

# NEWSLETTER



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

December 2025



## A HOLISTIC DIGITAL MINE 4.0 ECOSYSTEM

### RECAP OF THE PROGRESS MADE IN THE YEAR 2025, JULY THROUGH DECEMBER

**MINE.IO at the**

**MINEARC Webinar 3**  
Water, Tailings and Circular Economy  
November 25–26, 2025

**Dr. Raul Mollehuara Canales**  
1. Concerning the dots in Circular Mins...  
2. Electrokinetic assisted tailings management...

**Co-organiser**

**WATER** **TAILINGS** **CIRCULAR ECONOMY**

**AVANTIS** **EXCEED**

**Establishing security throughout interconnected systems**

**#ProgressWorkCampaign**

**MINE.IO** **Co-funded by the European Union**

**Article**

**Applying Deep Electrical-Resistivity Tomography Techniques for the Exploration of Medium- and Low-Geothermal Energy Resources**

This study uses geoelectrical methods to investigate medium- to low-enthalpy geothermal resources in southern Spain, identifying a fractured carbonate formation as a promising reservoir.

**MINE.IO** **Co-funded by the European Union** **READ MORE** **→**

**MINE.IO**

**ENERGETAB 2025**  
Mining Meets Digital Innovation

**Predictive Maintenance in Mining**

**#ProgressWorkCampaign**

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## 2nd Review Meeting and next General Assembly

August and September was the time of preparation for *2nd Review Meeting*, which summarised the second year of The MINE.IO Project. The meeting happened on 18th of September, which served as a review of the previous months and helped set our goals for the rest of the year.

We look forward to the next General Assembly in Porto, which will take place on 27-28 January, 2026. The assembly will focus on progress made throughout the year, as well as the next phase of The Project. The gathering will also be a chance to discuss and invite partners to the Final Event taking place in May 2026 in Turin.

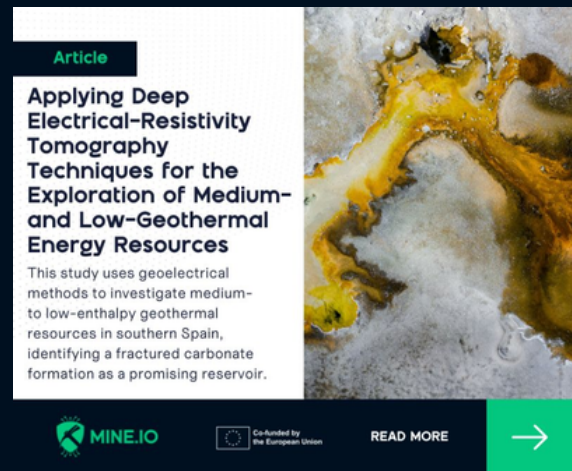
To find out more about events planned for 2026 follow Mine.io's social media accounts and our website.





# Peer-reviewed publications campaign

A focused effort to showcase recent scientific outputs and knowledge dissemination activities



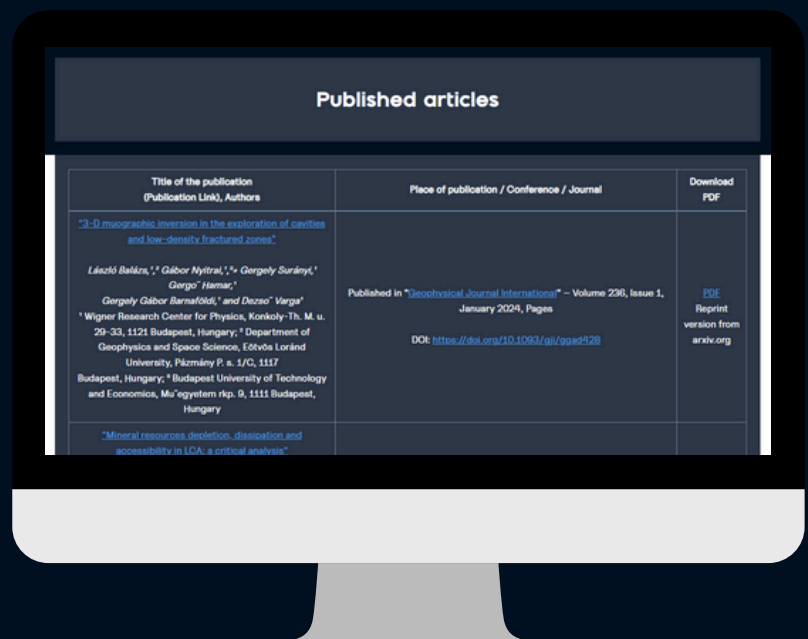
In our previous Newsletter we mentioned a campaign established to gradually showcase and promote scientific articles published since the start of the Mine.io project. These publications reflect our research activities and address key project topics. The campaign will continue as new papers are released.

[click for more](#)

## Publications

See the updated list of peer-reviewed publications featuring MINE.IO

[click for more](#)



# Progress Work Campaign

## Check Out the articles from WP5 Campaign!

We have successfully finished our Campaign WP5  
***“Mine.io integration processing and digital mine solution.”***



A methodological framework for evaluating the societal impacts of Mine.io mining innovations.

An assesement of the social sustainability of Mine. io solutions and pilots.

[click for more](#)

The Remote Sensing Edge Computing/Continuum Decentralized Communication System is a software component aiming to assist in the modernization of mining operations.

[click for more](#)



Establishing security throughout interconnected systems. Increasing the cyber-security and resilience of digital systems of systems.

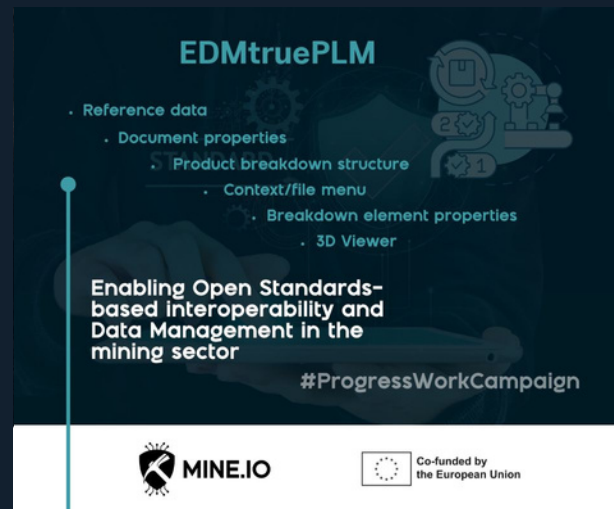
[click for more](#)



# Progress Work Campaign

“Managing and exchanging data across multiple formats can be complex and time-consuming. That’s where EDMtruePLM an ISO 10303 Repository, steps in – streamlining data interoperability and making integration seamless.”

[click for more](#)



The Mine.io Big Data Platform is an efficient, customized solution designed to address the complex data management needs of the contemporary Mining Industry.

[click for more](#)

In the mining sector, equipment maintenance expenses are reported to account for approximately 40% to 70% of total setup costs and 20% to 60% of operational expenses.

[click for more](#)



What if mine operations could run more smoothly, with fewer delays, tighter compliance, and better coordination between teams – without drowning in emails, spreadsheets, or siloed systems?

[click for more](#)

# Progress Work Campaign

Mine.io continues to publish News on the Official Website about development being made in the Progress Work Campaign.

In addition to our completion of the WP5 Campaign we have also started WP3 – “**Eco-efficient technological solutions for exploration, electrification and extraction.**”

Check Out the posts from WP3 Campaign!



MINE.IO offers a new way to explore flooded mines. It combines a special type of imaging using particles called muons with smart underwater robots. This makes it possible to safely and effectively explore underwater parts of mines.

[click for more](#)

MINE.IO project tries to bring more efficient and sustainable ways to study and track drilling data.

Innovative technologies under the MINE.IO project introduce modern solutions to traditional drilling techniques.

[click for more](#)

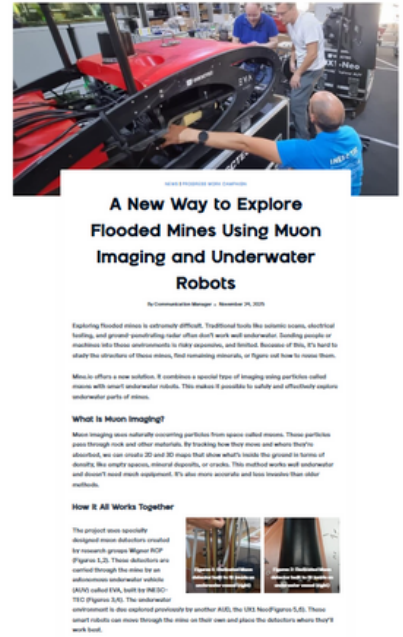
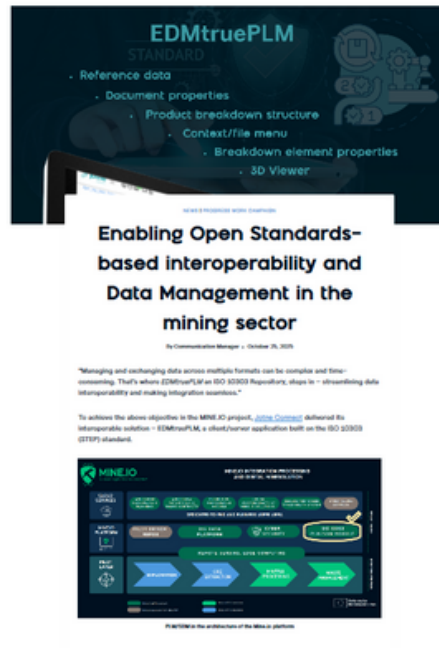




# Progress Work Campaign

Read all articles from  
our Progress Work  
Campaign

[click for more](#)



## POLAND



## GERMANY



## GREECE



## HUNGARY



## CYPRUS



## FINLAND



## ITALY



## NORWAY



## PORTUGAL



## SPAIN

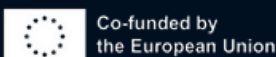


FOLLOW MINE.IO ON SOCIAL MEDIA



<https://mineio-horizon.eu>

[info@mineio-horizon.eu](mailto:info@mineio-horizon.eu)



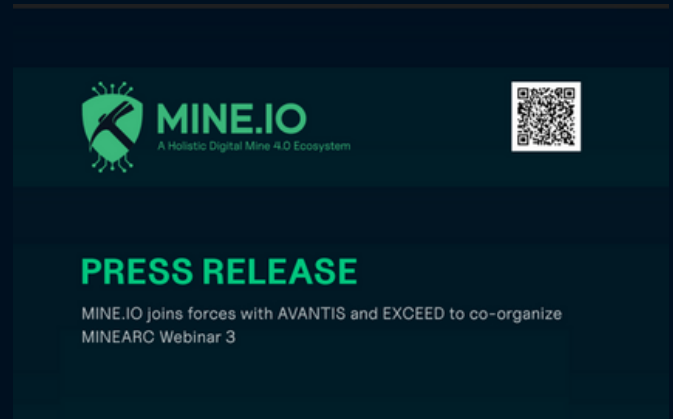
MINE.IO has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101091885.

# New cooperations with other projects

## MINE.IO Collaborates with AVANTIS and EXCEED project

Mine.io's collaboration with the AVANTIS and EXCEED projects resulted in the co-organization of the third MINEARC webinar entitled "Water, Tailings, and Circular Economy." During the webinar...

[click for more](#)



## Third meeting on standardisation within the Smart EcoMine Hub



On November 20<sup>th</sup>, 2025, the third online workshop in the Smart EcoMine Hub cluster was held. Representatives from the four sister projects in the cluster (MASTERMINE, DINAMINE, NETHELIX and MINE.IO) met to align their...

[click for more](#)

## MINE.IO has joined the Battery Cluster Hub

The Mine.io project is proud to be part of the Cluster Hub "Production of raw materials for batteries from European resources", a dynamic European initiative that brings together over 20 EU-funded projects and more than 120 organizations across ...

[click for more](#)

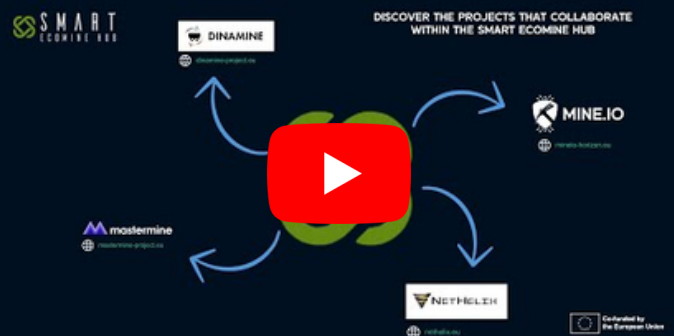






Digital Mining: TU Freiberg Equips Drill Rig with Sensors | Mine.io EU Project As part of the EU-funded Mine.io project, TU Bergakademie Freiberg is researching how to digitalize analogue mining equipment.

The MASTERMINE, DINAMINE, MINE.IO, and NETHELIX projects have joined forces to establish the Smart EcoMine Hub, a dynamic mining cluster dedicated to amplifying impact.



This video shows an exhibition of the PIT system, which took place in the laboratory of the Łukasiewicz Research Network - Tele and Radio Research Institute.

The second part of the video shows an excerpt from the first tests of selected elements of the system in a pilot industrial environment in KGHM (Poland).

In this episode, Dr. Norbert Zajzon, professor and head of department at the University of Miskolc, talks about the underwater robot built as part of the UNEXUP project, which has proven itself in several special missions in recent years and is currently being further developed in the Mine.io Horizon Europe project.



## MINE.IO Mine.io in German press media: Mining Challenges

As one of our partners TUBAF has done great strides in sharing and spreading information about the MINE.IO project.

### Online Newspapers

**TUBAF – news:** Intelligentes Bohrgerät für den digitalisierten Bergbau der Zukunft



[click for more](#)

**Extra journal:** Bergbau-Forschung: Die KI gräbt sich unter die Erde



[click for more](#)

[click for the full list of newspapers](#)

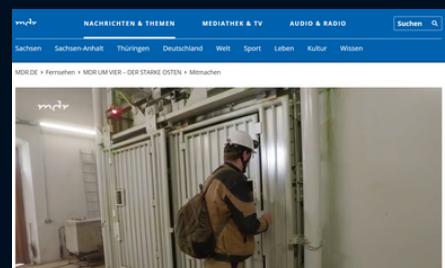
### TV Channels

**ARD1 channel:** Mit KI unter Tage:  
Zukunftsprojekt an der “Reichen Zeche”



[click for more](#)

**MDR TV channel:** Mit KI unter Tage:  
Zukunftsprojekt an der “Reichen Zeche”

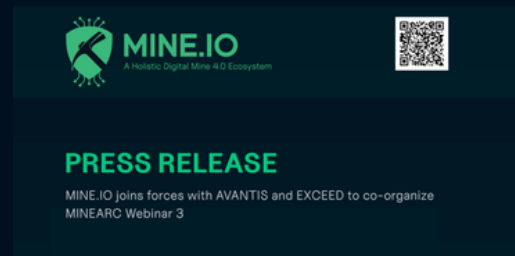


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## Press Release MINEARC Webinar3

The Horizon Europe project MINE.IO, in collaboration with fellow EU-funded initiatives AVANTIS and EXCEED, is proud to co-organize the third edition of the MINEARC Webinar Series, titled “Water, Tailings, and Circular Economy”.



[click for more](#)

## Updates from Mine.io about MINEARC Webinar3 on other LinkedIn channels

[“Groupo de investigation TIDOP ” Channel](#)

[“FrontierInnovations” Channel](#)

[“Oulu Mining School” Channel](#)



## Mention of Mine.io in Stone-Ideas magazine



In the Mine.IO research project, scientists from across Europe, from Finland to Greece, have joined forces to rethink mining across its entire value chain – from exploration, extraction, and processing of resources to the recycling of residues and the restoration of sites.

[click for more](#)

## MINE.IO Mine.io in Hungary\_press media: Updates from Mine.io on UNEXMIN GEOROBOTICS Press Media



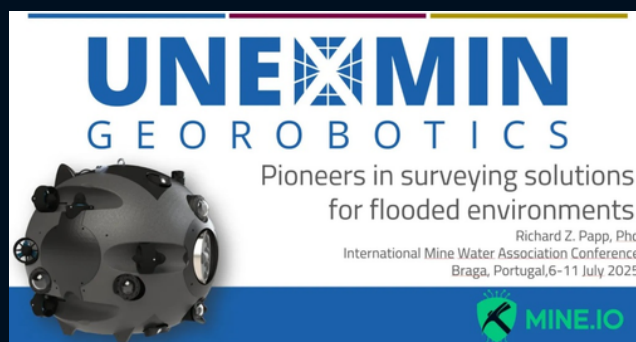
### Podcast talk hosted by UGR

Underwater robots deep underground – upgrades, missions and special abilities ...

### Mine.io in IMWA conference, Braga, Portugal

A central part of the presentation focuses on the Horizon Europe MINE.IO project, within which significant robotics research and development activities are currently ongoing...

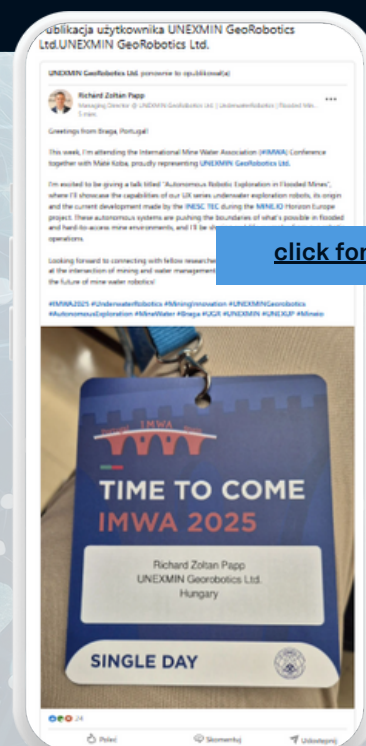
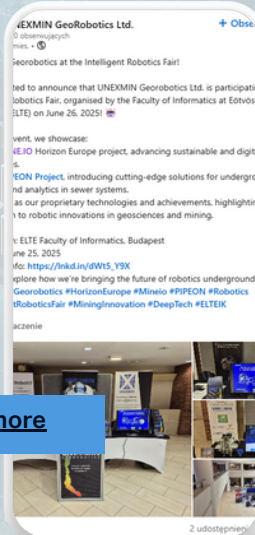
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### Updates from Mine.io on UNEXMIN GEOROBOTICS LinkedIn.

UNEXMIN GEOROBOTICS, has shared updates from the Mine.io project on its LinkedIn channel. The posts highlight project progress and its contribution to sustainable industrial innovation.

[click for more](#)



[click for more](#)



## MINE.IO AT ENERGTAB 2025

### ENERGETAB 2025

On 16–18 September we joined the 38th edition of ENERGETAB in Bielsko-Biała – the biggest energy fair in Poland

At our booth in we showcased the MINE.IO Horizon project – the “Holistic Digital Mine 4.0 Ecosystem”, bringing Industry 4.0 solutions into mining: digital twins, cloud platforms, predictive analytics, automation & robotics.

[click for more](#)



## Mine.io at Mineral Engineering Conference (MEC 2025)

On 22-24th of September we joined the 7th edition of MEC - Mineral Engineer Conference in Targanice.

Representatives of the MINE.IO project had the opportunity to present the results of their scientific research during Session IV: New technologies and process digitalization. .



[click for more](#)



# Events

## **MINE.IO at SysTol2025 – Driving the Future of Mining Automation**

We're proud to share that the MINE.IO project was prominently featured at the 6th International Conference on Control and Fault-Tolerant Systems (SysTol2025), held on October 6–8 in Ayia Napa, Cyprus.

SysTol2025 provided a powerful platform to exchange ideas on resilience, fault-tolerance, and cyber-physical security – core themes that align with MINE.IO's mission to modernize mining in extreme environments.



[click for more](#)

## **MINE.IO at GeoEarth-2025: Artificial Intelligence for Sustainable Mining.**

On September 29–30, 2025, Berlin hosted the sixth edition of the World Congress on Geology & Earth Science – GeoEarth-2025, one of the leading global events dedicated to geology and Earth sciences.

Prof. Jacek Galas delivered a presentation titled “Process monitoring and operational control in the flotation process supported by AI methods”, showcasing advanced solutions developed within the MINE.IO – A Holistic Digital Mine 4.0 Ecosystem project.



Process monitoring and operational control in the flotation process supported by AI methods  
Prof. Jacek Galas PhD.  
Łukasiewicz – Tele and Radio Research Institute



Co-funded by the European Union

Geology & Earth Science, Sept. 29 – 30, 2025 at Berlin



[click for more](#)



## MINE.IO AT MINEARC Webinar 3

On November 25–26, 2025, the third edition of the MINEARC Webinar, titled “Water, Tailings, and Circular Economy,” took place online. This event served as a vital platform for exchanging knowledge on sustainable water management and mining waste. The Mine.io project played a central role, represented by Dr. Raul Mollehuara Canales, who delivered two key presentations and served as one of the event’s moderators.

[click for more](#)



## Mine.io Partners at the XI Meeting of the Polish Research Group on Machine Learning Systems (PL-SIGML)

On 27–28 November 2025, the city of Szczecin hosted the XI Meeting of the Polish Research Group on Learning Systems (PL-SIGML). The event brought together experts from leading scientific centers across Poland, creating an important forum for exchanging knowledge and experience in machine learning, computer vision, and robotics.



[click for more](#)



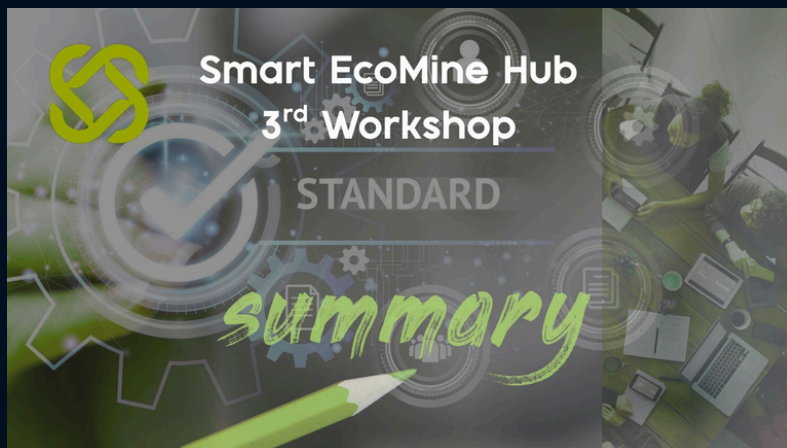
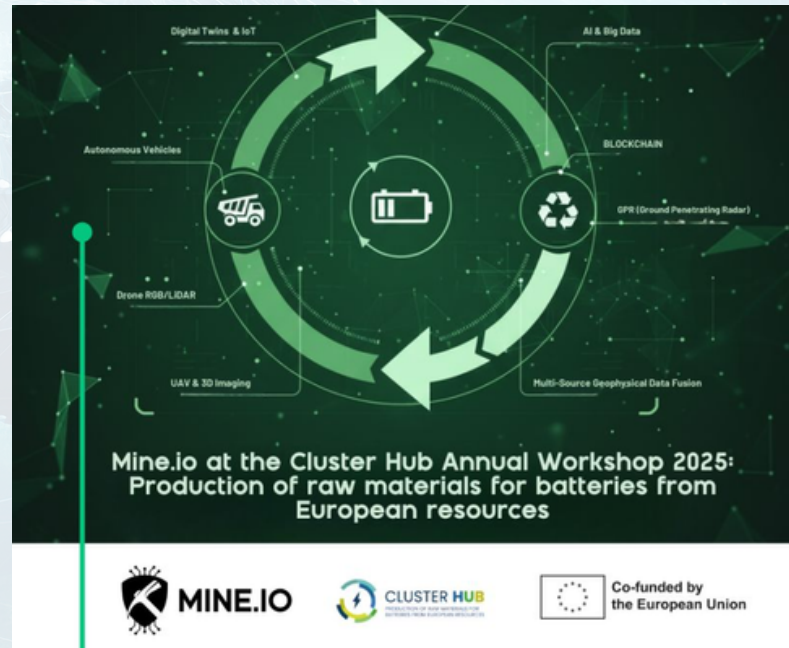
# Events

## Mine.io at the 2025 Cluster Hub Workshop: Powering the Future of European Batteries

The MINE.IO project continues its mission to bolster European raw material sovereignty. In late November 2025, MINE.IO representatives actively participated in the 4th Annual Cluster Hub Workshop: “Production of raw materials for batteries from European resources.”

The event brought together innovation leaders, industry representatives, and policymakers to chart the course for Europe’s battery sector.

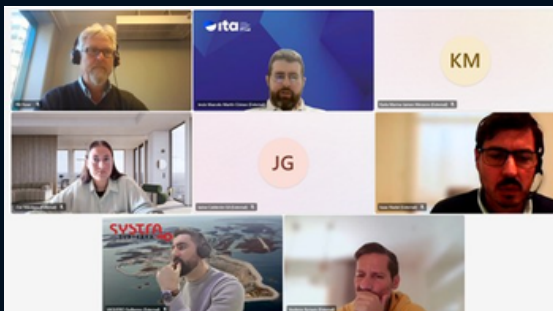
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## Shaping Future Standards: Highlights from the 3rd Smart EcoMine Hub Workshop

The 3rd Smart EcoMine Hub workshop was a focused, results-oriented session. Partners from across the cluster met to align their efforts on a critical objective: creating a collaborative document that summarizes the standardization activities and contributions relevant to the modern mining industry.

[click for more](#)



# HAPPY NEW YEAR



**MINE.IO**

**From the MINE.IO Team,  
we would like to wish  
everyone a Happy New  
Year!**



**MINE.IO**



Partners

**25**



Duration

**42 months**



Budget

**€ 14M**



Demonstrations

**7 Pilots**



Co-funded by  
the European Union

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