

An innovative Expert System for Sustainable Exploration Technology & Geomodels

# 2076 SONIC DRILLING COUPLED WI AUTOMATED MINERALOGY & CHEMISTRY

# ON MINE - ON LINE - REAL TIME

European Mining and Metallurgical Industries need to secure the Metal Supply for our markets while minimizing environmental impact. SOLSA provides a breakthrough in combining drilling and analytical technologies. It will optimize exploration, resource and reserve estimates, mining and anticipate process dysfunction.

#### **CHALLENGES**

### Lower grade, complex ores High polymetallic, processing cost multiple metal increased water, hosts, ore polluting phases power, consumption **Fluctuations** in metal prices **COST-TIME REDUCTION on mine sites**

Tracer development for exploration & processing

Optimizing resource and reserve estimates

**EXPERT SYSTEM** 

Innovations in Sonic Drill

Geographic Coordinates

- Coherent complete drill core
- ☐ Innovative drill core box
- ☐ Fast drilling
- Monitoring While Drilling

Reliable, validated mineralogical, textural & chemical data (XRF+XRD+FTIR+RAMAN+IMAGING)

Robotized-automated

semiquantitative

drill core logging

- ☐ Based on intelligent Big Analogue Data mining & easy-to-use software
- Connect Drill core parameters to logged data => Up-grading the scientific open database (COD) for industrial purpose

2 Prototypes will be validated!

Early

**Optimal** 

Mining

## **CONSORTIUM**



Nine transdisciplinary partners from 4 countries design and construct the expert system: 1 large and 2 small companies, 1 government organisation, 5 universities and 1 research institute.

#### SOLSA SOLSA ID DRILL strumentation Mine brgm SOLSA DRILL European hardware providers ERAMET GOV (Fr) **DEVELOPING TASKS** inel 🗸 Rehabilitation Eijkelkamp **DRILL CORE BOX** \* SOLSA EXPERT DESIGN **TESTING** SAMPLING UNIV (It) **T**UDelft **INSTRUMENT** 5 · 1579 · 0 CONSTRUCTION UNIVERSITÀ DEGLI STUDI DI TRENTO XRD-FTIR-XRF-SOLSA ID **RAMAN** Information SOLSA SOFTWARE **IMAGING** DATA ARCHTECTURE OPEN DATABASE

#### **GLOBAL BENEFITS**

**SOLSA** pushes Europe in front

Knowledge transfer Education Adaptable to other sectors:

Job creation Marin Recycling **Nuclear** 

Total budget : 9.8 M€