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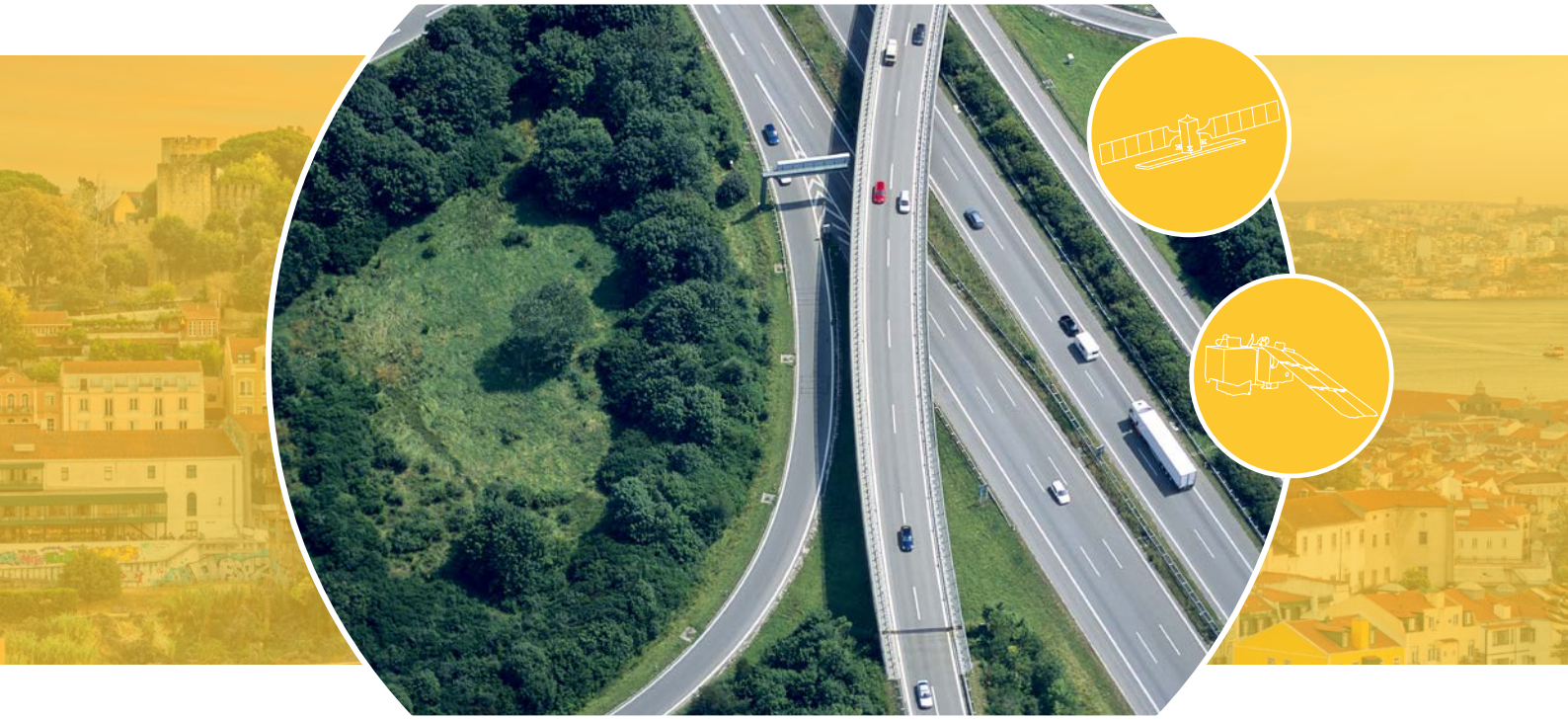
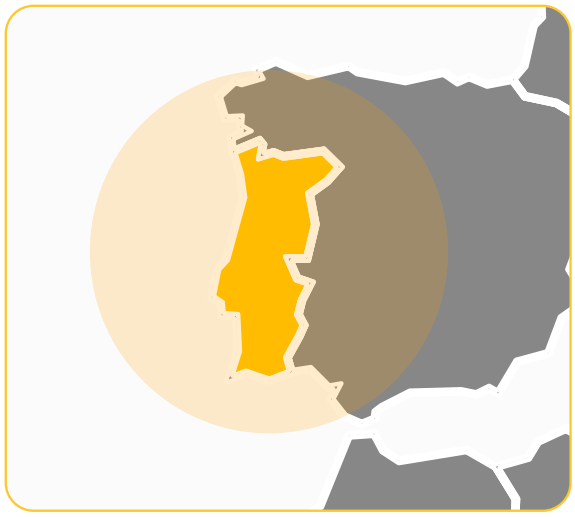
MOTORWAY MAINTENANCE IN PORTUGAL

What it is about

This case shows how Copernicus data is helping to optimise road infrastructure maintenance in northern Portugal. In this case, Egis, a road management company responsible for maintaining the A24 motorway, is using Sentinel-based services from the Portuguese company Spotlite to efficiently assess the risk of hazards along the A24 motorway in Portugal, while minimising the impact on the environment. This has reduced the need for on-site inspections and the associated costs. It also helps the Portuguese Road Authority (IMT) and NorScut, the concessionaire, to avoid costly hazards associated with ground instability and forest fires. Ultimately, all road users benefit from safer, better maintained roads.





What we found

- Motorways in Portugal are reported to be of very high quality, but they are subject to numerous risks that can lead to ground subsidence, including floods, landslides, soil erosion and wildfires. Furthermore, the country's motorway density is significantly higher than the EU average, which adds to the challenges.
- A key factor in Egis' decision to partner with Spotlite was the elevated risk of forest fires. Spotlite's Sentinel-enabled service not only allows Egis to understand the issue of land subsidence, but also to identify areas that are more at risk of fire due to the condition of the vegetation along the roads.
- Spotlite's innovative use of Sentinel data aims to improve road infrastructure management in a holistic way. For example, they look at vegetation encroachment to assess the risk of trees falling onto the road.

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Layout by ESA EO Graphics Bureau

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The Satellite Data

Copernicus Sentinel-1 provides free-of-charge frequent, all-weather, day-and-night C-band radar images over Portugal. Copernicus Sentinel-2, also free-of-charge, provides frequent wide-swath, high-resolution multispectral imagery with 13 spectral bands over Portugal.

The Service Provider

Spotlite specialises in infrastructure risk monitoring using satellite imagery. They assist in identifying maintenance needs due to ground subsidence or unhealthy vegetation, which is key for early risk detection.

A24 Motorway: €60k pa; Portugal: €1.2 million pa

The Primary User

Egis is an end-to-end global consulting, engineering and operating firm specialising in mobility services. They use the Spotlite service to help understand where potential issues could be and optimise maintenance operations.

A24 Motorway: €17.2k–€24.4k pa; Portugal: €344k–€488k pa

Secondary Beneficiaries

The IMT - Instituto da Mobilidade e dos Transportes (Portuguese Road Authority) is a central body with jurisdiction over the entire national territory, and NorScut is a concessionaire that has been granted the rights by the government to manage the A24 motorway. Thanks to Egis' services, they are less likely to incur in reparation costs as a result of geohazards.

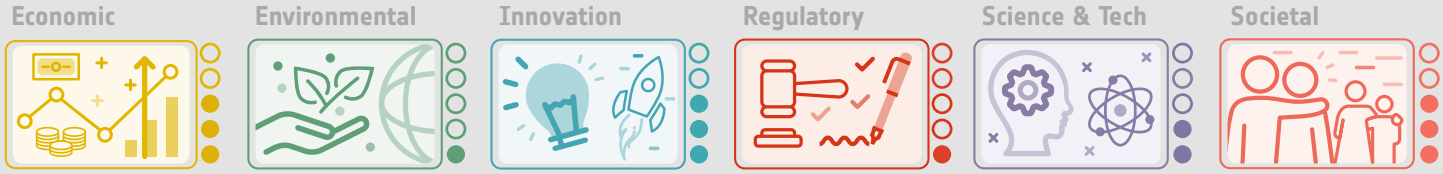
A24 Motorway: €40k–€80k pa; Portugal: €800k–€1.6 million pa

Society & Citizens' Benefits

All road users and citizens now benefit from better maintained and safer roads, which are less likely to suffer from closures and associated costs. Further, Portugal's regions are better connected, which can aid in the smooth operation of the country's economy.

A24 Motorway: €7.6k–€15.1k pa; Portugal: €151k–€302k pa

Total benefits



Anticipated benefits: €2.5 million–€3.6 million pa

About the project

Through a series of case studies, EARSC aims to gather quantitative evidence that the usage of Copernicus Sentinel data provides an effective and convenient support to various market applications. These studies are undertaken in the frame of the project "Showcasing the benefits brought by the usage of Sentinels data to society, Environment and economy: a bottom-up assessment based on traceable impacts along selected value chains", under an assignment from the European Space Agency (ESA) funded by the European Union as part of the Copernicus programme.

Download the full report from the project website

http://earsc.org/sebs