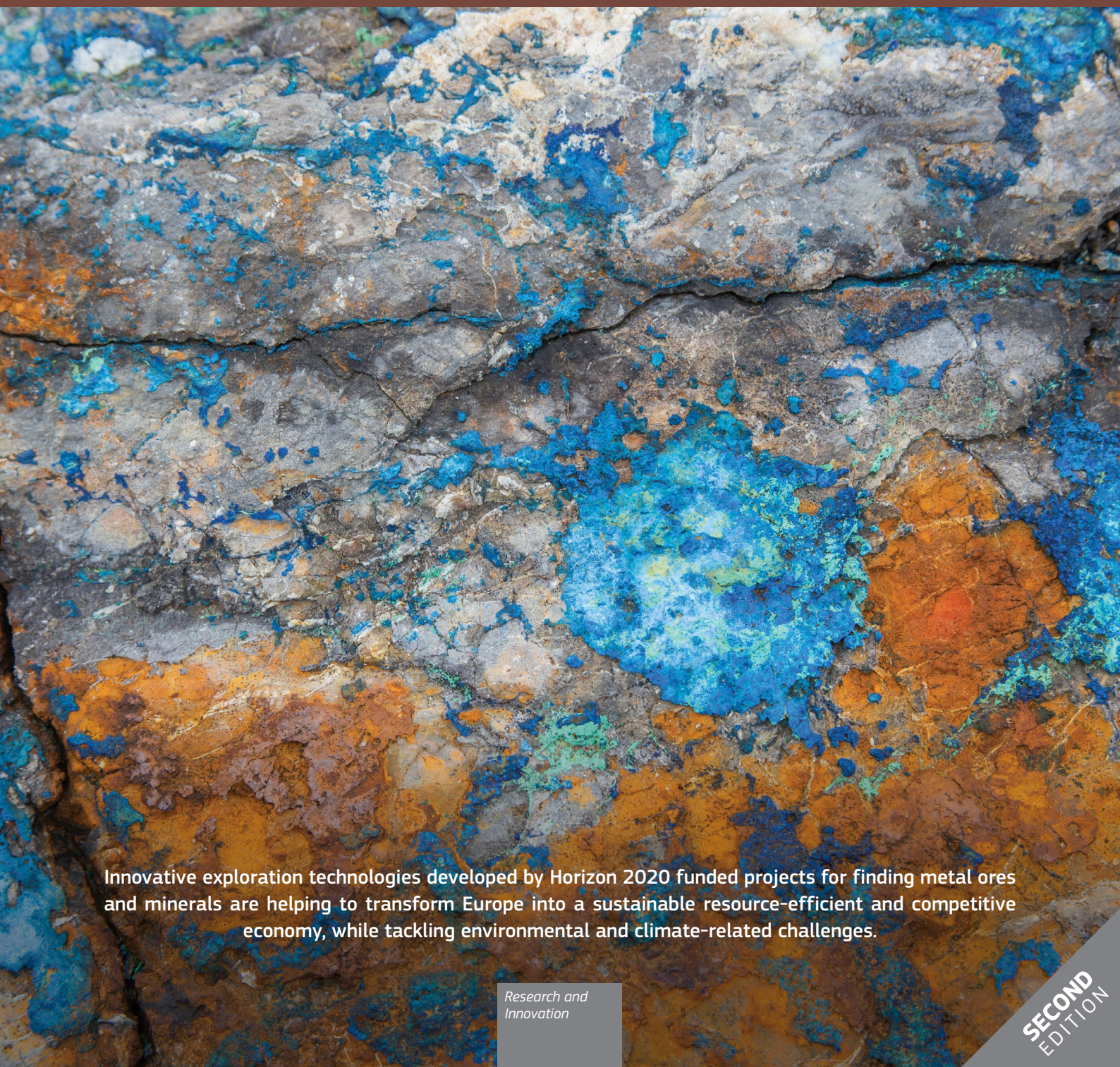




Mineral exploration

Sustainable innovative solutions for mineral exploration



Innovative exploration technologies developed by Horizon 2020 funded projects for finding metal ores and minerals are helping to transform Europe into a sustainable resource-efficient and competitive economy, while tackling environmental and climate-related challenges.

Research and
Innovation

**SECOND
EDITION**

Access to resources is one of the most strategic security questions surrounding the delivery of the European Green Deal. The Green Deal aims to make Europe the first carbon neutral continent by 2050. Delivering on this commitment, the European Commission in July 2021 adopted a series of [legislative proposals](#) including the intermediate target of an at least 50 % net reduction in greenhouse gas emissions by 2030.

The sustainable utilisation of raw materials, including metals and minerals, and particularly critical raw materials (CRM) such as rare earths, is one of the main prerequisites to making this switch happen. This is due to their vital role in crucial industrial value chains, especially in the energy, mobility and defence sectors, and the production of renewable energy technologies, electric vehicles and mobile phones, among other modern goods.

Spotlight on EU Research

This CORDIS Results Pack highlights 8 projects funded under the Horizon 2020 programme that are working on exploration technologies for a sustainable supply of raw materials.

HiTech AlkCarb

New geomodels to explore deeper for High-Technology critical raw materials in Alkaline rocks and Carbonatites

Coordinated in United Kingdom

The HiTech AlkCarb initiative brought together partners from across Europe and Africa to significantly improve geological models for the exploration of 'hi-tech' raw materials like the rare earth elements associated with alkaline rocks and carbonatites.



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ROBUST

Robotic subsea exploration technologies

Coordinated in United Kingdom

ROBUST developed an autonomous robotic survey system for identifying polymetallic nodules at great depth in the ocean, without having to bring them to the surface for analysis.

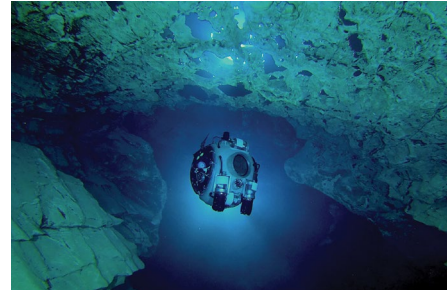


© ROBUST consortium

UNEXMIN

Autonomous Underwater Explorer for Flooded Mines
Coordinated in Hungary

UNEXMIN created a highly sophisticated robot to explore and map flooded mines, retrieve geological data and conduct analysis of water chemistry and mine wall properties.



© Rocky Shore Pictures

SOLSA

Sonic Drilling coupled with Automated Mineralogy and Chemistry On-Line-On-Mine-Real-Time
Coordinated in France

SOLSA combined sonic drilling, analytical equipment and informatics to optimise mining operations performance.



© Le Guen Monique

INFACT

Innovative, Non-invasive and Fully Acceptable Exploration Technologies
Coordinated in Germany

INFACT designed innovative, non-invasive and socially acceptable mineral exploration technologies to help unlock unrealised potential in new and established sites.



© INFACT

Smart Exploration

Sustainable mineral resources by utilizing new Exploration technologies
Coordinated in Sweden

Smart Exploration produced cost-effective and environmentally friendly solutions for deep mineral exploration in brownfield (abandoned industrial property) and greenfield (area of land that has never been developed or built up) areas.



© Alireza Malehmir

PACIFIC

Passive seismic techniques for environmentally friendly and cost efficient mineral exploration
Coordinated in France

PACIFIC developed eco-friendly, cost-efficient exploration techniques to satisfy Europe's demand for metals and minerals.



© PACIFIC

NEXT

New Exploration Technologies
Coordinated in Finland

NEXT built novel technologies and concepts to improve the efficiency and sustainability of mineral exploration.



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EU Research and Innovation supports the sustainable supply of raw materials

As the demand for raw materials is growing, EU research and innovation funded under Horizon Europe helps to improve access to metals and minerals, while optimising their consumption and improving extraction conditions across Europe.

Innovative and sustainable approaches to the discovery of metals and minerals, such as the autonomous exploration and mapping of flooded mines and seabed terrains, can provide the high-resolution information needed for reliable identification of ore bodies. Other methods involve improving the accuracy of geo-models and economic evaluation of ore reserves. In addition, reducing high exploration costs and enhancing the participation of civil society from the start of exploration will help raise awareness and understanding among local communities and other stakeholders.

Learn more about

Communication on The European Green Deal: europa.eu/!GK69JT
 European Innovation Partnership on Raw Materials: europa.eu/!NfUd3v
 Strategic Implementation Plan: europa.eu/!WBmtfd
 Critical Raw Materials: europa.eu/!qXTJy4
 Raw Materials Information System (RMIS): europa.eu/!xQNR6n
 CORDIS Results Pack: europa.eu/!Vb43Ch

European Health and Digital Executive Agency: hadea.ec.europa.eu/index_en

Horizon Europe: europa.eu/!Xf47NRP

Horizon 2020: europa.eu/!bymQHX



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