XTRACT

A Sustainable Ecosystem for the Innovative Resource Recovery and Complex Ore Extraction

Cluster Hub "Production of raw materials for batteries from European resources"

Annual Meeting

Brussels, 20 November 2025

Prof. Sabrina Hedrich

Project Coordinator

TU BERGAKADEMIE FREIBERG

TUBAF Die Ressourcenuniversität. Seit 1765.

XTRACT Consortium
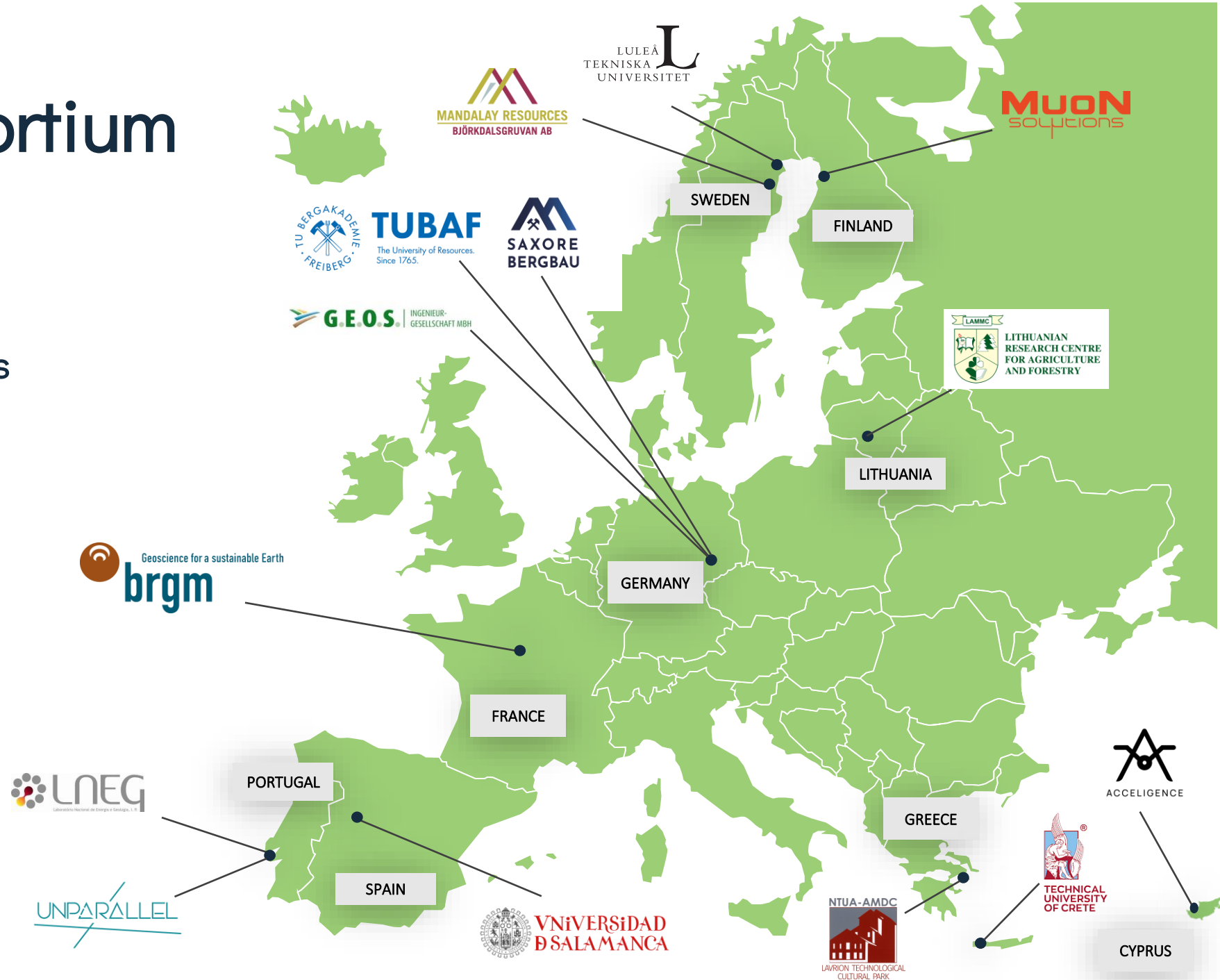
14 Partners

9 European Countries

Budget 4.995.636 €

Duration 36 M

01/12/23 – 30/11/26

XTRACT Consortium

3 End User Bodies

MANDALAY RESOURCES
BJÖRKDALSGRUVAN AB

SAXORE BERGBAU

NTUA-AMDC
LAVRION TECHNOLOGICAL CULTURAL PARK

8 Academic & Research Partners

TU BERGAKADEMIE FREIBERG
TUBAF
The University of Resources.
Since 1765.

LULEÅ TEKNISKA UNIVERSITET

VNIVERSIDAD Ð SALAMANCA

Geoscience for a sustainable Earth
brgm

LNEG
Laboratório Nacional de Energia e Geologia, I. P.

LAMMC
LITHUANIAN RESEARCH CENTRE FOR AGRICULTURE AND FORESTRY

NTUA-AMDC
LAVRION TECHNOLOGICAL CULTURAL PARK

4 Technology SME Partners

MUON solutions

ACCELIGENCE

UNPARALLEL

G.E.O.S. INGENIEUR-GESELLSCHAFT MBH

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Objectives

- Automation of mineral prospecting and extraction in a complex mining context

- Novel concept of "precision mining" for the selective recovery of valuable metals from low-grade minerals and mine wastes

- Scaling and deployment of remote sensing systems and analytical resources for hard-to-access mining sites and waste deposits

- A digital repository supporting data interoperability and enhancement of industrial symbiosis in the mineral recovery supply chain

- Evaluation of different mine sites and waste disposals. Demonstration of the feasibility of innovative technological solutions.

- Upscaling of the technological solutions developed by XTRACT

- Dissemination of the scientific and technical results for knowledge transfer and market development

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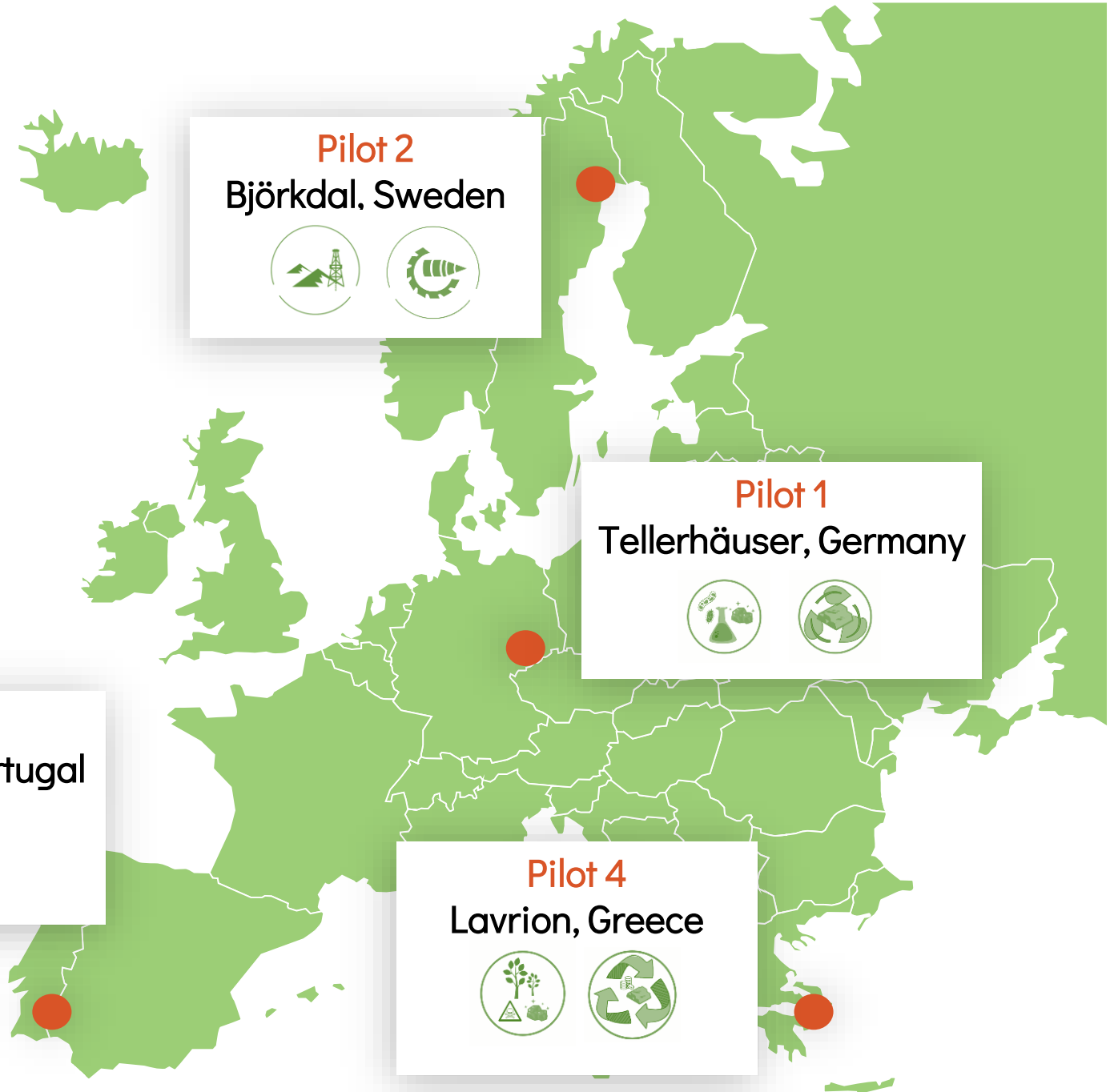
Pilot 1

Tellerhäuser, Germany

Underground Mine

Raw materials/CRM:
Zn, In, As, Ag, Cu, Co

✓ Establishment and optimization of in-situ bioleaching technology (biomining)

✓ Implementation of sustainable methods for metal recovery; membrane filtration, electrodialysis

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Pilot 2

Björkdal, Sweden

Underground Mine & Open Pit

- ✓ drilling process optimization

- ✓ bore hole optimization

- ✓ improved ore recovery

- ✓ reduced side rock dilution

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Pilot 3

São Domingos, Portugal

Open Pit

Hazardous Elements/CRM:
Zn, Pb, Sb, Cu, As, Hg, Cd

✓ High-ressolution geochemical mapping of mining wastes for CRM recovery

✓ Use of remote sensors (drones) to calculate volumes/ tonnage and validate geochemical data

✓ Chemical extraction tests
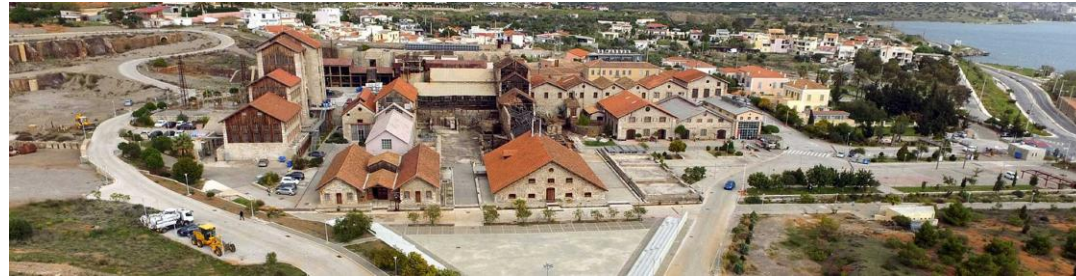
✓ Bioleaching tests in lab-scale

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Pilot 4

Lavrion, Greece

Underground Mine & Open Pit

Hazardous Elements/CRM:
As, Pb, Cd, Cu, Zn, Fe, Mn

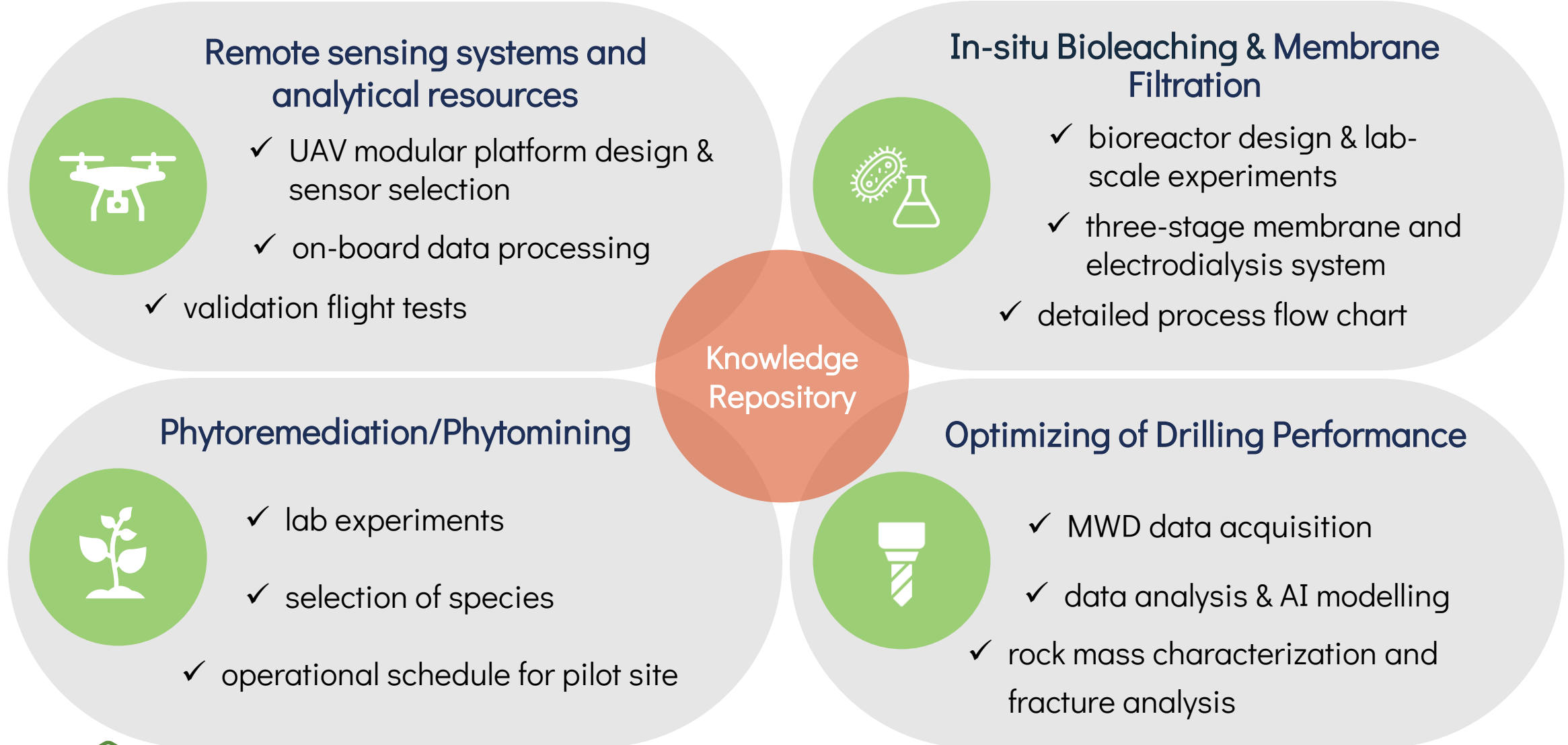✓ Phytoremediation solutions and metal phytomining using trees

✓ Recovery of natural environment of abandoned mine

✓ Implementation of circular economy methods for metal recovery

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Thank you!

✉ info@xtract-project.eu   🌍 https://xtract-project.eu

in https://www.linkedin.com/company/xtract-project

▶ https://www.youtube.com/channel/UC9eNoqHV2BLXc37Q_CTwFuQ

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