



**Sustainable decarbonised co-extraction of
vanadium and titanium minerals from Europe's
low-grade vanadium-bearing titanomagnetite
deposits (AVANTIS)**

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*D5.2
Clustering report 2*

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Public deliverable

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1 Introduction

This deliverable (D5.2 Clustering report 2) comprises a detailed description about the actions taken in the context of the **WP5 Clustering with other EU projects (incl. UNFC promotion)**. This is the second iteration which includes, in addition to the information provided to D5.1 Clustering report 1, all the clustering activities that took place in the context of Task 5.2 Contribution to clustering workshops.

2 Identification of related projects for clustering

Technical University of Crete employed a two-step process to identify relevant projects for clustering purposes, as per Task 5.1 Identification and monitoring of related projects.

To commence the project identification process, an exhaustive search was conducted across EU databases and the internet to identify projects whose scope and objectives aligned with AVANTIS. All pertinent information was meticulously compiled into specialized tables. An extensive search was conducted utilizing the CORDIS database (<https://cordis.europa.eu>). By default, all projects from the same call (HORIZON-CL4-2023-RESILIENCE-01-02 - Innovative technologies for sustainable and decarbonised extraction (RIA)) were selected. Subsequently, a comprehensive survey was conducted on projects within the same thematic area. This process yielded the selection of 20 projects for further analysis. The associated projects are presented in Table 1.

Table 1: AVANTIS's clustering projects list¹

ID	Project's Name	Related Call	Type of Project	Start Date	End Date
1	Unlocking the supply of rare earth elements in Europe through responsible, sustainable and decarbonized innovative technologies (REESOURCE)	HORIZON-CL4-2023-RESILIENCE-01-02 - Innovative technologies for sustainable and decarbonised extraction (RIA)	HORIZON RIA	1/12/2023	31/5/2027
2	Autonomous Exploration and Extraction of Deep Mineral Deposits (PERSEPHONE)	HORIZON-CL4-2023-RESILIENCE-01-02 - Innovative technologies for sustainable and decarbonised extraction (RIA)	HORIZON RIA	1/1/2024	31/12/2026
3	A Sustainable Ecosystem for the Innovative Resource Recovery and Complex Ore Extraction (XTRACT)	HORIZON-CL4-2023-RESILIENCE-01-02 - Innovative technologies for sustainable and decarbonised extraction (RIA)	HORIZON RIA	1/12/2023	30/11/2026
4	Decarbonized Titanium Recovery from Aluminium and Titanium Production Residues (EURO-TITAN)	HORIZON-CL4-2023-RESILIENCE-01-02 - Innovative technologies for sustainable and decarbonised extraction (RIA)	HORIZON RIA	1/1/2024	31/12/2027
5	Cost-effective processing and refining of lithium into lithium hydroxide from strategic European multi-mineral lithium hard-rock projects (LITHOS)	HORIZON-CL4-2023-RESILIENCE-01-03: Technologies for processing and refining of critical raw materials (IA)	HORIZON IA	1/1/2024	30/6/2027

¹ The links provided in Table 1, are the ones to the official description of each project to the CORDIS site.

6	Sustainable European Rare Earth Elements production value chain from primary Ores (SUPREEMO)	HORIZON-CL4-2023-RESILIENCE-01-03: Technologies for processing and refining of critical raw materials (IA)	HORIZON IA	1/1/2024	31/12/2027
7	Cost-effective, sustainable and responsible extraction routes for recovering distinct critical metals and industrial minerals as by-products from key European hard-rock lithium projects (EXCEED)	HORIZON-CL4-2022-RESILIENCE-01-07: Innovative solutions for efficient use and enhanced recovery of mineral and metal by-products from processing of raw materials (IA)	HORIZON IA	1/1/2023	31/12/2026
8	Demonstration of battery metals recovery from primary and secondary resources through a sustainable processing methodology (METALLICO)	HORIZON-CL4-2022-RESILIENCE-01-07: Innovative solutions for efficient use and enhanced recovery of mineral and metal by-products from processing of raw materials (IA)	HORIZON IA	1/1/2023	31/12/2026
9	Innovative digital sustainable aggregates systems (DIGIECOQUARRY)	SC5-10-2019-2020 - Raw materials innovation actions: exploration and Earth observation in support of sustainable mining	HORIZON IA	1/6/2021	31/5/2025
10	New Exploration Tools for European Pegmatite Green-Tech Resources (GREENPEG)	SC5-10-2019-2020 - Raw materials innovation actions: exploration and Earth observation in support of sustainable mining	HORIZON IA	1/5/2020	21/10/2024
11	Pilot Action for Securing a Sustainable European Next Generation of Efficient RE-free magnets (PASSENGER)	SC5-10-2019-2020 - Raw materials innovation actions: exploration and Earth observation in support of sustainable mining	HORIZON IA	1/5/2021	30/4/2025
12	A Holistic Digital Mine 4.0 Ecosystem (Mine.io)	HORIZON-CL4-2022-RESILIENCE-01-06 - Sustainable and innovative mine of the future (IA)	HORIZON IA	1/1/2023	30/6/2026
13	Digital and innovative mine of the future (DINAMINE)	HORIZON-CL4-2022-RESILIENCE-01-06 - Sustainable and innovative mine of the future (IA)	HORIZON IA	1/1/2023	30/6/2026
14	Intelligent digital toolbox towards more sustainable and safer extraction of mineral resources (NETHELIX)	HORIZON-CL4-2022-RESILIENCE-01-06 - Sustainable and innovative mine of the future (IA)	HORIZON IA	1/1/2023	30/6/2026
15	European Mining in the Green and Digital Era (MASTERMINE)	HORIZON-CL4-2022-RESILIENCE-01-06 -	HORIZON IA	1/12/2022	30/11/2026

		Sustainable and innovative mine of the future (IA)			
16	Multi-scale, Multi-sensor Mapping and dynamic Monitoring for sustainable extraction and safe closure in Mining environments (m4mining)	HORIZON-CL4-2022-RESILIENCE-01-08 - Earth observation technologies for the mining life cycle in support of EU autonomy and transition to a climate-neutral economy (RIA)	HORIZON RIA	1/1/2023	31/12/2025
17	Secure and sustainable supply of raw materials for EU industry (S34I)	HORIZON-CL4-2022-RESILIENCE-01-08 - Earth observation technologies for the mining life cycle in support of EU autonomy and transition to a climate-neutral economy (RIA)	HORIZON RIA	1/1/2023	30/6/2025
18	Multi-source and multi-scale earth observation and novel machine learning methods for mineral exploration and mine site monitoring (MultiMiner)	HORIZON-CL4-2022-RESILIENCE-01-08 - Earth observation technologies for the mining life cycle in support of EU autonomy and transition to a climate-neutral economy (RIA)	HORIZON RIA	1/1/2023	30/6/2025
19	Sustainable exploration for orthomagmatic (critical) raw materials in the EU: Charting the road to the green energy transition (SEMACRET)	HORIZON-CL4-2021-RESILIENCE-01-06 - Innovation for responsible EU sourcing of primary raw materials, the foundation of the Green Deal (RIA)	HORIZON RIA	1/6/2022	31/5/2025
20	Agile Exploration and Geo-modelling for European Critical Raw materials (AGEMERA)	HORIZON-CL4-2021-RESILIENCE-01-06 - Innovation for responsible EU sourcing of primary raw materials, the foundation of the Green Deal (RIA)	HORIZON RIA	1/8/2022	31/7/2025

For the projects presented in Table 1, a table has been created to provide information related to: (i) Project's title, (ii) Acronym, (iii) Webpage, (iv) Related Call, (v) Contact's person name and email, (vi) Starting and Ending date, (vii) The project's description (Deliverable 5.1). Table 1, compiled based on the project's relevance to AVANTIS's objectives and goals, prioritizes the most relevant projects.

3 Joining the Cluster Hub for the production of raw materials for batteries from European resources

Based on the survey conducted and the scope of the [Cluster Hub for the production of raw materials for batteries from European resources](#), it was decided that AVANTIS should join the hub due to its thematic relevance. A formal application was filed, and the project joined the hub.

Based on the description of the Cluster Hub objectives, it is a collaborative community dedicated to advancing the knowledge required for promoting more sustainable and circular production of raw materials within the European battery industry. Currently, the hub has 22 members. AVANTIS is an active member, actively participating in all bi-monthly hub meetings and all associated online activities.

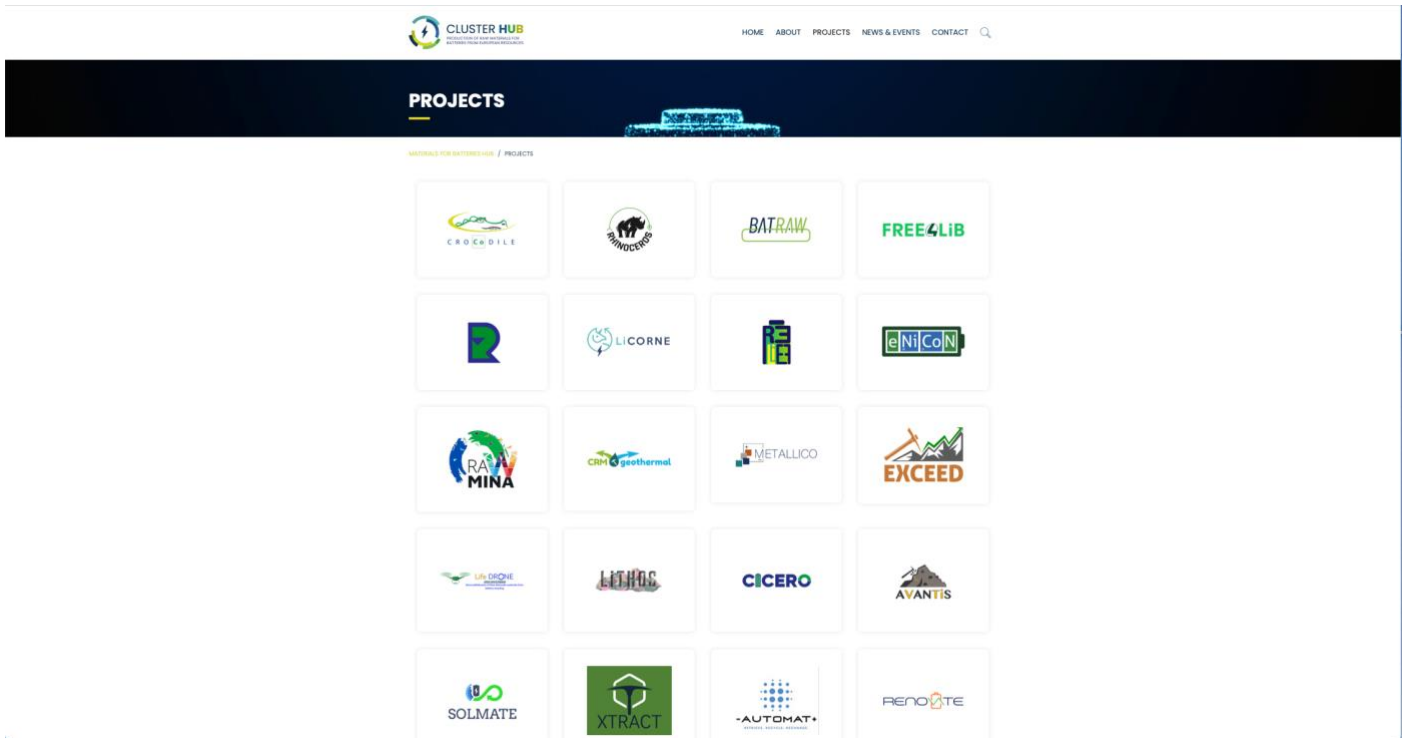


Figure 1: Snapshot of the Webpage of the Cluster Hub for the production of raw materials for batteries from European resources

4 Joining the European Sustainable Mining & Innovation Network (ESMIN)

AVANTIS joined the [European Sustainable Mining & Innovation Network \(ESMIN\)](#), a collaborative initiative which brings together EU-funded projects focused on improving sustainability, efficiency, and responsibility in the entire mining lifecycle. From mineral exploration and resource management to environmental monitoring and post-mining rehabilitation, ESMIN fosters cooperation between research institutions, industry stakeholders, and policymakers to advance innovative and responsible mining practices in Europe.

ESMIN was established to: (i) Facilitate collaboration between projects working on sustainable mining solutions, (ii) Share knowledge and resources (if possible and required) to enhance the work of all projects, (iii) Increase the visibility and impact of EU-funded research through coordinated communication and outreach and (iv) Support policy development by providing scientific insights and technological advancements to shape the future of responsible mining in Europe.

ESMIN serves as a platform for: (i) Joint dissemination efforts, including newsletters, knowledge-sharing initiatives, and coordinated outreach, (ii) Cross-promotion of project outputs, ensuring research findings reach relevant stakeholders in industry, academia, and policy, (iii) Participation in clustering events, fostering engagement with the broader critical raw materials and mining community and (iv) Strengthening dialogue with policymakers, contributing to discussions on the future of mining and critical raw materials in Europe.



Figure 2: Participating projects in the ESMIN network

Currently the network consists of 10 project members in total, more specifically: [AGEMERA](#), [AVANTIS](#), [DeepBEAT](#), [EXCEED](#), [GoldenRAM](#), [LITHOS](#), [MOSMIN](#), [MultiMiner](#), [m4mining](#), [S34I project](#).

AVANTIS participates in regular meetings of the ESMIN network and contributes to the newsletter of ESMIN. A short presentation of the AVANTIS project was featured in the 2nd Newsletter of the ESMIN network ([link](#)). A dedicated part for the synergies within the ESMIN network can be found in AVANTIS web page ([link](#)). AVANTIS has also developed synergies with different members of the ESMIN network through the organization of joint events as it will be described in the following paragraphs.

5 Clustering Events

AVANTIS participated in several clustering events either as an organizer or co-organizer, or just as participant. The related details are described in detail in the following paragraphs.

5.1 1st Clustering event: “Towards responsible mining and processing of energy-transition metals in Europe: A mere pipedream or a realistic opportunity?”

AVANTIS project, in collaboration with [LITHOS](#), [EXCEED](#), [CICERO](#) and [ENICON](#) Horizon Europe projects co-organized a clustering event entitled “[Towards responsible mining and processing of energy-transition metals in Europe: A mere pipedream or a realistic opportunity](#)”, in conjunction with the [1st International Circular Hydrometallurgy Symposium](#) in Mechelen, Belgium, in Martin’s Patershof hotel (9th of September, 2024).

The event included two distinct sessions (Figure 3). The first session included related presentations from the projects involved in the organization, focused on several aspects related to SLO. The session followed, included a round-table discussion with representatives from various entities (EU, academia, research institutions, industry, SMEs, NGOs). They discussed SLO issues, particularly the CRMA target to endorse and expedite “Strategic Projects.” The discussion also informed society about the requirements of the green energy transition, the mining industry’s responsibility to manage impacts, and the critical aspects to fundamentally transform society’s trust in mining.

<p>Towards responsible mining and processing of energy-transition metals in Europe: a mere pipedream or a realistic opportunity?</p>	
<p>EU Clustering event & High-level stakeholder panel Martin's Patershof - Mechelen, Belgium, 9/9/2024</p>	
<p>Timetable</p>	
<p>Session 1: Projects Presentation and the Critical Raw Material Act 9.00-10.30</p>	
Topic	Speaker
“Setting the scene: battery raw materials in the context of the energy transition”	William Todts (Transport & Environment (T&E))
“The ENICON & CICERO approach towards SLO”	Anders Sand (Boliden Mineral AB)
“The EXCEED & LITHOS approach towards SLO: the Barroso Lithium project”	Thomas Gaultier (Savannah Resources)
“The AVANTIS approach towards SLO”	Kostas Komnitsas (Technical University of Crete)
<p>Coffee Break</p>	
<p>Session 2 Round Table 11.00-12.30</p>	
<p>Introduction by Susana Xará (European Health and Digital Executive Agency) “The Critical Raw Material Act (CRMA) and the role of the Strategic Projects” (on-line presentation)</p>	
<p>Closing panel discussion [Moderator: Peter Tom Jones (KU Leuven Institute for Sustainable Metals and Minerals (SIM²))]</p>	
<p>Participants</p>	<p>Toni Eerola (GTK)</p>
	<p>Anders Sand (Boliden Mineral AB)</p>
	<p>Antoine Oger (Institute for European Environmental Policy - IEEP)</p>
	<p>Emily Stewart (Global Witness)</p>

Figure 3: Agenda of the clustering event “Towards responsible mining and processing of energy-transition metals in Europe: A mere pipedream or a realistic opportunity”

Overall, the event was successful and attracted 111 registered participants with a total number of 80 actual attendees (Figure 4) from different (i.e. EU, academia, research institutions, industry, SMEs, NGOs etc.).



Figure 4: Presentation of the AVANTIS project in the event “Towards responsible mining and processing of energy-transition metals in Europe: A mere pipedream or a realistic opportunity”

5.2 2nd clustering event: “MINEARC Webinar 2: Mining and Mineral Processing”

AVANTIS co-organized along with EXCEED project a webinar in the context of the MINEARC project ([link](#)). The webinar took place on the 24-25th of October 2024. The webinar brought together various stakeholders from the industry, science, and technology communities involved in mining and mineral processing in order to share the advances in the modern technology of mining and mineral processing and to discuss the challenges and possible solutions in the current mining industry. The themes of the webinar included but weren't limited to: Advanced technology in mining and mineral processing, Deep mining, Rock fragmentation by blasting, Case studies from mines, Mine-to-mill, Education in mining and mineral processing, Flotation separation, Upgrading CRMs, Flowsheet units, Recycling.



Figure 5: The announcement of the MINEARC Webinar 2 co-organized by the AVANTIS project

5.3 3rd clustering event: “From mining to recycling. The R&I journey of battery raw materials in EU”

On 12 December 2024, the [Cluster Hub for the production of raw materials for batteries from European resources](#) organized the 3rd edition of its annual workshop, entitled “From mining to recycling. The R&I journey of battery raw materials in EU” took place in Brussels. The event was organized by three European funded research projects namely [RHINOCEROS](#), [CRM-geothermal](#), and [CICERO](#).

The hub’s annual workshop, held as a satellite event of Raw Materials Week 2024 (Brussels, Belgium), enabled the dissemination of the most promising outcomes from participating projects. An opening session related to policy, perspectives and supporting mechanisms for battery sector took place, while two technical sessions covered the battery value chain, from mining to recycling. In the opening session, the supporting EU research and development frameworks were presented, and it was attended by the European Commission, academia, research organizations, and the private sector. The event began with an overview of the recently adopted legislation, including the [Critical Raw Materials Act](#) and the [Net-Zero Industry Act](#). A presentation on available European R&D funding opportunities followed. The proceedings of the event are available [here](#). The two technical sessions followed, with detailed presentations from several participating projects. AVANTIS participated as a member of the Hub.



Figure 6: The announcement of the annual clustering event of the Cluster Hub “Production of Raw Materials for Batteries from European Resources”

5.4 4th clustering event: “To mine or not to mine?”

AVANTIS project, in collaboration with LITHOS, EXCEED, CICERO and ENICON Horizon Europe projects co-organized a clustering event entitled “To mine or not to mine?”, at the Technical University of Crete at Chania (07 April 2025, 18:30). The event attracted more than 50 university students, researchers and faculty members. The event included a screening of the documentary film “Not In My Country: Serbia’s Lithium Dilemma” (link) took place. The film resulted in an extensive discussion among the participants about the challenges faced by mining projects in Europe.

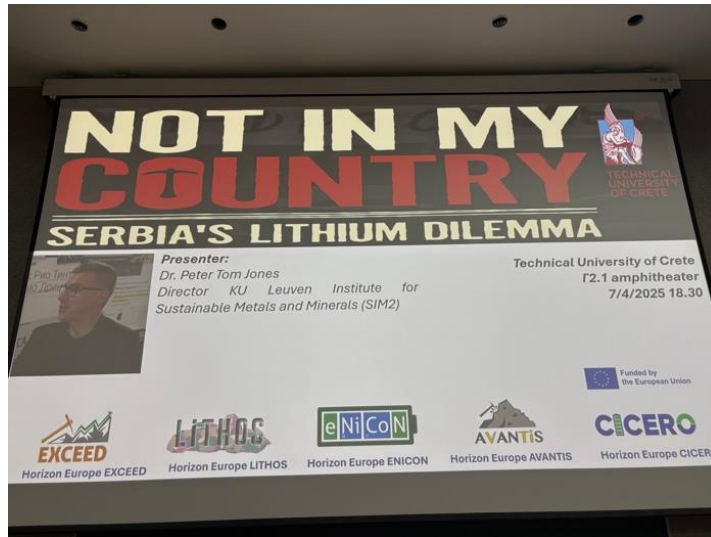


Figure 7: Clustering event: “To mine or not to mine?”

5.5 5th clustering event: “To mine or not to mine energy transition metals in Europe?”

AVANTIS project, in collaboration with LITHOS, EXCEED, CICERO and ENICON Horizon Europe projects and the Society of Mining Enterprises of Greece a clustering event entitled “To mine or not to mine energy transition metals in Europe?”, at the premises of the Amalia Hotel, Athens, Greece (8/4/2025). In the clustering event two documentaries films “Not In My Country: Serbia’s Lithium Dilemma” (link) and “Made in Europe: from Mine to Electric Vehicle” (link), were presented. Participants were members of the Society of Mining Enterprises of Greece, representatives from the Ministry of Environment and Energy, the Hellenic Survey of Geology & Mineral Exploration (H.S.G.M.E.), as well as researchers and students from the National Technical University of Athens.

Both films led to a fruitful discussion, about different challenges of the mining industry for more than 1 hour, with the audience.

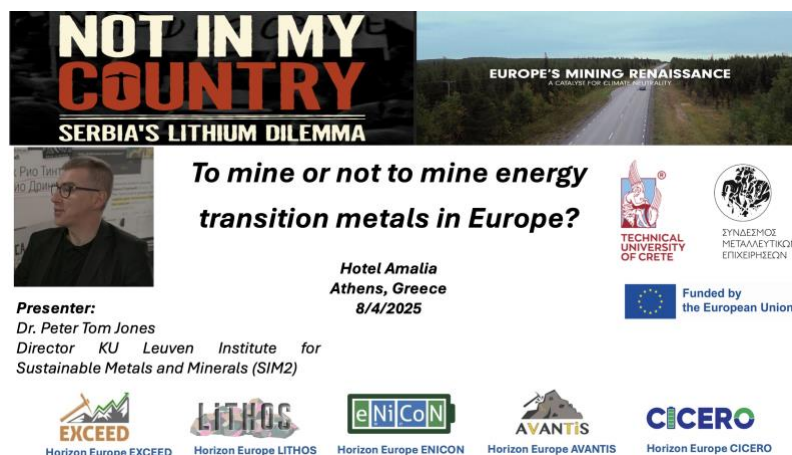


Figure 8: Clustering event: “To mine or not to mine energy transition metals in Europe?”

The event attracted 55 on-site participants.



Figure 9: Snapshots from the Clustering event: “To mine or not to mine energy transition metals in Europe?”

5.6 6th clustering event: “Collaborative Actions Across the European Raw Material Value Chain”

AVANTIS co-organised along Horizon Europe projects [AGEMERA](#), [MultiMiner](#), [EIS](#), [GOLDENRAM](#), [LITHOS](#), [EXCEED](#) and Finnish projects: **JTF Development of the Extractive Industry in the Lapland, Northern Ostrobothnia and Kainuu (KAKE)**, **ERDF Lapland Mining hub**, a session in the context of EGU General Assembly in Vienna, Austria (28/4/2025) entitled: “[Collaborative Actions Across the European Raw Material Value Chain](#)”.

This session featured presentations from EU-funded projects, networks, and partnerships across the European raw material value chain. Participants discussed the goals, key activities, achievements, and future plans of these collaborative efforts. The session aimed to showcase the strategic objectives of various projects, networks, and partnerships in promoting sustainable, socially responsible, and environmentally conscious resource management and innovation. In this context, there was an effort to identify the possible collaboration and cross-project synergies in technology, industry, environment, society, etc. Special attention was given to cross-sector collaborations and initiatives that promote the integration of research, industry, society, and policy efforts. These collaborations focus on fostering sustainable development, enhancing the resource efficiency of the raw materials sector, and contributing to the EU’s strategic goals for circularity and economic resilience. In total 8 European projects, apart from AVANTIS, were presented during the event, namely: [AGEMERA](#), [EIS Horizon project](#), [MultiMiner](#), [SEMCRET](#), [S34I](#), [GOLDENRAM](#), [DeepBeat](#) and [DEXPLORE](#).

AVANTIS was represented by Prof. Saija Luukkanen (University of Oulu), who highlighted AVANTIS’s scientific contributions.

5.7 7th clustering event: “CRMs for Sustainable Energy Future: Global Insights and Research”

AVANTIS co-organized along with [EXCEED](#), [LITHOS](#), [CICERO](#), [ENICON](#) projects a webinar (May 29, 2025), entitled “CRMs for Sustainable Energy Future: Global Insights and Research” ([link](#)). The seminar prioritized international collaboration to foster global cooperation in CRM innovation and policy development.

Two high level experts from U. S. A Prof. Z. Agioutantis (University of Kentucky) and Australia Prof. G. Barakos (Curtin University) emphasized the global perspective of CRM mining and research technologies. The webinar was open to all interested individuals, professionals working in the mining, raw materials, and energy transition sectors, graduate and postgraduate students, early-stage researchers.

ONLINE Webinar
CRMs for a Sustainable Energy Future: Global Insights and Research

29 May, 2025 11:00-13:00 CET

Dr George Baracos
 Senior Lecturer in Mining Engineering in WA School of Mines (WASM), Curtin University
Solving the puzzle of minerals' criticality worldwide toward the energy transition. (11:00-12:00CET)

Prof. Zach Agioutantis
 Chair of the Department of Mining Engineering at the University of Kentucky
An Overview of Critical Minerals Research at the University of Kentucky (12:00-13:00CET)

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Figure 10: The call for participation to the webinar entitled “CRMs for Sustainable Energy Future: Global Insights and Research”

5.8 8th clustering event: “Africa’s role in CRM mining and refining”

AVANTIS co-organized along with EXCEED, LITHOS, CICERO, ENICON projects a webinar (June 4th, 2025), entitled “Africa’s role in CRM mining and refining” ([link](#)). Two high level experts from Africa discussed issues related to small scale mining of Lithium in Zimbabwe and also provided the African perspective on the prospects and challenges for sustainable mining. Everjoy Muchefa a Researcher & Process Engineer from the University of Johannesburg will give a talk entitled "A reflection of artisanal and small scale mining of lithium bearing minerals in Zimbabwe", while Professor Harmony Musiyarira, Executive Dean of the Faculty of Engineering and the Built Environment at Namibia University of Science and Technology (NUST), will give a lecture entitled: “Prospects and Challenges for Sustainable Mining”. The goal of the session was to foster a deeper understanding of Africa’s complex mining dynamics and stimulate dialogue on sustainable and inclusive mining pathways.

ONLINE WEBINAR
AFRICA'S ROLE IN CRM MINING AND REFINING

4 June, 2025 10:00 AM-12PM CET

Speakers:

Everjoy Muchefa, Researcher & Process Engineer
 University of Johannesburg
 "A reflection of artisanal and small scale mining of lithium bearing minerals in Zimbabwe"
 (10:00-11:00 CET)

Professor Harmony Musiyarira, Executive Dean of the Faculty of Engineering and the Built Environment at Namibia University of Science and Technology (NUST)
 "Prospects and challenges for sustainable mining"
 (11:00-12:00 CET)

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Figure 11: The call for participation to the webinar entitled “Africa’s role in CRM mining and refining”

5.9 9th clustering event: “2025 OECD Conference of Mining Regions and Cities”

AVANTIS participated in this year’s edition of OECD Conference of Mining Regions and Cities which will take place from 16-18th of June, 2025 in Rovaniemi, Lapland, Finland ([link](#)). The gathering, as described in detail in the event’s web page, convened stakeholders from across the public and private sectors, academia, civil society organizations, and Indigenous representatives to discuss well-being in mining regions, focusing on main issues: (i) Strengthening community engagement, trust, and communication in the mining sector and (ii) Promoting research and innovation to support sustainable mining practices. AVANTIS participated in two different sessions.

Professor Komnitsas from the Technical University of Crete (TUC) participated in a session entitled “New practices to align exploration with ESG strategies”, along with representatives from the [CIRAN](#), [AGEMERA](#) and [GREENPEG](#) projects. In this session, the significance of planning mineral exploration activities while considering the views and characteristics of communities was discussed. The panelists presented EU-funded projects that aimed to enhance the connection between exploration and socially and environmentally responsible practices.

Professor Saija Luukkanen (University of Oulu), along with representatives of [PERSEPHONE](#), [CICERO](#), [REMHUB](#), [PERMANET](#) EU funded project projects and representatives from [Anglo American’s Sakatti – A futuresmart mine](#), participated in a session entitled “Innovation network on more sustainable mining technologies”, which followed a networking-type of setting, featuring presentations of technologies and projects for a responsible mining process. Participants discussed innovative solutions that prioritize sustainability and environmental mining responsibility.



Figure 12: Presentations related to AVANTIS activities at the 2025 OECD Conference of Mining Regions and Cities

6 United Nations Framework Classification (UNFC) related activities

During the consortium meeting that took place on June 2025 at Lueven, Belgium a UNFC training workshop was provided to AVANTIS participants by Tuomas Leskela and Janne Hokka from the Geological Survey of Finland. The training was held in-person, but online participation was also available. The training consisted of three sessions with the following content.

The first session which was held, provided an overview of mineral estimations, commonly used terminology and related uncertainties in estimates as well as reporting and classification of mineral projects in accordance with CRIRSCO aligned standards and codes. The second session was focused on the basics of United Nations Framework Classification (UNFC), including the purpose of the system, how to navigate between various UNFC documents and guidelines and how it relates to the Critical Raw Materials Act. Finally, during the last session practical application of UNFC using AVANTIS case studies were highlighted. The case studies included in the project were looked at case-by-case, with the goal of teaching attendees what is the critical information needed to give a project a UNFC class.

The training was successful, as by the end in the 3rd session, there was active participation from attendees, and were able to end up with the correct UNFC class for each project with some guidance from the trainers.

The feedback from this internal workshop, will be used towards planning UNFC promotion related activities.

7 Future Plans

In the remaining period of the project, the active task will be 5.2 Contribution to clustering workshops. In this context AVANTIS has already planned further clustering activities.

AVANTIS will participate at the Raw Materials Week 2025, Brussels, Belgium (17-21/11/2025). The participation is going to be through a common event with the *Cluster Hub for production of raw materials for batteries from European resources*. For this year's event the cluster hub has also contacted the organizers of the Raw Materials Week, requesting to have an event integrated to the main program. Currently there is no answer for the aforementioned request.

AVANTIS has already been in contact with [REPTIS](#) and [BLOOM](#) project in order to coordinate possible clustering activities ([link](#)).

Details will be provided in a future deliverable.

8 Conclusions

The clustering activities are important for effectively communicating and expanding the reach of AVANTIS's outputs. To accomplish this objective, the AVANTIS consortium identified and contacted closely related projects to its scope. Subsequently, the clustering activities were initiated. AVANTIS enrolled as a member to a dedicated cluster hub which includes 22 relevant projects (Cluster Hub for the production of raw materials for batteries from European resources) and to one network dedicated to European Sustainable Mining & Innovation. AVANTIS has organized or co-organized **7 clustering events** and participated in **two additional events** during the first 18 months of the project.

All activities are progressing as they were scheduled and are in line with the Grant Agreement. No deviations are anticipated during the next phase of the project.