

# Future

## Fiber-optic sensing and UAV-platform techniques for innovative mineral exploration

New metal and mineral resources must be discovered to supply the raw materials for emerging technologies and the push for decarbonisation and to meet the expectations of billions of people in the developing world for higher living standards.

The **FUTURE** project aims to implement and test innovative methods of mining exploration, maximizing resolution and depth of investigation and minimizing environmental impact, with innovative solutions that exploit existing mining infrastructure.

To achieve these results, the project is focused on the **development of innovative geophysical techniques** and their application and integration with the geological-structural characterization of mineral deposits.

The collaborative research plan, **with European and South African partners**, can guarantee methodological implementations, tests and applications of the methods developed in high impact mining contexts, to provide virtuous examples for the research of crucial raw materials and mining products.

The project aims at obtaining and implementing:

- **Methodological solutions for the acquisition and seismic exploration of geological volumes** affected by tunnels and deep exploration wells.
- **Mapping of discontinuities in mineral deposits** with magnetic and electromagnetic investigation by drone
- **Innovative solutions for processing acquired seismic data**
- A strategy of **dissemination of methods and results obtained**, also aimed at promoting best practices for an ethical, sustainable and beneficial development of mining exploration.



ERA-MIN 3



FUTURE was approved as part of the ERA-MIN Joint Call 2021 on Raw materials for sustainable development and the circular economy.

ERA-MIN 3 received funding from the European Union's Horizon 2020 Research and Innovation Programme.

Grant Agreement number: 101003575

## PROJECT DURATION

24 months

(from 22/04/2022 to 21/04/2024)

## PARTNERS

- University of the Witwatersrand, Johannesburg, School of Geosciences (Coordinator – South Africa)
- Uppsala University, Dept. of Earth Sciences (SE)
- Geological Survey of Sweden, Mineral Resources (SE)
- Politecnico di Torino – DIATI (IT)
- Nordic Iron Ore AB Management (SE)
- South Deep Gold Mine (South Africa)
- University of Venda (South Africa)
- Sercel Innovation (FR)

## FUNDING INSTRUMENT

ERA-NET Cofund (H2020)

## BUDGET

Total funding for the project: **731.875 €**  
(allocated to DIATI: **141.800 €**)

## POLITO and DIATI's role:

Politecnico di Torino – DIATI is partner of the Consortium.

Scientific supervisor for DIATI:

Prof. **Laura Valentina Socco**