

## A Holistic Digital Mine 4.0 Ecosystem

In the context of industrialization, informatization and sustainable development of the **mining sector**, Mine.io solution will build a **novel mining digital ecosystem** and a systemic structure for the implementation of **Industry 4.0 in mining** industrial environments.

Mine.io solution will embrace the **whole mining value chain** from resources' exploration, extraction, and processing to waste management and post mining activity.

Our fundamental concept is the provision of a manufacturing system architecture, under cloud environment, to be applied in the **digital twin mining "shop floor"**. Mine.io envisions an innovative cloud services system and a novel mining ecosystem of sharing, interconnection, and open cooperation.

Mine.io will establish a **unified data infrastructure** and collaborative platform ecosystem to promote the openness and sharing of data and improve the cooperation environment between mining enterprises.

Mine.io aims the enhanced systematization of the basic processes of the mining industry, that involve asset and **process equipment optimization**, through embedded predictive analytics, and optimization procedures based on completely **data-driven processes** and the integrated cyber-virtual and cyber-physical systems, **automation** and **robotization** of mining exploration and production processes, **sustainable mining**, and post mining management.

To meet the increasing social and environmental concerns, Mine.io will enable a resource optimization and digital transformation framework, embedding specific **circular economy** and **"low-impact mining" strategies**. Energy innovations, including the transition to autonomous electric vehicles, will lead to socially conscious profit, while creating a safer and cleaner environment for frontline workers, including higher air quality for those working underground.

Mine.io ecosystem will be validated in different demonstration sites, involving 4 operational mines and 2 historic mine sites, in 5 EU countries. DIATI is in charge of Techno-economic-social assessments, LCA and sLCA as applied to innovative & sustainable mining technologies.



Funded by the  
European Union

### PROJECT DURATION

01/01/2023 – 30/06/2026 (42 months)

### WEBSITE AND SOCIAL MEDIA

[mineio-horizon.eu](http://mineio-horizon.eu)



### PARTNERS

- GFT ITALIA SRL (IT), Coordinator
- Technische Universitaet Bergakademie Freiberg (DE)
- Acceligence LTD (CY)
- Institute of Communication & Computer Systems (EL)
- Fundacion Tecnalia Research & Innovation (ES)
- Oulun Yliopisto (FI)
- Muon Solutions Oy (FI)
- Lulea Tekniska Universitet (SE)
- Jotne EPM Technology AS (NO)
- Innov-Acts Limited (CY)
- Elliniko Mesogeiaiko Panepistimio (EL)
- INESC TEC - Instituto De Engenharia de Sistemas Computadores, Tecnologia E Ciencia (PT)
- Wigner Fizikai Kutatokozpont (HU)
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- IPT technology GMBH (DE)
- Unexmin Georobotics Korlatolt Felelossegu Tarsasa (HU)
- Universidad De Salamanca (ES)
- KGHM Polska Miedz SA (PL)
- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung EV (DE)

### FUNDING INSTRUMENT

HORIZON-CL4-2022-RESILIENCE-01-06

### BUDGET

Estimated Project Cost: €14,028,326.25

Requested EU Contribution: €11,999,256.00

DIATI: € 310.625,00

### POLITO and DIATI's role:

Politecnico di Torino – DIATI is a partner of the Consortium, under the scientific responsibility of **Prof. G.A. Blengini**.