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# TESSELO

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Tesselo is a system that enhances satellite imagery through the use of artificial intelligence (AI) techniques and sectorial expertise. The aim is to tackle environmental challenges by exploiting real-time and country-wide mapping solutions in different fields, such as forestry and agriculture.

For instance, tree species can be classified in a forest, growth rates can be predicted, risks of forest fires estimated, crop harvests can be monitored, and pests detected.

Through advanced monitoring capabilities, adequate responses to different challenges can be developed, and damage estimation can be performed after a disaster. This can help in insurance and certification procedures, but also in improving compliance with regulations.

**Application scenario**

Monitoring and protection of resources and infrastructures

**Digital technologies**

Remote sensing, artificial intelligence

**Socio-economic impact**

- Economic: risk assessment and customised reporting for management
- Environmental: natural resources tracking
- Social: information on natural resources

**More info:** https://www.tesselo.com

The commercial service exploits satellite imagery to generate crystal-clear composite images with spatial layers covering the area of interest. Historical data can be provided up to 3 years in the past. Thus, changes can be measured, such as in land cover, tree species, infrastructure, and so on. Specialised layers of information are provided as well, able to classify and detect phenomena of interest, through the use of proprietary AI algorithms.

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## Purpose of the tool

The main aim is to support insurance and certification procedures for companies, and to provide public entities with a verification tool for compliance with regulations. Remote imagery (from satellites, drones, LiDAR systems, and so on) is augmented through AI-powered data analysis. Alerts, reports, and monitoring capabilities represent the offered core service.

## Description of the tool

Tesselo exploits a large variety of raw data coming from satellites, drones, radar, multispectral imagery, and so on, to produce composite, cloud-free (13 bands technology) analysis-ready imagery. Atmospheric conditions hampering remote systems can therefore be counteracted to get usable imagery for specific business needs. Patterns can be identified through the analysis of data, as well as exposure levels, risk factors, and incremental changes. Tesselo has been supported by the European Space Agency's Business Incubation Centre (ESA BIC) programme.

## Areas of socio-economic impacts

Data collected via remote sensing provides large-scale information to measure changes over time and to monitor in quasi real-time changes in the area under observation. Risk assessment, insurance, certification, and control procedures are facilitated, easing both monitoring and protecting activities of natural areas, such as forestry. Companies can be supported through a range of customised services.

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| **Social** | Information on natural resources |
| **Economic** | Risk assessment and customised reporting for management |
| **Environmental** | Monitoring and protection |