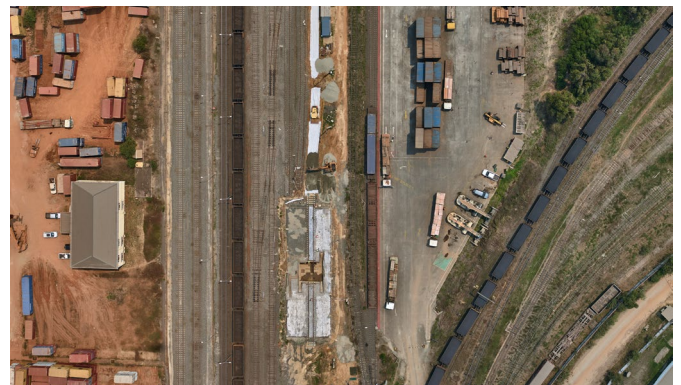
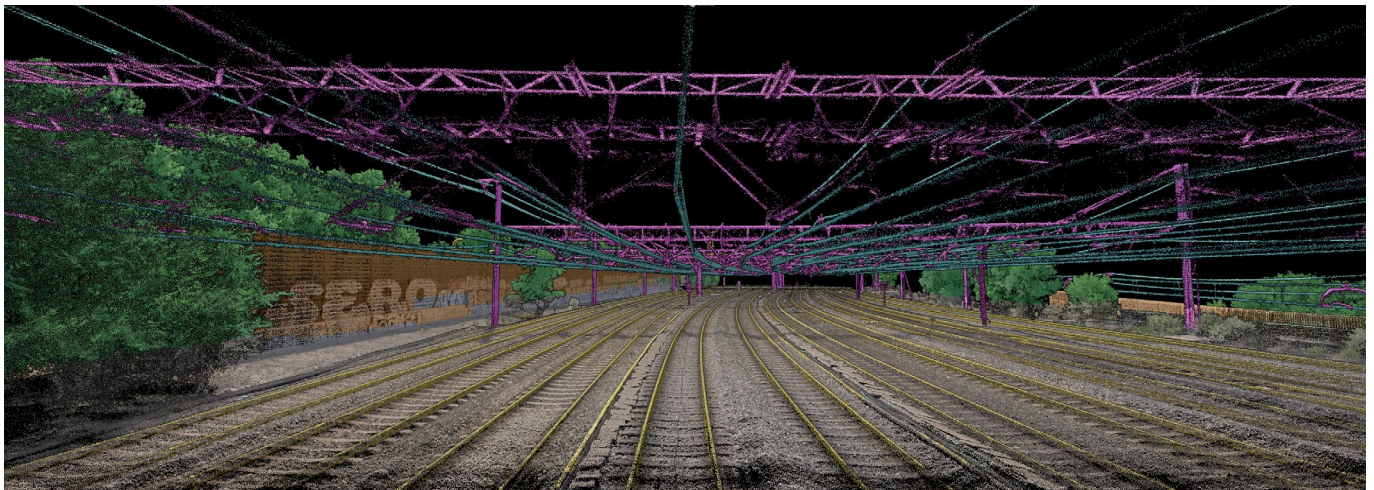
Technology and know-how

- Team of expert engineers in data acquisition and analysis for railways
- Over 20 years of experience across 50 countries
- More than 10'000 km of corridors surveyed per year
- Latest-generation LiDAR and imaging sensors specifically designed for corridor and infrastructure surveying
- Multi-directional NFB (Nadir-Forward-Back) LiDAR technology for optimal definition of the infrastructure in a single pass

Efficiency

- Rapid mobilization of our teams
- Surveying capacity of ~200-300 km/day
- Fast data processing thanks to efficient workflows

References



1
2
3

- [1] **Spanish Railway Network** (ADIF, 12'000 km)
- [2] **LGV Paris-Marseille and Paris Nord** (SNCF, 1'000 km)
- [3] **Gabonese Railway** (SETRAG, 650 km)



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