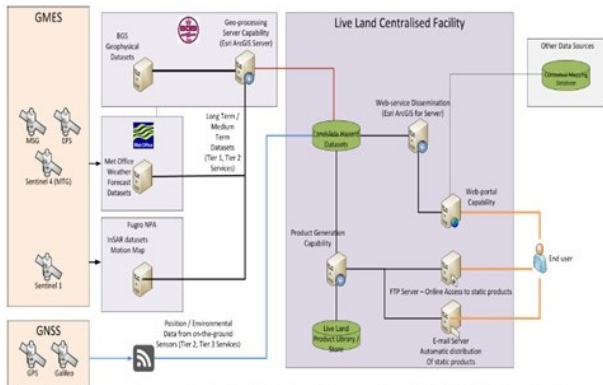


CGI-Live land



Live Land is an Integrated Application Promotion (IAP) initiative by the European Space Agency (ESA). The aim of Live Land is reducing the disruption and cost associated with landslide and subsidence hazards on transport networks through the development of a suite of integrated data services. Live Land aims to reduce the impact and exposure of national transport assets to landslide and subsidence hazards.

Live Land incorporates a 'catalogue' concept, of enabling technologies (in-situ and from Space) that could improve the prediction, monitoring and alerting of Landslides and Subsidence.

How satellite data are utilized

Earth Observation derived data used for rainfall forecasting is integrated with landslide monitoring. Each variety of landslide and local geological situation may have different parameters that interplay in different ways with the weather. Moreover, InSAR will provide information on surface deformation and will be used to produce an integrated subsidence susceptibility product, supported by in situ data from a national slides database.

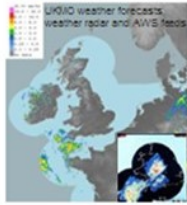
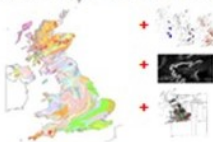
Key factors for success

Tier 1 service : Hazard susceptibility across transport networks. Web mapping GIS interface for Hazard ratings. Notifications and report accessible 24/7 365.

Tier 2 service : Forecast Hazard assessment across network at defined time steps. SMS, email alerts sent to key contacts, informing users of potential high risk locations.

Tier 3 service : Drilled down local analysis, which includes site specific, bespoke monitoring. Continuous and forecast initiated monitoring depending on temporal dynamics of specific hazards.

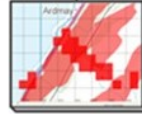
Research led forecasting



Bespoke Monitoring



Hazard Maps



Integrated Alerting Systems



Management tools

High Hazard High Impact	High Hazard Low Impact	High Hazard No Impact
Medium Hazard High Impact	Medium Hazard Low Impact	Medium Hazard No Impact
Low Hazard High Impact	Low Hazard Low Impact	Low Hazard No Impact

Ripple effect:

Approx 80-90% of Network Rail's geological risk management costs and 50% non-availability of rail infrastructure are attributed to landslides or rock falls across the network.

Transport Scotland is responsible for 10,000 km of major roads in Scotland, including 3,300 km that are susceptible to landslide events

Contact

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Relation between users and partners

Each service tier is dealt with differently. Live Land improves intelligent forecasting of landslide through the incorporation of forecast and real time meteorological data and geological modelling. This capability allows landslide hazard susceptibility to be assessed across transport networks.