

MASTERMINE



Summary:

MASTERMINE aspires to become the go-to ecosystem for mines that envision digitalisation, environmental sustainability, productivity monitoring and public acceptance within their strategic goals. The focus will be on an **Industrial Metaverse (IM) approach** to build a digitalized copy of a real-world mine.

The vision of MASTERMINE is to become the foundation for the green and digital European mine of the future and it consists of the following modules:

With CYBERMINE, we lead the digital transformation of EU Mine 4.0, through AUTOMINE we foster autonomous and electric operations along with smart monitoring and maintenance, we ensure safety and stability in critical structures using GEOMINE and in GREENMINE we enhance the environmental sustainability of the mines by improving KPIs like energy consumption, air quality and GHG emissions, water savings and waste valorisation.

In METAMINE, we build a virtual world for the EU mines, being the first to introduce the concept of the mining metaverse incorporating all the technologies, along with digital twins and business intelligence to provide simulation capabilities and decision support to the user. Through OURMINE, we bring the communities together, build trust around the sustainability compliance of the raw material and foster social innovation.

Duration:

1 December 2022- 30 November 2026

Objectives:

MASTERMINE will demonstrate its applicability in **4 EU demo cases** and one replication demo in South Africa. Our mining partners offer access to a total of **10 mines** around Europe, producing **10 different raw materials**, including 4 CRMs (Cobalt, Coking Coal, Phosphate Rock and Platinum).

The use cases include activities that cover the whole life cycle of the mine from exploration and mine design to closure and restoration and apply to the different stages of the extraction value chain.

Use cases:

- 1.-Terna Mag Mines (Greece)
- 2.-Tapojarvi Mines (Finland)
- 3.-JSW Mines (Poland)
- 4.-THARSIS Mines (Spain)
- 5.-Sibanye-Stillwater Mine (South Africa)

Budget: € 13 840 490,00

Consortium:

- Coordinator: Instituto Tecnológico De Aragon
- Core Kentro Kainotomias Amke
- Institute Of Communication And Computer Systems
- Fraunhofer Gesellschaft Zur Forderung Der Angewandten Forschung EV
- Glowny Instytut Gornictwa
- Dimokritio Panepistimio Thrakis
- Tampereen Korkeakoulusaatio SR
- Aristotelio Panepistimio Thessalonikis
- University of the Witwatersrand Johannesburg
- Technical Coordinator: Subterra Ingenieria SL
- Aurora Geo E.E.
- Libra ai Technologies Private Idiotiki Kefalaiochiki Etaireia
- Stratagem Energy LTD
- Terradue SRL
- Dares Technology SL
- Digitaltwin Technology GMBH
- Fondazione LINKS - Leading innovation & knowledge for society
- Tapojarvi OY
- Tharsis Mining Sociedad Limitada
- Terna Lefkolithoi Anonymi Metalleutiki Emporiki Techniki Viomichaniki Etaireia
- Jastrzebska Spolka Weglowa SA
- Eticas Research and Innovation

Social media:

Webpage: <https://www.mastermine-project.eu/>

Twitter: @MastermineEU

Linkedin: @MASTERMINE Project