

**TERRA
VISION**



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TERRAVISION General Presentation



TERRAVISION Facts & Figures



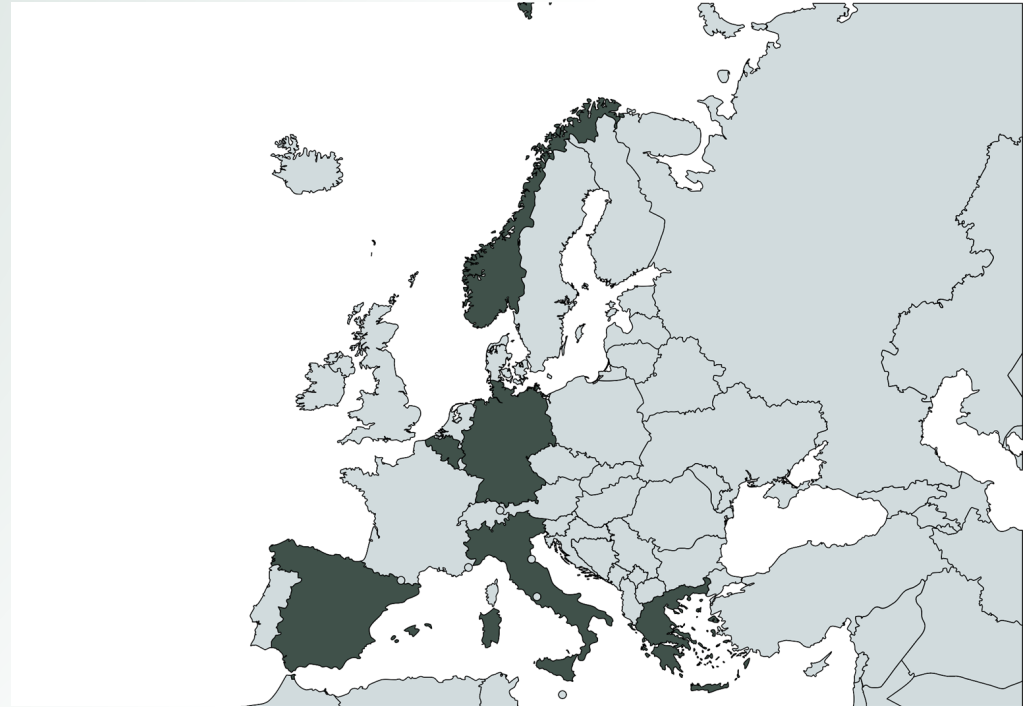
TERRAVISION project aims to establish and deploy an integrated platform, the EO Mining Services Platform, to enhance the entire critical raw materials value chain by implementing sustainable mining practices through innovation in data ecosystems, spectral libraries, mining industry services, and green accountability and resilience.

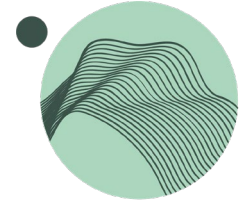
15 partners from 6 countries

- Institute of Communication and Computer Systems (Project Coordinator)
- 6 Academic and Research Technology Organisations (ICCS, SINTEF, CORE, ITA, VITO, AUTH)
- 7 Organisations from Industry, SMEs and LE (TERRADUE, AURORA, GEOS, DIMAP, CANTERAS, THARSIS, TERNAMAG)
- 1 National Standardisation Body (UNE)
- 1 Mining cluster (ISMC)

Duration: 48 months (01/2024 - 12/2027)

EU Funding: 6 688 246.24





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TERRAVISION Objectives

To design, develop and demonstrate a Data Ecosystem for large scale EO mining services covering multiple sources of data and being compatible with the Copernicus Data Space Ecosystem

To design and develop a pipeline for Analysis Ready Data and a Raw Material spectral library acting as a basis of the development for multiple EO based mining services

To develop five EO based services adjusted to the needs of the mining industry covering all the phases of mining operations

To design and develop Green and Resilience Accountability component offering an overview in terms of sustainability and resilience of a whole mining site.

To design, develop and integrate TERRAVISION EO Mining services Platform integrated with the provided services and supporting all the collected data sources

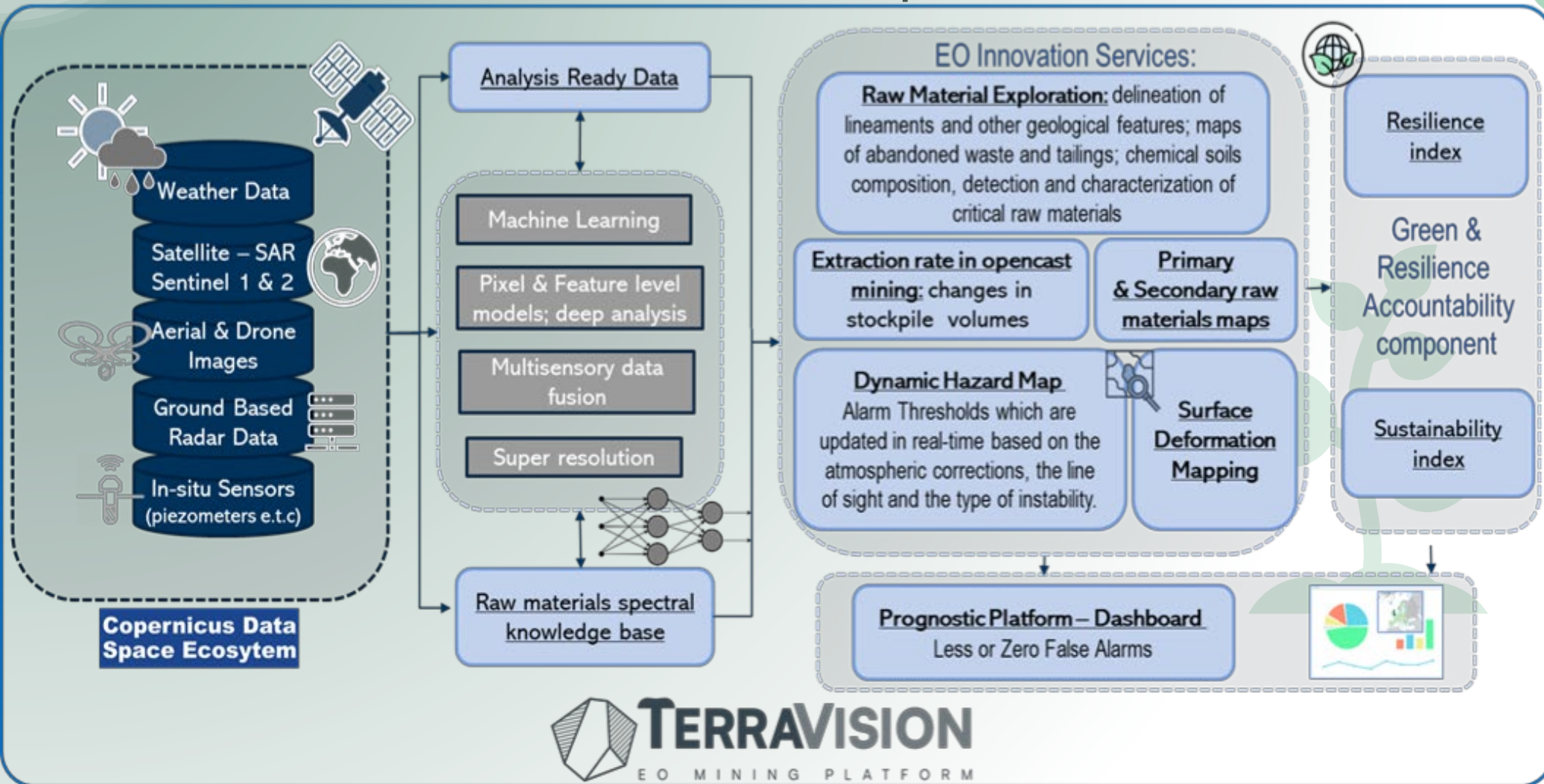
Impact acceleration through standardization, clustering and targeted market exploitation activities



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TERRAVISION Concept



Demonstration Activities



TERNA MAG



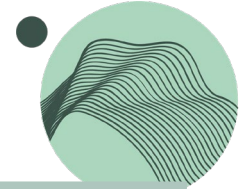
THARSIS

Demonstrator	TERNA MAG	THARSIS	CANTERAS
Place	Evia island, Greece	Andalusia, Spain	Montevive, Spain
Services	Underground and open pit mining services	Post-closure mining services	Open pit mining services
Challenges	Ground deformations, slope instabilities, and optimal waste deposition.	Slope instabilities, lack of continuous measurements, advanced sensing for exploration.	Modernize exploration, assess ground deformations, manage tailings within limits.
Covered	Magnesium	Cobalt (CRM), Copper (SRM), Lead, Zinc, Silver, Gold (RM).	Strontium
Motivation	Modernize exploration, assess hazards in real-time, monitor environmental processes.	Deploy remote sensing for exploration, assess environmental and resilience indices, real-time hazard monitoring.	Utilize EO services for exploration, assess ground deformations in near real-time, monitor sustainability parameters.
Infrastructure & Datasets	In-situ monitoring infrastructure, spectrometer instruments, control points, Ground Based Synthetic Aperture Radar (GBSAR), piezometers.	Drilling explorations, visual assessments, spectrometer instruments, control points, remote sensing infrastructure.	Drone topographies, visual assessments, control points, accelerometers, spectrometer instruments.



CANTERAS

Expected Impact



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Science & Technology

- ✓ Development of innovative technologies utilizing remote sensing and machine learning for critical raw materials exploration and monitoring.
- ✓ Integration of Earth Observation (EO) datasets for real-time monitoring of extraction activities, improving operational efficiency by up to 40%.



Economic Growth & Sustainability

- ✓ Facilitation of responsible supply of raw materials to Europe, supporting transition to climate neutrality and circular economy.
- ✓ Reduction of exploration and operational costs by 30%, promoting economic growth and viability of mining projects.



Society & Environment

- ✓ Empowerment of local communities through conflict resolution and safe living conditions near mining sites.
- ✓ Reduction of waste and emissions, contributing to EU's climate neutrality goals by 2050.

- ✓ Resilient critical raw materials value chains, supporting green and digital transformations in EU industrial ecosystems.
- ✓ Leadership in circular economy, enhancing cooperation and enabling SMEs to transform their business models.



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Innovation



Utilizing Copernicus for large-scale EO mining services.

Processing multispectral and hyperspectral data effectively

Monitoring environmental impact and promoting sustainability

Integrated solutions for mining industry monitoring

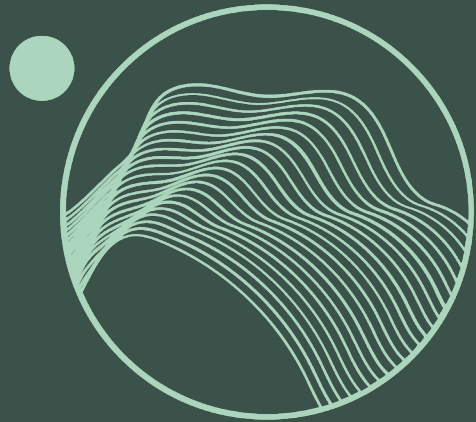
Bridging fragmentation, offering seamless data access.



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Thank you!



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