Transportation is one of the most essential industries in the world. At the same time, the growing demand for mobility raises concerns about climate change, safety, and deterioration of vast amounts of infrastructure. In order to tackle these long-standing challenges and better anticipate and plan ahead operations, transportation authorities and local operators heavily rely on data and innovations, such as unmanned aerial vehicles (UAVs), satellite imagery, and machine learning. Technology also helps to meet the need of cutting the cost of on-site surveying, especially given the fact that even a third of operating costs is attributed to infrastructure, specifically in railway operations.

Picterra makes it easier and more efficient than ever, as it enables robust planning by turning raw geospatial data into actionable information to base a decision-making process on. Picterra is the ultimate technology to reduce the cost and the time needed to deliver added-value geospatial insights from drone, aerial, and satellite imagery.

Intuitive and fast
Turn your ideas into actionable geospatial insights with only a few human-made annotations.

Flexible and versatile
Create and train your machine learning-based detectors quickly and securely, based on our pre-trained models and your own annotations. No need for large upfront investment.

Built to scale
Process TB of imagery with our auto-scaling, GPU enabled infrastructure.

Key customers
Preventing disruptions in rail operations

The main goal of infrastructure surveying and management is to ensure that transportation networks run smoothly, efficiently, and safely. It is particularly challenging for big transportation operators, like Swiss Railways (SBB), which has one of the most heavily used railway networks globally that carries out 1.25 million passengers daily and needs to manage 3.134 km of rail infrastructure. In order to prevent costly and problematic disruptions, SBB relies on up-to-date geospatial data about all the key elements along with its infrastructure. Maintaining this information updated enables efficient planning and execution of works along the tracks, such as knowing the precise location of manholes, electric panels, pylons, or track sensors.

Another way to prevent delays is to monitor vegetation encroachment, as the railway network needs to be kept free from vegetation to ensure the track systems’ safety and longevity.

Small plants accumulate moisture that makes wooden sleepers rot, and create a film that may cause a longer braking distance of trains. Also, the trees that grow next to the rails are a threat, and the monitoring of their vitality, size, and distance from the tracks is key. By setting an alarm system based on geospatial data and machine learning, rail surveyors can minimize the risk of encroachments and trees falling on the railway routes.

“One of the most significant interests for the SBB is UAVs and satellite imagery as Earth Observation data has the potential to survey the SBB infrastructure at low cost and with great efficiency and quality”.

Nicolas Ackermann, Geomatics Engineer
Swiss Federal Railways’ (SBB) Center of Competence for Drones that uses Picterra for regular surveillance and proactive maintenance.
Decreasing risk of accidents and increasing operational efficiency at the airports

Targeted and efficient transportation policies need a strong evidence base that must be up-to-date and relevant in order to detect potential threats before they pose a risk to the assets. One of the examples is proactive maintenance at the airports. Inspectors need to regularly assess the condition of the runways to plan their maintenance as frequently as accurately as possible to reduce the cost from accurate condition assessment supporting the prioritization. On top of the cost involved is the need to preserve a high safety level thanks to preventive maintenance on runways, taxiways and aircraft boarding aprons. Now is also the perfect timing to perform runway inspections due to the pandemic and heavily reduced number of flights. The inspection of pavement surface conditions with drones and machine learning makes it faster and enables to automatize the generation of Condition Index such as the ASTM D 5340 (Standard Test Method for Airport Pavement Condition Index Surveys).

With Picterra, it’s possible to monitor and show the exact locations of debris and dangerous deformations. Controlling bird migration and spotting flocks of birds and their nesting is also a way to increase safety, as birds are real threats to aircraft safety and especially during take-off and landing accounting for 90% of the bird incidents according to ICAO. Once spotted, the birds can be discouraged from nesting near the airport runways making air traffic lanes safer.

Quick facts

Picterra is data agnostic. We work with RGB, false-color, thermal, SAR, and NIR imagery. Bring your own drone, aerial, or satellite imagery, import from open-source image libraries, connect your own geo-servers, or order up-to-date and archival satellite imagery.

To monitor an area of interest, task a satellite without leaving Picterra and trigger alerts, reports and workflows automatically.

Picterra fits seamlessly into your existing workflow thanks to our growing suite of integration points and file formats.

No coding skills are necessary, but our SDKs, Training & Detection APIs & Docker* API & Docker integrations are available to those with unique needs or requiring integrations.

*For a Docker early access, contact sales to discuss the technical requirements.
Road infrastructure monitoring for risk assessment

Bush fires pose a significant danger to people, animals, and infrastructure. Surprisingly, vehicles are one of the top causes of wildfires and the risk is even higher when the infrastructure is not well maintained. One major way to combat that risk is to keep embankments clear of dry brush. With Picterra, it's possible to regularly monitor vegetation next to the roads and highways, along with abandoned vehicles and other objects that pose a risk to road infrastructure. The platform serves as support for highway and street maintenance personnel who are responsible for regularly reviewing roads to identify hazards coming from vegetation encroachment. Aside from the risk of fire, uncontrolled vegetation can limit a driver’s view, obscure road signs, and pose a deadly threat when bushes burn nearby.

Vegetation monitoring next to streets, highways, and railways is a common use case of Picterra as it is the perfect solution whenever there is a need to enhance safety by analyzing images instead of sending surveyors to perform hazardous tasks.

Fits seamlessly into your existing workflow

- ArcGIS
- QGIS
- GeoJSON
- WMS
- KML
- CSV
- Training API
- Detector API
- Docker

Works with all sensor types
RGB | False Color | Thermal | SAR | NIR

Get in touch

Contact us to learn more about the role of geospatial data and machine learning in tackling transportation issues.

hello@picterra.ch

Picterra SA
Rue de la Mouline 8 1022 Chavannes - Switzerland - hello@picterra.ch

www.picterra.ch