



Raw Materials Momentum

Conference Information

MiningForum · 18-19 June 2026 · Estrel Berlin



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Opening of MiningForum 2026 – Raw Materials Momentum

Jens-Peter Lux, Managing Director, DMT GROUP



Ladies and gentlemen, distinguished guests,
dear colleagues, partners and friends,

on behalf of DMT and the TÜV NORD GROUP it is my great pleasure, and
I'm greatly honoured to welcome 500 people to the MiningForum 2026 in Berlin.

First of all, please let me acknowledge the general valuable
support behind this year's event:

- the **patronage** of the BMW, Federal Ministry for Economic Affairs and Energy,
- the **strong contributions** of the Federation of German Industries BDI and the United Nations Industrial Development Organization UNIDO,
- the **cooperation** with the EAGE,
European Association of Geoscientists and Engineers and
- the very important **strategic partnership** with the RWTH Aachen University –
the Institute for Advanced Mining Technologies.

Thanks to all these institutions for the support, commitment, collaboration
and a great relationship based on mutual respect!

This year's MiningForum brings again together representatives from industry,
science, finance, government, politics and international organizations from all over
the world. To our international guests and exhibitors who have travelled from afar;
special thanks – we truly appreciate your presence in the German capitol.

Your numerous presences demonstrate something important:

Raw materials have moved to the centre of economic and political attention!

Across the world, Raw Materials are shaping political and economic agendas.

For many years, raw materials were often viewed as a given. They were essential,
but largely invisible. Today, this has changed fundamentally.

Critical raw materials have become a defining issue for industrial competitiveness,
technological leadership and economic resilience.

The reason is quite simple:

The **energy transition** requires raw materials!

Digitalization requires raw materials!

Every modern infrastructure requires raw materials!

The **Space and defence industry** requires raw materials!

And increasingly, **security and strategic autonomy** require raw materials as well!

What has changed; is **not** the importance of raw materials.
What has completely changed is the **environment** around them.

- Supply chains have become more vulnerable.
- Processing capacities are concentrated.
- Geopolitical competition has entered global commodity markets.

And **access to critical, strategical and, to be honest, all other raw materials** are increasingly shaping economic and political decisions all around the world.

As Europeans and as the global raw materials community, we face a clear challenge, and **we know what needs to be done.**

The question is whether we can move quickly enough from **strategy to implementation.** Especially Europe has started to move – but also especially Europe has to move faster!

This year's MiningForum motto captures this global challenge perfectly:

Raw Materials Momentum!

- Momentum is clearly building.
- Political attention has increased.
- New regulatory frameworks have emerged.
- Investors are looking more closely at the sector.
- Industry has recognized the urgency of the issue.

But momentum alone does not create supply security.

The real challenge lies in implementation.

- Resources must become **projects.**
- Projects must move through **permitting.**
- Permits must lead to investment **decisions.**
- Investment decisions must become **construction.**
- And construction must become **production.**

This is the clear and necessary journey we need to accelerate.

Europe will ultimately **not be judged** by strategies, declarations or legislation.
Europe will be judged by its ability to deliver projects.

This is why discussions around permitting, financing, exploration, supply chains and industrial partnerships have become so important.

And this; Ladies and gentlemen, **is exactly why we are here today.**

Over the next two days, the MiningForum will address the critical questions which determine whether Europe and the world can successfully strengthen its raw materials base.

We will discuss **geopolitics and international cooperation.**

We will discuss **financing and investment.**

We will discuss the **implementation of the Critical Raw Materials Act.**

We will discuss **responsible supply chains, industrial projects and future pathways for the whole sector.**

In other words:

We will discuss how to turn momentum –

Raw Materials Momentum into Raw Materials implementation.

Projects alone will not solve this current Raw Materials challenge.

The next questions are equally important:

- How can we **create the capability** to make implementation possible?
- How do we **ensure that innovation moves** from laboratories into operations?
- How do we **combine scientific excellence with industrial application**?
- How do we bring together the expertise required to solve increasingly complex challenges?

One answer can be found in the strategic partnership behind this year's MiningForum.

Because the **challenges we face today** cannot longer to be solved within **institutional silos**.

- They require **collaboration**.
- They require **new forms of partnership**.
- And they **definitely** require **closer interaction** between industry, science, policy and, last but not least, **society**.

This idea is reflected in the strategic partnership and cooperation between DMT and RWTH Aachen University.

And it is therefore my great pleasure to hand over to Professor Elisabeth Clausen, the director of the Institute for Advanced Mining Technologies.

Elisabeth will continue with the perspective of **innovation, technology and implementation capability**.

I wish us all a successful and inspiring time in Berlin, and, dear audience, ladies and gentlemen, **encourage all of you to become part of the Raw Materials Momentum!**

Thank you very much.
And a warm & kind **Glückauf!**

Jens-Peter Lux,
Managing Director, DMT GROUP

Opening of MiningForum 2026 – Raw Materials Momentum

Prof Dr Elisabeth Clausen, Professor & Director, RWTH Aachen University, Institute for Advanced Mining Technologies (AMT)



Ladies and gentlemen,
Welcome and Glückauf,

Europe's raw materials challenge is
often described as a question of access.

Access to resources.

Access to capital.

Access to supply chains.

And all of these are indeed critical.

But I believe there is another question that is equally important:
Do we have the capability to turn opportunity into implementation?

Because knowing what needs to be done is one thing.
Actually doing it is another.

Technology matters.

Capital matters.

Regulation matters.

But none of these elements creates impact in isolation.

The real competitive advantage of Europe will not be determined solely
by the resources we have. It will be determined by our ability to innovate faster,
collaborate better and implement more effectively.

This is precisely the idea behind the strategic partnership between
DMT and RWTH Aachen University.

The partnership was not created because cooperation sounds attractive.
It was created because the challenges ahead cannot be solved within institutional
boundaries.

Industry needs innovation.

Innovation needs implementation.

And implementation requires collaboration.

As a university, we are convinced that research creates value when it finds its way into
practice. And as researchers, we learn when we engage with real industrial challenges.
This is why we decided to become a strategic partner of MiningForum.

Not simply to contribute scientific expertise, but to help strengthen the dialogue between
science, industry, policy and society. Because this dialogue is where innovation becomes
implementation.

Ladies and gentlemen,

Europe has much stronger foundations for this than we often acknowledge.
When discussing critical raw materials, we frequently focus on our weaknesses.
But Europe also possesses significant strengths.

We have world-leading universities and research institutions.
We have outstanding engineering expertise.
We have globally recognized equipment manufacturers.

We are home to some of the world's leading capabilities in mining engineering,
automation, sensing technologies, robotics, digitalization and artificial intelligence.

And we have decades of industrial experience.

These capabilities are not supporting factors.
They are strategic assets.

Because competitiveness in the future will increasingly depend not only on access
to raw materials, but also on our ability to develop, deploy and scale innovative
technologies across the entire value chain.

Europe has strong foundations to build upon.

Our strength is not only access to resources. It is our ability to combine engineering
excellence, technological innovation and industrial experience. From automation and
digitalization to artificial intelligence and advanced mining technologies, these
capabilities are strategic assets for the future of our sector.

But even the best technologies do not implement themselves.

And this is why capability is ultimately a people issue. Among other disciplines,

We need engineers.
We need geologists.
We need operators.
We need data scientists.
We need entrepreneurs and project developers.

But above all, we need people who can connect disciplines,
organizations and perspectives.

People who can connect science and industry.
People who can connect innovation and implementation.
People who can build trust and cooperation.

In many ways, this ability to collaborate may become one of Europe's most important
strategic resources. This is also why the programme of MiningForum has been designed
the way it has. It brings together exploration, technology, financing, sustainability and
policy. Because in reality these challenges are interconnected.

And so are the solutions.

MiningForum matters because implementation does not happen in isolation.

It happens when knowledge meets experience.

When innovation meets investment.

When science meets industry.

And when different perspectives come together around a shared objective.

For the next two days, this forum brings together exactly the people who can make that happen. I hope we leave Berlin not only with new ideas, but with new partnerships, new initiatives and a renewed determination to turn momentum into action.

Thank you and Glückauf.

Prof Dr Elisabeth Clausen,
Professor & Director, RWTH Aachen University,
Institute for Advanced Mining Technologies (AMT)



Opening of MiningForum 2026 – Raw Materials Momentum

Inga Dransfeld-Haase, Chief Human Resources Officer,
TÜV NORD GROUP



**Ladies and Gentlemen,
Dear Peter Lux,
Dear Prof. Clausen,
Dear participants of the Mining Forum,**

It is a great pleasure to welcome you to the 18th Mining Forum here in Berlin.
I am especially delighted to join this leading international conference for the first time.

Some of you may be wondering what brings the CHRO of TÜV NORD AG to the MiningForum. I will come back to that in a moment. But first, I would like to say how proud we are as TÜV NORD GROUP that DMT organizes this important event. Since 2007, DMT has been part of the TÜV NORD GROUP, contributing deep technical expertise and industry knowledge to our international testing, inspection and certification organization.

No one in this room needs to be convinced of the importance of a secure, resilient and sustainable raw materials supply. You know better than anyone that raw materials are a precondition for our future.

There is no climate action without raw materials. No digital transformation, no battery technologies, no modern infrastructure — and increasingly no strategic autonomy or resilient security capabilities. That is why the discussions at this forum matter far beyond this sector: they matter for Germany, for Europe and for our ability to shape transformation.

And this brings me to my perspective as CHRO: technological progress is essential, but long-term success remains deeply human-driven. It is people who drive innovation, improve processes and turn technical expertise into real-world impact – as Prof. Elisabeth Clausen has already indicated.

At the same time, the industry urgently needs skilled workers across its value chain. In Europe, the talent pipeline is not keeping pace: fewer students are choosing careers in mining and raw materials, while demographic change is accelerating. In Germany alone, projections indicate that the workforce gap could amount to up to 4.3 million people within ten years. The competition for talent is becoming increasingly intense. But numbers alone do not tell the full story. To me, this is also a question of perception, purpose and relevance.

And here, the industry has a stronger and more inspiring story to tell than many people outside this room may realize. Young professionals can take on responsibility early and build international careers in a field that is both essential and future-oriented.

They can contribute to climate technologies, digitalization, safety, resilience and sustainable value creation — in short, to almost every major transformation ahead of us. The task is clear: we must make this relevance visible. Every battery, every wind turbine and every digital technology depend on raw materials that must be responsibly sourced, processed and secured.

If we succeed in delivering this message, we will strengthen our attractiveness as employers, close the talent gap step by step and reinforce the industry's role as an enabler of the future. The Mining Forum is exactly the right platform for these discussions. I warmly invite you to use the coming two days for open dialogue, new connections and bold ideas. Thank you very much — and I wish all of us an inspiring, successful and enjoyable MiningForum.

Inga Dransfeld-Haase,
Chief Human Resources Officer, TÜV NORD GROUP

Opening Remarks



Dr. Beate Baron,
Head of Industry Division,
Federal Ministry for Economic Affairs and Energy (BMWE))



Pitch Session: Raw Material Momentum:
Aligning Policy, Capital and Industry for Secure Supply



Matthias Krämer,
Federation of German Industry (BDI)



Dr Jan Klasen,
KfW



Leon Riedel,
United Nations Industrial Development Agency (UNIDO)



Dr Carin-Martina Tröltzsch,
Chief Operating Officer, K+S Aktiengesellschaft



Agenda

18.06.2026, 09.00h (Room A-B)

Welcome

Jens-Peter Lux, Management Board, DMT GROUP
Inga Dransfeld-Haase, Chief Human Resources Officer, TÜV NORD GROUP

Presenter: Diana Sündermann / Sven Ulbrich, TÜV NORD AG

Prof Dr Elisabeth Clausen, Professor & Director, RWTH Aachen University,
Institute for Advanced Mining Technologies (AMT)

Opening Remarks

Dr Beate Baron, Head of Industry Division, Federal Ministry for Economic Affairs and Energy (BMWE)

Pitch Session: Raw Material Momentum: Aligning Policy, Capital and Industry for Secure Supply

- Matthias Krämer, Co-Director of International Affairs, BDI
- Dr Jan Klasen, Director, KfW

Presenter: Diana Sündermann, TÜV NORD AG

- Dr Sascha Raabe, Head of the Global Alliance for Responsible and Green Minerals, United Nations Industrial Development Organization (UNIDO)
- Dr Carin-Martina Tröltzsch, Chief Operating Officer, K+S Aktiengesellschaft

10.30h, Coffee Break & Networking (Foyer/Exhibitor)

18.06.2026, 11.00h (Room A-B)

Raw Materials Momentum: Projects & Support

- From Momentum to Delivery: Europe's Raw Materials to 2030
- From Guben to Red Rock: A New Model for Critical Minerals Cooperation
- Strengthening European Raw Materials Resilience: Vulcan Energy's Contribution
- Sakatti – A Strategic Project to strengthen Europe's self-sufficiency for copper

Presenter: Prof Dr Elisabeth Clausen, Professor & Director, Institute for Advanced Mining Technologies

- Bernd Schäfer, CEO / Managing Director, EIT RawMaterials
- Kerstin Wedemann, Chief Legal & Corporate Officer, Rock Tech Lithium
- Manfred Boeckmann, Chief Commercial Officer, Vulcan Energy
- Pertti Lamberg, Country Chief Executive Officer - Finland, AngloAmerican

12.30h, Lunch & Networking (Foyer/Exhibitor)



18.06.2026, 14.00h (parallel Sessions & Panels)

Room A Mining Technologies ■ Vertical Cutter Mining - a sustainable technology for mining ■ The role of Horizontal Directional Drilling in Mining applications ■ Debris detection for automated loading ■ Fast Mine Access and Shaft Sinking Technologies for Strategic Mineral Deep Deposits ■ Collaborative Traceability for Mining Supply Chain	Presenter: Dr Michael Paul, Wismut ■ Ulrich Schöpf, BAUER Maschinen ■ Simon Herrenknecht, Herrenknecht ■ Emilia Hennen, RWTH Aachen University, Institute for Advanced Mining Technologies (AMT) ■ Dzianis Iholka, REDPATH DEILMANN ■ Patricio Alejandro Rojas Ábalos, Antara SpA
Room B Supporting Materials ■ Better roads, less dust - Reducing water use with a biological solution ■ Common Practice and Innovations with Geosynthetics in Mining ■ Modelling of mine water discharges with integrated pump management	Presenter: Philipp Schollmeyer, VRB e. V. ■ Dr Luitpold Fried, Bind-X International ■ Marie-Therese Hortmann, HUESKER Synthetic ■ Nele Pollmann, DMT GmbH & Co KG
Room C Panel: Licence to Operate ■ Green Hydrogen and Mining: Strategic Pillars of Mexico's Energy Transition ■ Terra Balcanica Resources Corp. - A European Critical Metals Explorer ■ Developing local, sustainable and resilient solutions for the challenges in mining ■ Raw Materials Momentum from Mining Contractor Perspective ■ China as a Raw Materials Powerhouse - Europe's Strategic Response	Presenter: Prof Dr Tobias Backers, RohstoffWissen! ■ Martin Wellens, Mexican Association ■ Aleksandar Miskovic, Terra Balcanica Resources ■ Prof Dr Peter Goerke-Mallet, Technische Hochschule Georg Agricola ■ Thorsten Kratz, Thyssen Schachtbau ■ Dr Leonard von Rummel, BLOMSTEIN
Room D Ambassador's Meeting: Securing Resources in an Era of Strat. Geopol. Competition ■ Short presentations by the panelists, followed by a discussion on issues related to the geopolitical situation and the resulting challenges in commodity supply chains. The focus will be on the energy transition, competitiveness, and international cooperation.	Presenter: Michalis Katapotis, DMT ■ Bastian Kern, Federal Ministry for Economic Affairs and Energy (BMWE) ■ Laura Oexle, Federal Foreign Office ■ Dr Sabrina Schulz, European Initiative for Energy Security (EIES)

15.30h, Coffee Break & Networking (Foyer/Exhibitor)



18.06.2026, 16.00h (parallel Sessions & Panels)

Room A	Digitisation and data Integration	Presenter: Prof Dr Helmut Mischo, TU Bergakademie Freiberg
	■ From operational complexity to value creation ■ From Proof of Concept to Proof of Value: Step by Step Towards the Digital Mine ■ How the Digital Twin unlocks the Art of the Possible in Mining Transformation Making ■ Sustainability Commercial: AI-Driven Value Creation in Metals and Mining ■ AI and Data Engineering Bridge the Gap Between Geophysics, Remote Sensing & Geology	■ Bernardo Marinho, Innomotics ■ Stefan Ebert, Digital Mine ■ Philippe Dozolme, TBT/DNA-Blast Group ■ Iuliia Grishchenko, beSirius ■ Dr Ziheng Xiang, Deep Optica
Room B	Exploration for accelerating the raw materials turnaround	Presenter: Laura Kratzer, HOT Engineering
	■ Current state and expectations for the policy framework and market developments ■ Accelerating the development of deposits of critical raw materials ■ Deep Exploration in the Erzgebirge Boosted by Advanced Exploration Technologie ■ Exploration project „Löwenstern“	■ Florian Stanko, Bundesverband Geothermie ■ Dr Martin Wedig, FAB / VRB ■ Andreas Knobloch, Beak Consultants ■ Andre Zucker, ANGER / Sebastian Stelter, Kupfer Copper Germany
Room C	Panel: Global trends in Innovation & Digitalization	Presenter: Iris Wunderlich, AHK Chile
	■ Digital Twins and AI for Tailings Management and Water Efficiency ■ From Data to Decisions: AI & Autonomous Systems in Real Mining Operation ■ Enabling data availability for digital mining applications ■ Field Validation of Advanced Mining Technologies	■ Luis David Sepúlveda Herrera, ALAYA Digital Solutions ■ Jairo Kenyi Muñoz Espinoza, TECH INNOVATION ■ Eliana Paredes, Accenture / Women in Mining Chile ■ Ali Erdesat, TU Bergakademie Freiberg
Room D	Panel: Sustainability Standards as a Cornerstone of a Just Energy Transition	Presenter: Olaf Deutschbein, UNIDO / Vera Jemiller, GIZ
	■ Keynote: Opportunity and challenges, importance of standards and guidance ■ Panel-Discussion	■ Lucia de Carlo, German Federal Ministry for Economic Cooperation and Development (BMZ) ■ Juliane Kippenberg, Human Rights Watch / Olumide Abimbola, Think Tank / Tobias Kind-Rieper, Anglo American / Rebecca Burton, Initiative for Responsible Mining Assurance / Dr Lukas Förster, DMT / Johannes Danz, Mercedes-Benz / Dr Sascha Raabe, UNIDO
17.30h,	End of the 1st conference day	
19.00h,	Miner's evening (Room A-B) with musical accompaniment, including announcement of hackathon winner	Welcome: Jens-Peter Lux, DMT GROUP / Michael Weberink, bsn e. V. Prof Dr Elisabeth Clausen, Institute for Advanced Mining Technologies



19.06.2026, 9.00h (parallel Sessions & Panels)

Room A Thinking ahead: future usage scenarios ■ Diffusion of Eco-Innovations in Post-Mining: EIPs for the Repurposing of Industrial Land ■ Geotechnics in remediation mining ■ Effective Communication and Engagement Strategies for Mining Projects ■ Combined seismics for monitoring of THM behaviour of fault zones in clay rocks	Presenter: Prof Dr Martin Kreßner, TU Bergakademie Freiberg ■ Dr Julia Haske, THGA University ■ Silvio Engelmann, CDM Smith ■ Dr Hakan Arden Kahraman, DMT Istanbul Merkez Subesi ■ Dr Rüdiger Giese, GFZ Helmholtz Centre for Geosciences
Room B Responsible Supply Chains ■ Regional Capabilities and the Organization of Global Mining Value Chains ■ Responsible and sustainable Sourcing from CAHRA regions ■ Decentralization of Regulatory Agencies a Step Towards Traceability ■ Strategic Pathways to De-Risk and Decarbonize Rare Earth Supply Chains ■ Emerging Technologies and Sustainable Sourcing in the Mining Industry	Presenter: Michael Weberink, Branchenverband Steinkohle und Nachbergbau e.V. (bs n) ■ Birgit Linnamäe, Nordic Vision ■ Achim Klotz, Goode Europe ■ Gad Amoako Amankwaah, Green Evolution Ventures ■ Arun Vijayan, Beroe ■ Marcela Celis Cisterna, Codelco / Women in Mining Chile
Room C Panel: Executing & Financing Momentum ■ Development of strategies - training of skilled workers in the mining industry ■ Mining Engineers as Communicators?! Transforming Mining Curricula ■ Blended Capital Models for European Critical Mineral Mining Projects ■ Connecting Capital, Projects & Policy	Presenter: Bozana Barusic, DMT ■ Toni Schmidt, TS BAU ■ Dr Stefanie Walter, Lots ■ Michael Seeger, MX Mining Capital Partners ■ Stefan Müller, DGWA
Room D Panel: CRMA – „Green-Deal-Paradox“? ■ CRMA – Current Status and What’s Next? ■ Mining in the 21st century: Energy integration, circular economy and sustainable reuse ■ Altmark Lithium Extraction (ALE): Sourcing Lithium for Europe’s Raw Material Sovereignty ■ CRMA-Panel-Discussion	Presenter: Dr Sven-Uwe Schulz, DERA ■ Ivonne Arenz, Verband Bergbau, Geologie und Umwelt e.V. (VBGU) ■ Blas Urioste, KSL Kupferschiefer Lausitz ■ Dr Axel Wenke, Neptune Energy Innovations ■ Dr Andreas Scheck, Neptune Energy / Blas Urioste, KSL Kupferschiefer Lausitz / Hildegard Bentele, Member of the European Parliament / Dr Matthias Koehler, BMW
10.30 h, Coffee Break & Networking (Foyer/Exhibition)	



19.06.2026, 11.00h (parallel Sessions & Panels)

Room A Modelling & Risk Management

- Portable Gas Analytics for Sustainable Georesource Management
- Urgent action to monitor the suddenly flooded salt mine Praid
- GeoRisk-Analyser - movable, high-precision deformation monitoring of geohazards
- Sentinel AI - the new LLM agent system in geotechnical engineering

Presenter: Elke Mugova, Fraunhofer Research Institution for Energy Infrastructures and Geotechnologies IEG

- Egbert Jolie, Fluxtec
- Thomas Schicht, K-UTEC
- Frank Kubisch, TU Bergakademie Freiberg
- Dr Karsten Zimmermann, DMT

Room B International Projects and Regulations

- Africa - the future of critical minerals
- Georgia's Mining Law in Transition
- Unlocking High Value Critical Minerals From Regolith Systems
- From Channel Migration to Mineralization: Heavy Mineral Potential in Meandering Systems
- Beyond Static Models: Adaptive Estimation Approaches for River-Hosted Mineral Systems

Presenter: Tobias Kind-Rieper, AngloAmerican

- Jonathan Veeran, Webber Wentzel
- Alexandre Devidze, Rich Metals Group
- Allister Caird, Mount Ridley Mines Limited
- Nicolas Jacquelot, Heling Minerals / Thabang Phakoe, DMT-Kai Batla Pty.Ltd.
- Rafaela Machado, DMT Brazil

Room D Panel: Innovation in Future Mining - Automation, Sensing and Subsurface Insights

- Advancing Mine Safety and Productivity with Fleetwide, Retrofit Automation
- Validation of Perception Sensors in Modern Mining Operations
- Deep geological survey using 2D seismics in Lower Lusatia
- Graphene Meets Mining: Advanced Water Decontamination for Sustainable Operations
- GeoLithAI: AI-Based Lithology Recognition

Presenter: Dr Sebastian Wiele, RWTH Aachen University

- Dr Eric Pohlmann, Nerospec SK GmbH
- Adam Pekarski, RWTH Aachen University, Institute for Advanced Mining Technologies (AMT)
- Dr Birgit Futterer, Landesamt für Bergbau, Geologie und Rohstoffe
- Marco Antonio Salazar Moreno, NANOINVENTA
- Marissa Griselda Vallejo Pablo, UNMSM

12.30 h, Lunch & Networking (Foyer/Exhibition)



19.06.2026, 14.00h (parallel Sessions & Panels)

Room A Mitigating ESG risks and ambitions

- Raw materials from Europe: high demands and a patchy legal framework
- Embedding Climate and Nature in the Mining Sector's Transition Pathways
- Advancing Mineral Asset Valuation
- Brazil's Critical Minerals - Opportunities for Brazilian-German Cooperation

Presenter: Dr Aleksandra Cholewa

- Anna Schönwald / Maja Wilke, PowerShift e.V.
- Anna Raffaelli, Carbon Trust
- Sanjey Bhoowanpursadh, DMT Kai Batla
- Lucia de Carlo, BMZ / Tim Schlösser, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Room C Panel: Legacy site management and geological disposal of radioactive wastes

- Water management during and after mine rehabilitation
- Construction of the Konrad repository - overview and status of work
- MCDA for site selection procedures in storage
- Disposal of Radioactive Waste in Deep Boreholes

Presenter: Dr Charlotte Bornhöft, DMT

- Ulf Barnekow, Wismut
- Moritz Kellner, BGE
- Frank Charlier, RWTH Aachen
- Tilman Fischer, BGE Tec

Room D Panel: Increasing Productivity - Digitalization, Selective Mining and Automation

- Selective Mining with ML enhanced PFN logging tool
- Automated welding repair and upgrade of worn tools
- SIL++ Adding Availability to Hoisting Safety
- Building the Nervous System of the Modern Mine

Presenter: Panel: Increasing Productivity - Digitalization, Selective Mining and Automation

- Thomas Heinig, Umwelt- und Ingenieurtechnik Dresden
- Raphael Hommel, Fraunhofer
- Gareth Price, Siemag-Tecberg
- Christian Edilberto Portugal Zambrano, Jebi S.A.C

15.30 h, End of the conference



Abstracts

Raw Materials Momentum: Projects & Support

From Guben to Red Rock: A New Model for Critical Minerals Cooperation

Kerstin Wedemann, Chief Legal & Corporate Officer, Rock Tech Lithium



Rock Tech Lithium and Siemens have signed a strategic partnership to transfer the lithium conversion expertise gained in Guben, Germany, to the Red Rock project in Ontario, Canada. Kerstin Wedemann will explore how the industrial partnerships can turn the G7 commitments on critical minerals into concrete, project-based action and what blueprint this model can offer for future European-North American raw materials cooperation.

Strengthening European Raw Materials Resilience: Vulcan Energy's Contribution

Manfred Boeckmann, Chief Commercial Officer, Vulcan Energy



Europe's ambition to secure critical raw materials is no longer constrained by strategy. The key question is not whether supply chains should be built in Europe, but how projects can move from concept to construction and into reliable production at scale.

Vulcan Energy's integrated sustainable lithium and geothermal project in Germany's Upper Rhine Valley provides a practical example of this transition. Its flagship Lionheart Project combines geothermal heat and power generation with lithium extraction from deep brines, ultimately delivering a domestic source of battery-quality lithium with a fundamentally different emissions profile compared to conventional methods of extraction.

At the same time, the project is structured around long-term industrial partnerships and European offtake, directly linking upstream production with downstream demand.

The presentation will focus on the critical factors that have enabled progress from early-stage concept to execution, including financing readiness, stakeholder alignment, and the role of policy support in de-risking first-of-a-kind projects. It will also address what is required to accelerate similar projects across Europe.

Rather than outlining ambition, this contribution will focus on implementation: what works in practice, what does not, and what needs to change to turn Europe's raw materials strategy into operational, resilient supply chains.



From Momentum to Delivery: Europe's Raw Materials Race to 2030*

Bernd Schäfer, CEO EIT RawMaterials



Sakatti – A Strategic Project to strengthen Europe's self-sufficiency for copper*

Pertti Lamberg, Country Chief Executive Officer – Finland, AngloAmerican

*No abstract available at the editorial deadline

Mining Technologies

Vertical Cutter Mining – a sustainable technology for mining

Ulrich Schöpf, BAUER Maschinen GmbH



Securing access to highly required mineral resources while reducing environmental impact and accelerating project development timelines represents one of the key challenges for the mining sector.

Many strategically relevant deposits – such as small vertical ore bodies, steeply dipping veins, satellite deposits, and remnant ore zones in existing operations – remain underdeveloped because conventional open-pit or underground mining methods are either technically unsuitable, economically inefficient, or associated with significant environmental disturbance. Innovative and selective mining solutions are therefore required to unlock these resources and transform previously marginal deposits into viable mining opportunities.

The Vertical Cutter Mining System (VCM), developed from Bauer's globally proven trench cutter technology used in civil engineering applications such as diaphragm wall and cut-off wall construction, provides a flexible alternative approach for the extraction of small vertical ore bodies and veins directly from surface or from the bottom of existing open pits. The method enables targeted excavation of the mineralized zone while minimizing dilution, stripping requirements, and infrastructure needs. As a result, deposits previously considered uneconomic can become technically and economically viable.

The mining concept is based on a staged excavation sequence using vertical primary trenches followed by secondary extraction phases adapted to the geometry and geotechnical characteristics of the deposit. Depending on project conditions, excavation can be combined with trench backfilling concepts or flooded mining configurations using floating cutter systems to further increase recovery rates and operational flexibility. This modular and deposit-specific approach allows optimization of ore recovery while maintaining high operational safety and minimizing disturbance to surrounding rock mass and infrastructure.

The technical feasibility of cutter mining has already been demonstrated in several bulk sampling and trial mining programs, including large-scale excavation campaigns at kimberlite deposits in Canada. These projects confirmed that vertical cutter systems are capable of excavating significant volumes of material from depths of up to approximately 250 m under challenging geological conditions, providing reliable geological information and enabling selective resource extraction already at early project stages.

Compared with conventional mining approaches, the Vertical Cutter Mining method offers substantial economic advantages. By concentrating excavation activities on the ore body itself, waste rock handling, haulage requirements, and processing volumes are significantly reduced. The minimized infrastructure footprint shortens project development timelines and allows earlier access to revenues, which is particularly important for smaller deposits, satellite resources, and late-stage mine-life extensions. In addition, the system enables recovery of remnant ore bodies in mature open-pit operations without requiring additional pushbacks, thereby extending mine life and improving overall project economics.

From an environmental perspective, the VCM system contributes to sustainable resource development by reducing stripping ratios, limiting surface disturbance, avoiding extensive waste dumps, and minimizing groundwater drawdown. The reduced spatial footprint also lowers rehabilitation requirements at the end of mine life and improves the permitting outlook for projects located in environmentally sensitive regions. These characteristics make the technology particularly relevant for future extraction of strategically important mineral resources under increasingly stringent environmental and regulatory conditions.

Continuous development of cutter wheel designs, penetration control systems, and hard-rock cutting technologies has expanded the application range of the method to rock strengths of up to approximately 200 MPa. This allows the Vertical Cutter Mining system to address a broad spectrum of geological conditions and deposit types and supports its application as a selective, low-impact mining solution for modern resource development strategies.

Vertical Cutter Mining therefore represents a flexible and scalable alternative mining approach capable of transforming previously uneconomic small vertical deposits into viable projects while supporting the sustainable and responsible development of mineral resources and extending the productive life of existing mining operations.

The role of Horizontal Directional Drilling in Mining applications

Simon Herrenknecht, Herrenknecht



Horizontal Directional Drilling (HDD) is typically used to install infrastructure lines for pipelines and cables, drilling in depths of 5 to 50 meters, from surface to surface with a long horizontal section in the middle.

With reasonable modifications, a retrofitting is possible to drill in a more slanted angle, to access specific ground layers. In Iluka’s Balranald Mineral Sands Project in New South Wales in Australia, several HDD-Rigs with a special “mining mode” will be in operation to develop several underground linear mineral sand deposits, in order to extract rutile, zircon, as well as associated rare earth minerals. This paper will present the project, including the rig design and operation in mining applications.

Debris detection for automated loading

Emilia Hennen, RWTH Aachen University, Institute for Advanced Mining Technologies (AMT)



Automating the pickup of material from a muck pile using a wheel loader is an important objective for increasing safety and efficiency in mining. Precisely filling the bucket with minimal energy consumption requires extensive experience and skill. To master these challenges, the muck pile must be reliably detected and localized during the approach.

In addition, the optimal point of attack must be identified based on the structure of the muck pile in order to load the bucket evenly and completely. To date, this task has not yet been implemented in an automated way. The available machines either rely on remote control by humans or can only be used in very specific environments.

In this presentation, innovative approaches to solving the problem of muck pile detection for automated loading with wheel loaders in a wide range of different environments will be presented.

Fast Mine Access and Shaft Sinking Technologies for Strategic Mineral Deep Deposits

Dzianis Iholka, REDPATH DEILMANN



This paper presents advanced shaft sinking technologies that enable fast and secure access to deep deposits of strategic minerals, including rare earth elements, lithium, copper, zinc – resources essential for the global green transformation and potash – as resource essential for the global food chain security.

Drawing on Redpath Deilmann’s extensive expertise as a leading shaft sinker and mining contractor, the presentation highlights the deployment of state-of-the-art shaft sinking equipment, automated drilling and excavation systems.

It also explores the integration of digitalisation in shaft sinking works, such as real-time monitoring, process automation, and data-driven project management, which collectively enhance safety, efficiency, and speed in accessing deep mineral resources.

Collaborative Traceability for Mining Supply Chain

Patricio Alejandro, Rojas Ábalos, Antara SpA



Supply chain blind spots (from critical input stock-outs to lost repairable components) pose massive financial and operational risks to the mining industry. This presentation explores how collaborative cloud traceability is revolutionizing mining logistics through two synergistic platforms: Antara CS and Aisoncore.

Antara CS eliminates costly operational halts by providing end-to-end visibility of critical materials. It integrates producers and port operators to digitally track shipments, ensuring operational continuity and proactive inventory management. Concurrently, Aisoncore transforms the maintenance ecosystem. By replacing fragmented manual tracking with a unified SaaS platform, it connects mining operators with specialized repair vendors.

This delivers robust traceability, shortens repair cycles, and prevents asset loss. Together, these solutions reduce costs, lower emissions, and actively drive the Circular Economy by maximizing the lifecycle of critical mining assets.

Supporting Materials

Better roads, less dust – Reducing water use with a biological solution

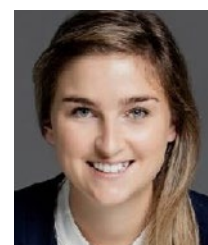
Dr. Luitpold Fried, Bind-X International



Dust control is a major challenge in mining. Traditional methods like water sprays, salts, or bitumen often fail to balance efficiency, safety, and environmental compliance, causing high water use, frequent reapplications, wear & tear, and operational delays. Terrabind™ biological dust control delivers lasting dust suppression and improved haul road stability with minimal water usage and fewer maintenance applications. Field data show it reduces labor, reapplications, and downtime while maintaining effective dust control. Compared to chemical solutions, Terrabind™ is safer, environmentally responsible, and enhances operational productivity. A case study highlights measurable improvements in cost, safety, and efficiency, providing actionable insights for mining operations globally.

Common Practice and Innovations with Geosynthetics in Mining

Marie-Therese Hortmann, HUESKER Synthetic



This paper introduces geosynthetics, their chemical and mechanical characteristics as well as functionality with special focus on their application in mining on the basis of relevant case studies. While some geosynthetic solutions have been successfully applied in mines and mine related infrastructure for decades (sludge lagoon capping, long wall protection, overbridging of sinkholes) others have only been recently evolved and open new possibilities to effectively support development and operation across the mining industry. Latter include sludge treatment with geosynthetic large-size tubes. Here, a filter fabric retains sludge solids and therefore enables the fast and efficient dewatering of many sludge types.

Another innovation refers to active geocomposites. These allow the passive treatment of water (leachate, pore water, drainage water, traffic runoff) preventing the contamination of soils and groundwater by inorganic, organic (including PFAS) and petrochemical pollutants.

Modelling of mine water discharges with integrated pump management

Nele Pollmann, DMT GmbH & Co KG



The mine water levels in large parts of the Ruhr region are currently rising to an optimized level, among other things with the aim of reducing the number of dewatering locations. This offers the opportunity to convert the sites to modern submersible pumps wells. These developments also place new demands on numerical modelling. A method was therefore developed to be able to depict the pump management typical for well pumping stations using numerical modelling with the established box model.

Submersible pumps wells are characterized by only a few pumps, each with a comparatively high flow rate. This means that, depending on the water inflow and the void volume available as storage, the water levels rise and fall depending on the number of active pumps. Stationary water levels, such as those maintained by underground pumping systems, will hardly exist in the future. For the planning of pump levels, pump design and water level variations to be applied for, predictions of the expected rise and lowering behaviour under realistic operating conditions are required.

To date, only a few pumping scenarios have been taken into account in the DMT in-house software for mine water flow (Boxmodell). A distinction was made between pumps that keep the water level at a certain level and pumps with a predetermined constant pumping rate. However, in order to model well water management, it is necessary to be able to switch between different pumping rates at short notice and to comply with upper and lower water level limits.

In addition to these internal mine factors, external conditions also influence future pumping management. The most important parameter in planning is the mixed water concentrations that arise in the receiving waters. For this, the pre-loading of the mine water and the discharge quantities must be forecast as accurately as possible.

Many mine drainage systems also have seasonally fluctuating inflow rates, which show a climatic connection. The receiving waters also have these seasonal variations, albeit at a different time than the mine water, which increases the risk of limit values in the receiving waters being exceeded, especially in the summer months.

By integrating pumping strategies adapted to these conditions in the box model, well-founded forecasts for discharge rates and loads can be made that also take seasonal requirements into account.

License to operate

Green Hydrogen and Mining: Strategic Pillars of Mexico’s Energy Transition

Martin Wellens, Mexican Association



A Roadmap for Entering the Mexican Mining Market -
Aligning Global Expertise with Local Requirements

Mexico is one of the world’s most dynamic mining countries, hosting
hundreds of projects and over 200 companies with foreign investment.

Rising ESG commitments and regulatory requirements are increasing the demand
for reliable, innovative solutions.

The roadmap for entering this market emphasizes systematic stakeholder and
relationship mapping, clustering companies by size, commodity and maturity, and
implementing pilot projects to demonstrate clear value. By combining global best
practices with a local presence, tailored approaches can improve safety, efficiency
and sustainability, supporting the continued development of Mexico’s mining sector.

A key element is structured stakeholder mapping across mining companies, ministries,
embassies, law firms, banks, and global advisory firms, ensuring regulatory, financial,
and operational alignment.

Terra Balcanica Resources Corp. – A European Critical Metals Explorer

Aleksandar Miskovic, Terra Balcanica Resources



Terra Balcanica is a Canadian polymetallic exploration company targeting critical metal systems in the Balkans. Our Viogor-Zanik Project in eastern Bosnia and Herzegovina features two key target zones (Chumavichi and Brezani) which have been developed since 2020.

The Chumavichi corridor is 5 km long, shallow, high grade Ag-Sb-Zn corridor of mineralization with close to 1Mt of ore drill defined thus far (not 43-101/JORC compliant). The average grade of the Chumavichi system is ca. 700 g/t Ag Eq with antimony grades in excess of 3-5%. At the Brezani target, Terra Balcanica intercepted 436 g/t AgEq over 19.6 m with a 9.9 m zone containing 746 g/t AgEq, which includes 1.42 wt.% Sb. Brezani also features a gold skarn with ca. 0.55 g/t Au over 55 to 88 m right from surface and a 650 m planar footprint.

The Company emphasizes responsible engagement with local communities and stakeholders. It is committed to proactively implementing Good International Industry Practice (GIIP) and sustainable health, safety, and environmental management.

Developing local, sustainable and resilient solutions for the challenges in mining

Prof Dr Goerke-Mallet, THGA



The Gronau-Epe cavern facility comprises more than 100 caverns used for the storage of crude oil, methane and helium. Plans are currently being developed for the storage of hydrogen and compressed air in connection with the generation of electrical energy. The cavern facility has been in operation for 50 years and reliably supplies the chemical industry, including companies in the Ruhr region, with high-quality brine.

The research collaboration between the City of Gronau, the Cavern Facility Citizens' Initiative, EFTAS Remote Sensing and the Research Center of Post-Mining at THGA has developed innovative responses to stakeholder challenges.

The comprehensive use of geoscientific information and open geodata and remote sensing data from a wide range of platforms forms the basis for reliable transparency regarding ongoing processes, improves mutual acceptance and helps overcome the "NIMBY attitude". The central element of binding communication stabilizes the social license to operate. To this end, both the public and schools are directly involved.

Digitisation and data Integration

Raw Materials Momentum from Mining Contractor Perspective

Thorsten Kratz, Thyssen Schachtbau



Europe is currently undergoing a crucial phase of change in its raw materials strategy, driven by the provisions of the Green Deal and the Critical Raw Materials Act (CRMA). This new policy momentum aims to secure domestic supply chains for materials critical to the digital and green transitions, setting ambitious targets (e.g., 10% domestic extraction by 2030).

As the primary implementers of extraction and development projects, mining contractors are central to realizing these goals. This paper outlines the opportunities and risks arising from the evolving European raw materials market from an operational perspective within the mining sector.

China as a Raw Materials Powerhouse – Europe’s Strategic Response

Leonard von Rummel, Blomstein



China’s export controls on critical raw materials and processing technologies—such as gallium, germanium, graphite, and rare earths—mark a turning point in the geopolitical raw materials order. They demonstrate how strongly industrial value creation, the energy transition, and security policy depend on stable raw materials supply chains. For Europe, this exposes structural dependencies, particularly in processing capacities and strategic minerals.

The EU is responding with a new raw materials and economic security strategy.

Instruments such as the Critical Raw Materials Act, the Economic Security Strategy, and initiatives such as ResourceEU are intended to diversify supply chains, accelerate European mining and processing projects, and mobilize investment. At the same time, new foreign trade law instruments are emerging—from export controls and investment screening to strategic partnerships.

From operational complexity to value creation

Bernardo Marinho, Innomotics



With “Pit to Port” (P2P), Innomotics GmbH has developed a mining MES that provides an integrated representation of the complex processes in mining—from extraction through to shipment. P2P connects operational processes, data flows, and decision support within a well-designed, mining-specific system architecture, thereby setting new standards for digital integration in mine operations.

The foundation for this mature solution was a structured, method-driven development process in which technological potential and operational requirements were systematically aligned. In close collaboration with Digital Mine GmbH, a conceptual framework was created that addresses key challenges in the implementation of digital systems in mining already at the design stage, thereby significantly reducing the effort required for subsequent implementation.

The presentation will show how P2P addresses the mining-specific challenges of an MES, how this methodological approach contributed to the development of P2P, what typical integration hurdles exist in practice, and how mine operators can use a comparable approach to gain early clarity on functional and operational requirements – as a basis for the rapid and sustainable digitalization of their processes.

Step by step towards the digital mine

Stefan Ebert, Digital Mine



The successful integration of digital solutions in mining requires a structured approach that starts from concrete operational requirements and identifies measurable value-creation potential. The digital.mine Framework provides a systematic methodology for the sustainable development of digital mines through an iterative, demand-driven transformation process.

The core strength of the framework lies in its analytical foundation: a comprehensive assessment of the current state forms the basis for precisely defining specific use cases with quantifiable added value. Through continuous, iterative adjustments, this systematic process develops step by step from the initial status assessment and definition of the target state through to successful implementation and seamless integration into existing operational workflows.

The presentation will show how the framework bridges the gap between a strategic digitalization vision and operational implementation by outlining practical steps for realizing digital ecosystems in mining. Using a concrete practical example, the application of the digital.mine Framework and its direct benefits for mining companies will be demonstrated.

How the Digital Twin unlocks the Art of the Possible in Mining Transformation Making

Philippe Dozolme, TBT/DNA-Blast Group



The mining industry faces a dual challenge: maintaining productivity while meeting increasing ESG and efficiency expectations. At the very beginning of the extraction chain, blasting holds the key to both operational performance and environmental impact. Yet, its optimization remains one of the least digitalized processes on mine sites.

This presentation introduces a proven methodology and field cases demonstrating how a fully integrated Blast Digital Twin can transform blasting from a cost center into a source of measurable value creation. Through data-driven design, remote supervision, and predictive modeling, blast digital twin enables the best experts to contribute from anywhere, using real-time data captured by connected sensors, drones, and MWD systems.

By linking blast outcomes to downstream processes such as crushing, fragmentation, and vibration control, this approach establishes a digital continuum that improves decision-making, traceability, and ESG performance.

Beyond technology, it illustrates how “the art of the possible” becomes tangible when human expertise meets digital intelligence, shaping a more efficient, transparent, and sustainable mining future.

Sustainability Commercial: AI-Driven Value Creation in Metals and Mining

Iulia Grischenko, beSirius



The metals and mining industry is experiencing a shift in how sustainability functions operate. Budget pressure, regulatory uncertainty, and rising stakeholder demands are forcing teams to demonstrate business impact beyond traditional reporting.

This presentation explores how mining companies are adapting to this environment. Drawing on industry examples, it examines practical challenges: fragmented data across multi-site operations, time-consuming manual processes, and limited capacity to support commercial decisions.

The session addresses how artificial intelligence is changing sustainability work – from structuring dispersed data to automating stakeholder responses to enabling supplier assessments. It discusses how companies connect sustainability information to procurement decisions, customer requirements, and operational planning.

The presentation concludes with observations on implementation priorities: technical approaches, organizational alignment, and practical steps for mining operations. Interactive polls and discussion will engage participants throughout.

AI and Data Engineering Bridge the Gap Between Geophysics, Remote Sensing & Geology

Dr Ziheng Xiang, Deep Optica



Geophysical, including remote sensing interpretation remains one of the most powerful tools in mineral exploration, yet traditional approaches often produce subsurface models that are mathematically valid but geologically implausible. This talk explores how AI and modern data engineering pipelines can systematically embed geological knowledge into the inversion workflow – from prior model construction to regularization and post-inversion interpretation.

We present a framework that combines synthetic geological modeling, physics-informed machine learning, and multi-source data fusion to constrain inversion outputs toward structures consistent with known mineralization systems.

By generating large-scale 3D synthetic training environments that encode deposit-scale geological features – faults, lithological contacts, alteration halos, and ore body geometries – we train surrogate models that dramatically reduce computational cost while preserving geological fidelity.

The approach is demonstrated on porphyry and sediment-hosted copper systems, where integrating magnetotelluric, gravity, and geochemical datasets yields inversion products that exploration geologists can directly interpret and act upon. We discuss practical lessons in data pipeline design, model validation, and the path toward 4D subsurface prediction that captures both spatial structure and temporal evolution of mineralizing systems.

Exploration for accelerating the raw materials turnaround

Current state and expectations for the policy framework and market developments

Florian Stanko, Bundesverband Geothermie



Over the past five years, the regulatory framework for geothermal projects in Germany has changed significantly. The presentation examines the latest legislative developments and their impact on the expansion of geothermal.

Accelerating the development of deposits of critical raw materials

Dr Martin Wedig, FAB / VRB



Access to critical raw materials is a key prerequisite for the transformation of German and European industry towards a climate-neutral, digital, and resilient economy. Germany has geological potential that has so far been insufficiently explored. At the same time, there are international opportunities to participate in raw materials extraction projects abroad and thereby increase security of supply through partnerships.

A new exploration funding programme is intended— in line with the objectives of the EU Critical Raw Materials Act (CRMA)—to accelerate the exploration and subsequent development of critical raw materials deposits. The aim is to increase the participation of German companies in international exploration projects and to make a significant contribution to future raw materials production.

The approach is demonstrated on porphyry and sediment-hosted copper systems, where integrating magnetotelluric, gravity, and geochemical datasets yields inversion products that exploration geologists can directly interpret and act upon.

We discuss practical lessons in data pipeline design, model validation, and the path toward 4D subsurface prediction that captures both spatial structure and temporal evolution of mineralizing systems.

Deep Exploration in the Erzgebirge Boosted by Advanced Exploration Technologie

Andreas Knobloch, Beak Consultants



The discovery of deep deposits by surface methods is challenged by the distance from the surface to the mineralization as a source of a geochemical signal. DeepBEAT is a Horizon Europe funded project to advance geochemical methods for the identification of deep-seated mineral deposits, propelling Europe to the forefront of scientific innovation in the field. The aim of the project is to develop interdisciplinary, holistic, and sustainable exploration approach that combines deep geochemical knowledge to geophysics and social aspects.

DeepBEAT will provide tools to comprehensively map available resources, facilitating informed planning for sustainable exploration and production practices aligned with the goals of responsible resource management. Recognizing the crucial role of public support, DeepBEAT is dedicated to promoting awareness, aiming to engage scientists, exploration and mining companies, and stakeholders in meaningful interactions with the public.

The final outcome DeepBEAT will be a workflow which addresses these aspects by two means: I) DeepBEAT plans to engage with the local communities at the test sites to learn about concerns, hesitancy and what is the emotional core of these. Experiences from these events will be included in exploration workflow as an integral part, following the principles of free, prior, informed consent, which requires to interact with communities at a very early stage.

II) DeepBEAT proposes ten novel technological developments, all designed to minimize impact on environment and maximize sustainability. These research and innovation developments have the potential to push the limits of surface geochemical exploration to another level. They comprise a) new insights to ultra-high resolution analytical chemistry, b) increasing sampling strategy efficiency, c) introducing groundbreaking new concepts of dealing with elemental measurement data, d) reducing exploration costs by sample selection, e) testing novel phyto-geochemical media, and f) introducing UAV assisted biogeochemical sampling. Detailed understanding of the deposits complements the workflow to allow the understanding of the mineralization as part of mineral systems and AI-assisted 3D mineral prospectivity modelling.

The DeepBEAT project (www.deepbeat.eu), running from October 2024 until September 2027, is coordinated by Helmholtz-Zentrum Dresden-Rossendorf. The project consortium consists of eight partners and five associated partners from Germany, Finland, France, Czech Republic, and Canada.

Three test sites with varying deposit styles were chosen to conduct the research:

- 1) Volcanic massive sulphide mineralization system at Saramäki, Finland;
- 2) Granite-porphyry related Li-Sn-W deposits at Erzgebirge-Krušné hory area, Germany;
- and 3) Alkaline metasomatite REE-Zr-Mo mineral system at Hůrky, Czech Republic.

Exploration project “Löwenstern”

Andre Zucker, ANGER / Sebastian Stelter, Kupfer Cooper Germany



1. Introduction ANGER and KCG
2. Historical Researches Former exploration activities and results in the region
 - KCG pre-drilling exploration work
3. Permitting
 - Exploration permit
 - Initial exploration programme: Work permits/ operational plans
 - Community engagement
4. Planning
 - Locations
 - Well design
 - Drilling techniques
 - Time schedule
5. Exploration drilling first campaign
 - Green field issues
 - Challenges: mud losses (porous and karstic horizons), CO2 or brines, palaeo-soils (incompetent conglomerate)
 - Problem solving
 - Drilling technique adaptation
 - Legal issues
6. Evaluation of the drilling results to date
 - Drilling Statistics
 - Geological observation
 - Borehole geophysics
 - Planned drilling
7. Next planned steps
 - Advanced drilling: multi-lateral
 - Further geotechnical and hydrogeological investigation
 - Stakeholder engagement: Visibility, Transparency, Integration
 - Early Studies
 - Challenges: skilled worker shortages, logistics

Panel: Global trends in Innovation & Digitalization

Digital Twins and AI for Tailings Management and Water Efficiency

Luis David Sepulveda Herrera, ALAYA Digital Solutions



Tailings management must balance operational safety, water efficiency, and ESG compliance. This presentation introduces the application of the TRIIA Digital Twin to tailings storage facilities in Chilean copper mining, integrating operational data, topographic surveys (drones and LiDAR), and historical records. The model combines physical simulation of the deposit with machine learning algorithms, achieving geometric accuracies above 90%, validated through error metrics.

Based on this, discharge strategies are optimized, reducing water consumption by up to 42% and rehumectation areas by 22%. In addition, dynamic deposition planning extends the facility's operational lifespan. The integration of generative AI enables efficient analysis of large-scale datasets, enhancing traceability, supporting GISTM compliance, and improving ESG-aligned decision-making.

From Data to Decisions: AI & Autonomous Systems in Real Mining Operation

Jairo Kenyi Munoz Espinoza, Tech Innovation



The mining industry is no longer limited by data availability, but by its ability to transform data into timely and effective decisions. While digitalization has enabled widespread data collection across operations, many processes still rely on manual interpretation and delayed response.

This presentation explores how Artificial Intelligence and autonomous systems are enabling a shift from data generation to decision execution in real mining environments. Drawing from field experience in complex and high-variability operations, it highlights how technologies such as computer vision, edge AI, autonomous drones, and robotics are being deployed directly within operational workflows.

The presentation will focus on practical insights from real implementations, including the challenges of deploying AI systems in non-ideal conditions, the importance of on-premise and edge-based architectures, and the transition from monitoring systems to decision-support and autonomous action.

OT- IT Convergence in Potash Mining Operation: Enabling data availability for digital mining applications

Eliana Paredes, Accenture/Woman in Mining Chile



Background:

A large global mining enterprise developing a Potash operation in Canada has positioned digital transformation as a key enabler for operational excellence. A central aspect of this strategy is the structured and secure enablement of Operational Technology (OT) data from a Distributed Control System (DCS) into a Historian system, enabling controlled availability to applications supporting systems across the mining value chain.

Objectives:

- Enable operational variables from a DCS into a Historian, as process signals become available during the mine critical phases.
- Identify the OT data required for operations activities and reporting to support business decision making, enabling controlled availability to enterprise Information Technology (IT) applications across the mining value chain.

Approach:

The solution is based on an OT-IT architecture aligned with recognized industrial standards such as ISA 95 and IEC 62443, using OPC UA communication to enable data transfer between the DCS and the Historian. The solution aims to extract and to structure OT signals with the purpose to make them available to the IT world. A structured process for tag mapping, contextualization, and validation was applied to ensure the availability of the data.

In parallel, structured workshops and working sessions take place with cross-teams and the business to capture data requirements, define data sources, and ensure that defined OT data meets the required format and quality for effective IT consumption. The approach leverages established Historian usage and governance practices widely applied in industry, adapting them to the local mining context in this specific client. The architecture was designed for scalability and reliability, with flexibility to support expansion.

Results and Impact:

Early outcomes indicate a reduction in point to point integrations and improved visibility during initial activities phases, with monitoring, analytics, and reporting capabilities progressively enabled to meet enterprise systems and application requirements. The application of well-established industry practices, where this technology has been proven and reliably operated, has supported more efficient adoption and reduced integration risk in the operation, providing a data foundation for future initiatives such as predictive maintenance, operational optimization, and continuous improvement.

From WIM perspective, women collaborated across technical and leadership roles at different levels of seniority, supporting knowledge transfer and delivery continuity across project phases, and contributing to gender equity in mining digitalization, a traditionally male represented technical environment.

Field Validation of Advanced Mining Technologies

Ali Erdesat, TU Bergakademie Freiberg



Mining 4.0 represents a significant transition towards enhanced health and safety, real-time operational coordination, and more responsible and sustainable mining practices. This is made possible by merging advanced technologies such as IoT, sensors, remote control, and artificial intelligence, which are the key subjects examined in the NetHelix (EU-funded) project.

In the context of validation, the underground research and teaching mine “Reiche Zeche” of the Technical University Bergakademie in Freiberg (TUBAF), known in German as Forschungs- und Lehrbergwerk Reiche Zeche (FLB), plays a crucial role in testing technologies and communication tools prior to their deployment within real industrial environments.

The FLB mine is essential to bridging the gap between lab-scale and full-scale industrial implementation. The mine offers specific conditions that are key for validating the performance, safety, and reliability of emerging mining technologies, as well as access to geological and spatial conditions.

In the context of the NetHelix project, a number of developed technologies and tools were tested at the FLB mine site. The current research highlights how the mine contributed during the testing phase by offering a controlled operational environment, flexible infrastructure, historical relevance, Wi-Fi coverage in central areas, and the capability to simulate use cases and different scenarios without interfering with current operations.

It must be emphasized, that these resources enable testing under conditions which are not feasible to simulate in a lab or in surface. This combination of resources, safety and flexibility makes the research mine invaluable for testing new technologies, achieving more reliable results, and increasing their TRL and end-user acceptance.

Panel: Sustainability Standards as a
Cornerstone of a Just Energy Transition

Keynote: Opportunity and challenges, importance of standards and guidance

Sascha Raabe, United Nations Industrial Development Organization (UNIDO)

Lucia de Carlo, German Federal Ministry for Economic Cooperation and Development (BMZ)

Olumide Abimbola, Africa Policy Research Institute (APRI)

Panel-Discussion

- Juliane Kippenberg, Human Rights Watch
- Tobias Kind-Rieper, Anglo American
- Rebecca Burton, Initiative for Responsible Mining Assurance
- Dr Lukas Förster, DMT
- Johannes Danz, Mercedes-Benz

The session was hosted by the United Nations Industrial Development Organization’s (UNIDO) Global Alliance for Responsible and Green Minerals, in collaboration with the German Federal Ministry for Economic Cooperation and Development (BMZ).

Three keynotes set the scene, reflecting the perspectives from UNIDO, BMZ, and African mineral producing countries.

The discussion examined how credible sustainability standards can strengthen environmental, social and governance (ESG) performance, enhance transparency and accountability across mineral value chains, and build trust among stakeholders. Panelists emphasized that robust standards must be complemented by policies that promote local value addition, respect for human rights, and equitable benefit-sharing to ensure that the accelerating demand for critical minerals contributes to a just and inclusive energy transition.

Thinking ahead: future usage scenarios

**Diffusion of Eco-Innovations in Post-Mining:
EIPs for the Repurposing of Industrial Land**

Dr Julia Haske, THGA University



Diffusion of Eco-Innovations in Post-Mining: EIPs for the Repurposing of Industrial Land Global climate neutrality means an energy transformation from traditional sources to green and renewable technologies. This shift also goes hand in hand with aspects of sustainability, transformation, and appropriate innovations.

The challenges for energy security, employment effects, and economic growth are exemplified in the coal mining sector. The EU and China are examples of the impact of sector dependencies in production and consumption, which are taken into account in the field of post-mining research.

The reuse of brownfield sites and the consideration of geopolitical developments in the market have a direct impact on the orientation of innovation and industrial policy. The dual strategy of expanding domestic innovation and resources on the one hand, and internationalization through the expansion of targeted trade routes on the other, is a possible starting point for cooperation between the EU and China. One case study is the Eco-Industrial Park (EIP) as an eco-innovation model in the mutual diffusion of post-mining management. Targeted joint capacity building at the level of formats, networks, pilot projects, and standardization work can benefit both sides.

Geotechnics in remediation mining

Silvio Engelmann, CDM Smith



Even decades after the end of lignite mining, mining-related geotechnical hazards persist on spoil heaps in the Lusatian and Central German mining districts, particularly in connection with the liquefaction susceptibility of the existing spoil materials.

On behalf of LMBV, CDM Smith SE addresses a wide range of geotechnical issues in remediation mining for the assessment and stabilization of spoil heaps from former open-cast mines—from baseline investigations and hazard analysis through the planning of remediation measures to construction supervision and final stability assessments.

Effective Communication and Engagement Strategies for Mining Projects

Dr Hakan Arden Kahraman, DMT Istanbul Merkez Subesi



The mining sector is integral to modern infrastructure and plays a crucial role in facilitating the global energy transition. However, it frequently encounters substantial challenges regarding public perception, which can hinder its operations. Many of the current communication strategies employed across the mining industry globally fall short of effectively conveying the essential nature and benefits of mining activities. This often leads to mistrust and opposition from local communities, ultimately jeopardising the social license to operate that is critical for project success.

In this paper, the key deficiencies and their root causes in existing communication practices are identified and analysed. Subsequently, a detailed “cradle-to-grave” communication framework is proposed, tailored specifically for mining projects.



This framework highlights the need to evolve communication methods from merely disseminating technical data to fostering empathetic and inclusive interactions with local communities and society at large. It advocates for transparent, proactive engagement that utilises accessible language and diverse communication channels throughout all stages of a project’s lifecycle.

Additionally, it highlights the need to enhance and develop the benefits that mining companies bring in terms of Corporate Social Responsibility (CSR), illustrating its positive impacts not just on the local community but on broader societal levels as well. By implementing these innovative, project-specific communication strategies, the mining industry has the potential to significantly improve public perception, secure its social license collaboratively, and ensure that its vital contributions to society are recognised and embraced in everyday life.

Combined seismics for monitoring of THM behaviour of fault zones in clay rocks

Dr Rüdiger Giese, GFZ Helmholtz Centre for Geosciences



Understanding the coupled thermo-hydro-mechanical (THM) behaviour of fault zones in naturally fractured rocks is crucial for basic research and applied science, as well as for the safety assessment of repositories for radioactive waste. The international research project CHENILLE investigates important questions concerning the effects of high temperatures on shear zones and processes of fault reactivation in shale formations. We report on the results of seismic monitoring of a thermally controlled in-situ fluid injection experiment at a strike-slip fault zone, conducted between 2021 and 2025 at the IRSN’s Tournemire underground research laboratory (France). The results of acoustic emission (AE) and active seismics show the potential for monitoring fault structures in mines.

Responsible Supply Chains

Regional Capabilities and the Organization of Global Mining Value Chains

Birgit Linnamäe, Nordic Vision



Examining how regional industrial capabilities shape the organisation and performance of global value chains in mining and heavy industry. Focusing on the interplay between measurement, embedded software, data management, and manufacturing, the paper argues that value creation does not result from individual technologies but from their integration across organisational and national boundaries.

Using case evidences from digitalization and industrial firms, the analysis shows how regional clusters combine specialised competencies with global reach. The cases illustrate non-linear value chain configurations, where suppliers, partners, and competitors may overlap, and demonstrate why capability-driven integration is increasingly critical in mission-critical mining and infrastructure environments.

Responsible and sustainable Sourcing from CAHRA regions

Achim Klotz, Goode Europe



Goode Electric Materials (Goode) is an advanced functional materials technology company. The company specializes in R&D, design, production and sales of electrical and thermal insulating composite materials. These materials and parts are applied in low-carbon energy industries such as electric vehicles, energy storage solutions, clean energy power generation (wind, solar, water, nuclear), and ultra-high voltage transmission and distribution. The company advocates a sustainable development strategy, works with global partners to move towards the “30-60 carbon goal”, and helps the world transition to clean energy.

By doing so, Goode observes social and environmental stewardship and corporate governance (ESG) as well as transparency and traceability within their supply chains, especially in Madagascar. Goode and DMT work together in the field of ESG and transparency implementation according to international standards adjusted to local challenges. The presentation will highlight major achievements, lessons learned, setting benchmarks and an outlook to further strengthen responsible and transparent supply chains.

Decentralization of Regulatory Agencies a Step Towards Traceability

Gad Amoako Amankwaah, Green Evolution Ventures



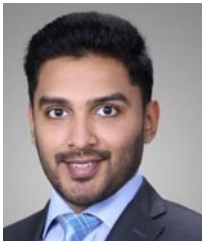
The contribution of artisanal and small-scale mining (ASM) to the total gold exports in Ghana has increase from 3.2 % in 1990 to 52 % in 2025. This growth is not in confluence with decentralization of appropriate regulatory agencies as mining moves to new territories without agency offices to enforce regulations and implement policies to improve traceability in gold trading and to improve sustainable mining. Though Ghana has several regulations which seeks to ensure traceability and sustainable mining such as Minerals and Mining (Generals) Regulations, 2012, Minerals and Mining Act, 2006, Environmental Assessment Regulations, 1999. This paper seeks to contribute, improve and provide more equipoise understanding of the sector and its challenges in Ghana.

For a better understanding of the sector a multi-stakeholder dialogue was held in some selected ASM mining district in Ghana to help improve future policy document in the sector. In light of this, the paper draws on the insights from existing papers, focus group discussions, in-depth interviews, participant observation and consultations with gold buyers, gold exporters, miners, smelters and goldsmith to understand, correlate and identify the obstacles to traceability of gold and sustainable mining to expound actions needed to ensure traceability of gold and sustainable mining in ASM. This paper reveals that without decentralizing appropriate regulatory agencies which will make it easy for miners, gold buyers and goldsmith to get licenses and permits without prolong delays, traceability and sustainable mining would only be rhetoric in the ASM sector.

Paradoxically the paper reveals that, the goldsmith, gold buyers and miners believe they are seldom consulted in policy formulation. It also reveals that traceability is tandem with sustainable mining and it can be achieved if miners, gold buyers and goldsmith are duly registered and have the requisite permits to operate to ensure self-policing to reduce illegalities, ensure traceability and sustainable mining.

Strategic Pathways to De-Risk and Decarbonize Rare Earth Supply Chains

Arun Vijayan, Beroe



Rare earth supply chains remain heavily exposed to single-country concentration, carbon-intensive processing, and midstream bottlenecks. This presentation outlines strategic pathways to build resilient, low-emission rare earth value chains by 2030. It examines emerging China+1 diversification trends, the rise of cleaner separation technologies, and the role of policy instruments such as the IRA and CRMA in accelerating sustainable midstream capacity. Using global case examples, the session highlights how sourcing strategies, recycling ecosystems, and transparent ESG frameworks can reduce geopolitical vulnerability while supporting responsible growth in magnet and alloy supply. The talk distills actionable, industry-driven solutions for governments, OEMs, and downstream buyers seeking to balance security, sustainability, and competitiveness.

The Future of Supply Chains:

Emerging Technologies and Sustainable Sourcing in the Mining Industry

Marcela Celis Cisterna, Codelco / Women in Mining Chile



The mining industry is currently at a turning point. Growing demand for critical minerals, increased exposure to disruptions in global supply chains, and mounting pressure to meet environmental, social, and governance (ESG) standards are forcing a fundamental rethink of how sourcing and supply processes are managed. In this context, the supply chain is no longer a purely operational, cost-driven function, but has become a key driver of resilience, sustainability, and long-term value creation. This paper reflects on how emerging technologies, such as artificial intelligence, advanced analytics, the Internet of Things (IoT), and digital traceability platforms, are bringing tangible changes to supply chain management in the mining sector.

Their value lies not only in efficiency gains, but in their ability to support better-informed, more anticipatory, and more integrated and transparent decision-making.

A central focus of the analysis is the management of Scope 3 emissions, which account for the largest share of the sector's environmental footprint and represent one of its most complex challenges. Drawing on a data-driven approach supported by artificial intelligence, the paper proposes a maturity model that enables companies to move beyond measurement toward more effective management and reduction of these emissions. This approach integrates total cost of ownership, supply risk, and sustainability considerations into sourcing and contracting decisions.

Effectively addressing Scope 3 emissions also requires new leadership models. Experience shows that collaborative approaches, capable of influencing extended value chains, significantly increase the adoption of more responsible and transparent strategies. In this context, diverse and inclusive leadership and particularly women's leadership emerges as a strategic enabler of long-term sustainability.

The paper also includes the case of Chile as a relevant mining reference, highlighting meaningful progress, industry-driven initiatives, and remaining gaps, especially in standardization, data transparency, and the adoption of digital capabilities across the extended value chain.

In conclusion, the future of mining supply chains will depend on organizations' ability to coherently integrate technology, sustainability, and organizational transformation, building supply networks that are more resilient, intelligent, and better prepared to meet the challenges of the global energy transition.

Panel: Executing & Financing Momentum

Development of strategies – training of skilled workers in the mining industry

Toni Schmidt, Thyssen Schachtbau



If we aim to use the “Raw Material Momentum” in the EU, and especially in Germany, to strengthen material and energy resilience, one of our greatest challenges will be ensuring an adequate supply of skilled workers. Although the mining sector is already highly mechanized and automated, we still need skilled hands alongside minds and machines.

Germany’s traditional vocational training system—based on cooperation between companies and vocational schools under the supervision of chambers such as the Chambers of Industry and Commerce—is well known for its high quality and strong practical orientation. However, demographic change is making it increasingly difficult to attract sufficient applicants, particularly for physically demanding occupations. The development of effective strategies to counteract the shortage of skilled workers therefore requires both a scientific foundation and a practical framework. The resulting insights should enable companies to meet their own workforce demands more effectively.

An analysis of literature and statistical data reveals significant fitting problems between job seekers and jobs. Consequently, unemployment and shortages of skilled workers can coexist, as can unfilled vacancies and unsuccessful applicants. The main causes of these mismatches lie in differences such as location, qualification, and expectations. Addressing these issues requires recognizing that career choice is influenced by personality, social environment, prestige, gender, practical experience, job titles, and other factors – and that the career choice is not a single decision, but an ongoing process.

Building on this theoretical foundation, a strategic model designed to be both universally applicable and practically useful is developed. The proposed “ABBA Model” describes four steps in the pathway from student to skilled worker: Analysieren (analyse), Bekanntmachen (promote), Begeistern (inspire), and Ausbilden (train).

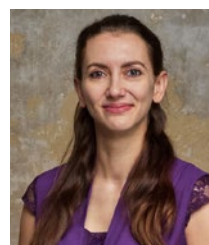
The model is conceived as a continuous loop based on three key principles: honesty and transparency, evaluation and cyclicity and sustainability and a holistic approach. The Analyse phase provides the foundation for understanding all aspects of a specific training program; the three subsequent phases apply this knowledge to raise awareness, motivate applicants, and ensure high-quality training.

To validate the model’s plausibility, a triangulation of three qualitative social research methods is applied. A systematic theory comparison demonstrated the model’s compatibility with established theoretical frameworks. Expert interviews provide interpretive insights into how the model can address skills shortages. Finally, a case study tested the model theoretically on the training program “Berg- und Maschinenmann.” The triangulation indicates that the model integrates existing academic knowledge, expert experience, and practical applicability.

In future work, this model will serve as a basis for recommendations to the various stakeholders involved in improving Germany’s traditional vocational training system. While this system remains a great asset, proactive adaptation is essential to keep it up to date and attractive for upcoming generations.

Mining Engineers as Communicators?! Transforming Mining Curricula

Dr. Stefanie Walter, Lots



The expectations placed on mining projects, particularly by society, are immense, and most ventures are characterised by a lack of local acceptance. In contrast, modern mining education focuses on developing technical skills. However, future professionals must also consider public acceptance and local engagement, since even well-planned projects can fail due to public opposition without communication and dialogue.

This presentation demonstrates how communication has become an integral part of the mining curriculum and explains the components included in the newly developed module; it also illustrates how theory and practice are connected.

By developing new skills, aspiring professionals will be better equipped to generate acceptance for their projects. This approach supports a sustainable domestic supply of resources for and with society, and prepares future professionals to act as both engineers and communicators.

Blended Capital Models for European Critical Mineral Mining Projects

Michael Seeger, MX Mining Capital Partners



Europe has high-quality critical-mineral resources, yet few projects advance from exploration to construction. The challenge is not geology but capital architecture. Traditional European finance enters mining projects only after the project feasibility is complete; institutional investors avoid early-stage risk, and EU funding largely targets downstream battery value chains, leaving upstream mining under-supported.

This paper proposes a blended-capital model combining streaming and royalty finance, industrial offtake equity, EU innovation and Just-Transition instruments, DFI catalytic capital, and private infrastructure funding. The approach bridges the gap between resource definition and bank finance, accelerates de-risking, and supports disciplined progress to construction.

Examples demonstrate how industrial partners can anchor feasibility funding for mining projects, EU programmes can co-fund enabling infrastructure, and dual-use SPVs unlock ESG-linked capital. A structured blended-finance model is essential to secure European raw-material sovereignty and build resilient energy-transition supply chains.



Connecting Capital, Projects & Policy*

Stefan Müller, DGWA

*No abstract available at the editorial deadline

Panel: CRMA – „Green-Deal-Paradox“?

CRMA – Current Status and What's Next?

Ivonne Arenz, Verband Bergbau, Geologie und Umwelt e. V. (VBGU)



The **Critical Raw Materials Act (CRMA)** represents the European Union's key legislative framework for securing a resilient, sustainable and competitive supply of critical and strategic raw materials. Its objectives are to strengthen domestic extraction, processing and recycling capacities, diversify supply chains, accelerate permitting procedures for Strategic Projects, and reduce Europe's strategic dependencies while maintaining high environmental standards.

At the same time, the implementation of these objectives reveals a fundamental challenge: the transition towards climate neutrality requires substantially more critical raw materials, whereas regulatory and societal constraints often limit their domestic supply. This tension constitutes the **Green-Deal-Paradox**.

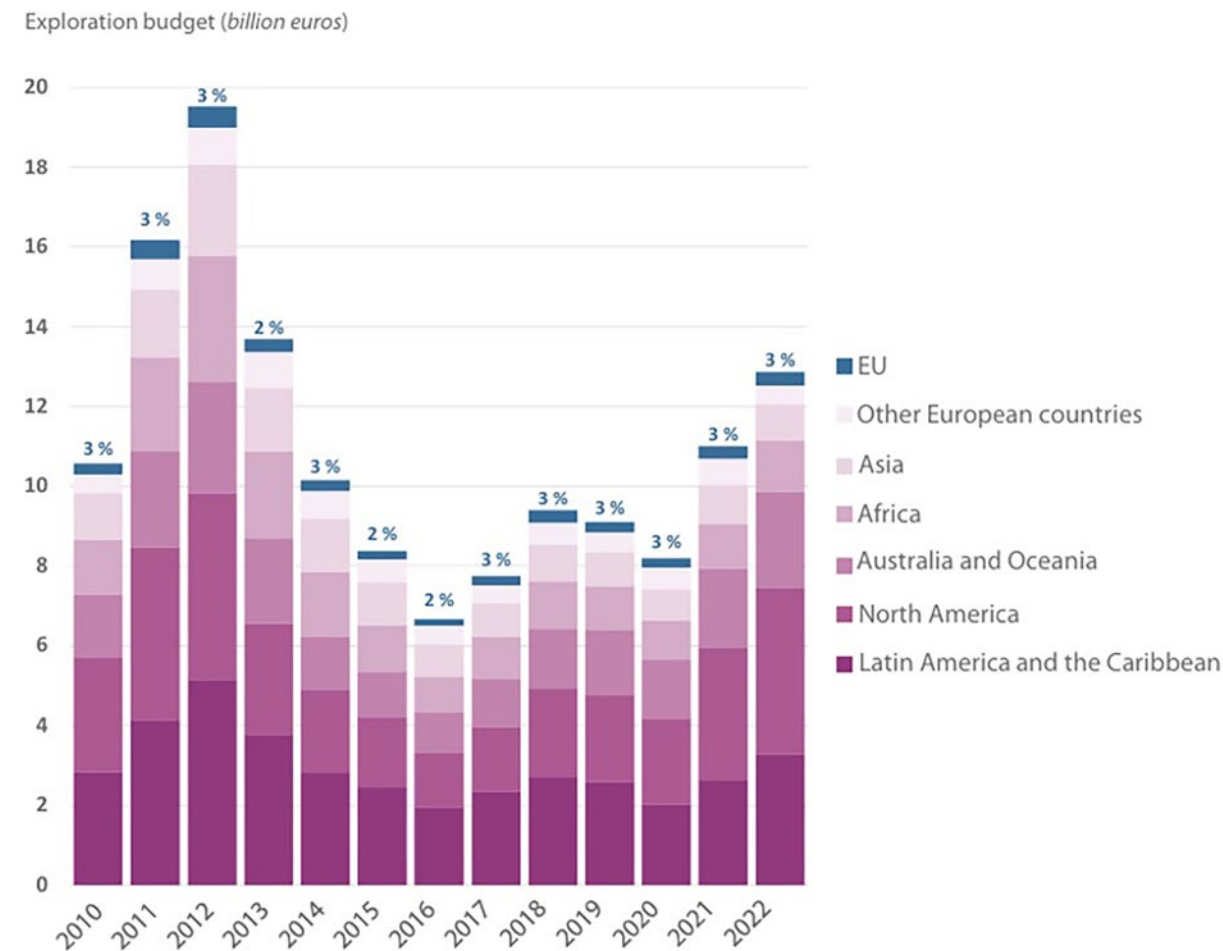
Since its adoption, the CRMA has provided a crucial and valuable starting point for improving Europe's raw material security. During the first application round, around 170 projects applied for Strategic Project status, of which 47 projects within the European Union were selected. While Strategic Project designation offers significant advantages, particularly through streamlined permitting procedures and increased visibility, it does not automatically provide financial support. A second application round is currently underway.

Simultaneously, the CRMA is already being further developed within the framework of the **RESourceEU Action Plan**. The results of the revision are expected at the end of this year. The Action Plan introduces additional instruments, including a financing hub, a Critical Raw Materials Centre, a strategic stockpiling pilot and further measures to simplify permitting procedures.

Despite this progress, substantial structural bottlenecks remain. Key challenges include insufficient exploration activities, limited processing technologies and facilities, inadequate access to financing and lengthy permitting procedures. These findings are consistent with the conclusions of the **European Court of Auditors (Special Report 04/2026)**, which identifies underdeveloped exploration across many European regions (**see figure 1 by Spezial Report 04/2026**), insufficient processing capacity, comparatively high electricity costs and persistent financing barriers, particularly for exploration projects. Environmental and social requirements, including those arising from European environmental legislation (e.g. EU Water Framework Directive -2000/60/EC-), continue to represent major constraints on expanding domestic extraction.

Figure 1 shows:
The European Union currently accounts for only approximately 2–3% of global mineral exploration expenditure, highlighting a significant strategic weakness.

Global exploration expenditure 2010-2022*



* Data includes spending for gold, silver, base metals (copper, nickel, zinc and lead), cobalt, lithium, molybdenum, platinum group metals, diamonds, triuranium octoxide, rare earths, potash and phosphate.

Source: ECA, based on Commission information.

The growing demand for lithium, copper, rare earth elements and other critical raw materials, driven by the Green Deal and the large-scale deployment of renewable energy technologies, batteries and electromobility, will further intensify these challenges. Resolving the Green-Deal-Paradox therefore requires a balanced policy approach that combines ambitious climate and environmental objectives with an effective raw materials strategy.

This includes systematically expanding exploration of domestic resources, establishing a more predictable regulatory framework to reduce investment risks, strengthening de-risking financial instruments—particularly for exploration—and promoting local value creation through greater community participation. High environmental standards must remain a cornerstone of European policy, but they should be implemented in a manner that enables, rather than unnecessarily delays, the development of strategically important raw material projects.

Only by reconciling these objectives can the CRMA achieve its overarching goal of strengthening Europe’s strategic autonomy and ensuring secure, sustainable and competitive critical raw material value chains. Ultimately, the EU needs a balanced raw materials and supply chain strategy to achieve this.

Mining in the 21st century:**Energy integration, circular economy and sustainable reuse**

Blas Urioste, KSL Kupferschiefer Lausitz



Mining is undergoing a paradigm shift: instead of focusing solely on raw material extraction, energy integration, climate neutrality and the circular economy are moving to the heart of modern mine concepts. Using KSL Kupferschiefer Lausitz's Spremberg copper shale project as an example, the presentation shows how holistic planning can drive the transformation of mining.

Key areas of focus include the electrification of the entire underground fleet, the integration of renewable energies (photovoltaics, wind and storage), and the use of mine water, ventilation air and mine heat to supply regional heating networks – even beyond the operating life of the mine. By almost completely backfilling the underground cavities, the land required for tailings is reduced, subsidence is minimized and mine water is managed in a targeted way. In addition, parts of the tailings are processed into marketable construction materials.

An innovative outlook shows how shafts can contribute to the energy transition after closure as underground pumped-storage facilities. The result is a mining concept that combines value creation, climate protection and regional development – and serves as a blueprint for “new German mining”.

Altmark Lithium Extraction (ALE):**Sourcing Lithium for Europe's Raw Material Sovereignty**

Dr Axel Wenke, Neptune Energy Innovations



The Altmark Lithium Extraction (ALE) project is a flagship example of how legacy fossil infrastructure can be reimagined to support a just and sustainable transition. Located in Saxony-Anhalt, Germany, the Altmark gas field; once the second-largest in the EU with over 213 bcm of gas produced since 1969; is now being redeveloped for lithium production from deep Permian brines. Historical data and recent pilot testing confirm lithium concentrations averaging 441 mg/l below the Free Water Level (FWL), with peaks up to 640 mg/l in the aquifer.

Total mean in-place lithium resources are estimated at 40–50 million tonnes LCE, enabling long-term production potential of >25,000 tpa LCE; enough to supply a significant share of Germany's post-2030 lithium demand.

First explored and partially developed in the 1980s, the lithium potential was left untapped due to political and market shifts. Redevelopment began in 2022, with Germany's first lithium-from-brine production license Jeetze awarded in 2024. Successful onsite DLE pilots have already produced battery-grade lithium carbonate. A demonstrator unit is planned to be operative in 2027/28, commercial production is targeted for 2030.

CRMA-Panel-Discussion



Dr Andreas Scheck, Neptune Energy



Blas Urioste, KSL Kupferschiefer Lausitz



Hildegard Bentele, Member of the European Parliament



Dr Matthias Koehler, BMW



Modelling & Risk Management

Portable Gas Analytics for Sustainable Georesource Management

Egbert Jolie, Fluxtec



Gas analytics plays an increasingly important role in mining and the sustainable management of georesources. By measuring gas emissions both at the surface and underground, gas analytical methods provide valuable insights into physical, chemical, and biological processes in abandoned as well as active mining environments.

Beyond classical mining activities, these methods are highly relevant for other georesource applications such as geothermal energy, subsurface exploration, and the monitoring of waste heaps and legacy mining sites. Technological innovations have led to the development of portable, flexible, and field-deployable gas measurement systems that deliver rapid and reliable results. These approaches complement established monitoring and exploration techniques by enabling high spatial and temporal resolution data collection.

Their application supports improved risk assessment, environmental protection, and resource efficiency, thereby contributing to sustainability goals. Moreover, transparent and accessible gas monitoring can enhance public trust and social acceptance of mining and georesource utilization. The abstract advocates for a broader and more intensive integration of innovative gas analytics into monitoring strategies, combined with participatory approaches that actively involve society in decision-making processes.

Urgent action to monitor the suddenly flooded salt mine Praid

Thomas Schicht, K-UTEC



The Praid salt mine in Romania was flooded in May 2025 by the Corund River, leading to the submersion of underground mine workings. To detect early signs of collapse, SALROM SA implemented a temporary microseismic monitoring system using high-frequency seismic sensors. Seven stations were set up to monitor micro tremors, which indicate geomechanical and chemical processes occurring underground.

While sensors could not be initially placed in the flooded levels, data is collected remotely for analysis. The system identified seismic activity clusters, helping to map stress zones. Future studies will use FEM and BEM models to analyze stress changes and back-calculate rock mass strength. This method also integrates Acoustic Emission (AE) data to predict rock strength and deformation. The goal is to enhance safety by improving rock mass parameter predictions, offering a non-invasive tool for better mine stability and risk assessment.

GeoRisk-Analyser - movable, high-precision deformation monitoring of geohazards

Frank Kubisch, TU Bergakademie Freiberg



GeoRisk-Analyser is a mobile, self-sufficient sensor technology for deformation monitoring of geohazards, combined with smart analysis software as a service. Critical structures and underground applications are monitored with high precision in the sub-millimetre range through combined LSW settlement, inclination and/or radar distance measurements.

The measured data is analysed in real time using deformation models from geoengineering, future movements are forecast, and intelligent warnings are generated. With its unique combination of high-precision measurement technology, intelligent software analysis and predictive models, GeoRisk-Analyser sets new standards in geotechnical monitoring and offers a forward-looking solution for the protection of infrastructure and the environment.

Sentinel AI – the new LLM agent System in geotechnical engineering

Dr. Karsten Zimmermann, DMT GmbH & Co KG



Traditional monitoring relies on labor-intensive manual analysis of vast sensor data, project documents, norms, and historical records, often leading to delayed risk assessments, overlooked anomalies, and inefficient resource allocation. Sentinel, developed by DMT GmbH & Co. KG, is motivated by the need to overcome these limitations through creative AI integration.

By automating complex evaluations within the established DMT SAFEGUARD platform, it empowers forward-thinking solutions that enhance safety, scalability, and sustainability in infrastructure management in mining and civil engineering.

Sentinel operates as an innovative AI assistant, seamlessly embedded in DMT SAFEGUARD – a web-based monitoring platform that already handles multi-sensor networks, data fusion from any format, secure German-hosted storage, and interactive visualizations like maps, diagrams, and real-time 3D models (e.g., BIM). Built on a Large Language Model (LLM) agent system, Sentinel functions as a virtual team of specialized agents collaborating iteratively:

- **Monitoring Expert:** Analyzes user queries (e.g., “What’s the current slope stability status?”) and devises solution strategies using real-time sensor data.
- **Data Specialist:** Queries and retrieves relevant information from databases, including sensordata, regulations, publications and past projects.
- **Validator:** Cross-checks outputs for accuracy, mitigating risks like AI hallucinations.

This workflow draws from comprehensive data sources to perform automated risk analyses, anomaly detection, early warnings, and prioritized action recommendations. Users interact via a chat-like interface integrated into SAFEGUARD’s dashboards, enabling mobile access, alarm systems, and document management for maintenance, audits, and safety protocols. The system ensures reliability through validated data integration and expert oversight.

Sentinel advances geotechnical monitoring by shifting from reactive, manual processes to proactive, AI-driven intelligence—reducing manual research massively and preventing costly secondary damages. It addresses limitations like data overload and expertise gaps by providing 24/7 virtual senior engineering support, effectively replacing multiple engineer-years with instant, consistent insights. Clients in mining and civil infrastructure gain transformative benefits: optimized decision-making, extended asset lifespans, enhanced compliance, and superior safety. Its scalability allows global deployment, fostering innovation in digital transformation and positioning users as leaders in smart monitoring.

As an easily explainable “AI guardian for infrastructure,” Sentinel not only resolves current pain points but shapes a future where geotechnical practices are efficient, resilient, and forward-thinking.

International Projects and Regulations

Africa - the future of critical minerals

Jonathan Veeran, Webber Wentzel



A concise presentation on practically establishing an African presence with a focus on jurisdictions primed for the critical mineral growth. The presentation will cover (i) resource national (ii) local beneficiation (iii) succession planning, (iv) operational structuring and (v) investment protection.

Georgia's Mining Law in Transition

Alexandre Devidze, Rich Metals Group



The presentation looks at how the legal and policy framework of mining sector in Georgia is developing gradually as the country seeks to balance investment opportunities, environmental protection and responsible resource governance. Since gaining independence, Georgia has mostly relied on a liberal regulatory approach designed to attract private investment and support the development of its mineral sector. At first Georgia privatized mining and deregulated the sector and this model has helped maintain the sector's economic importance and encouraged investor participation.

At the same time, parts of the legal framework still reflect administrative practices inherited from the Soviet period. For example, certain procedures related to extraction planning, reserves approval, and the production reporting remain rooted in older regulatory traditions. When these legacy mechanisms operate together with more modern licensing systems, they can sometimes create uncertainty for both investors and regulators. In addition, the fiscal regime governing mineral resources in Georgia has not yet undergone a comprehensive modernization and therefore only partly reflects contemporary approaches commonly associated with the "fair share" principle in natural resource management.

At the same time, Georgia is moving toward a more modern regulatory model that emphasizes stronger environmental oversight, better institutional coordination, and growing attention to ESG-related considerations. These developments also go hand in hand with the country's aspirations to align aspects of its environmental and regulatory standards EU acquis.

During the session we will discuss these developments, identify key regulatory challenges, and reflect on possible directions for strengthening regulatory framework of the sector while promoting sustainable and responsible mining.

Unlocking High Value Critical Minerals From Regolith Systems

Allister Caird, Mount Ridley Mines Limited



Mount Ridley Mines is advancing a large regolith hosted critical mineral system in Western Australia, comprising heavy rare earth elements, scandium and gallium within a single regolith profile. This style of mineralisation presents a unique opportunity to develop an integrated processing pathway targeting multiple critical minerals from a single feedstock, with potential implications for improving project economics and reducing development complexity.

Historical metallurgical work indicates favourable leach characteristics, particularly for heavy rare earth elements, while ongoing studies are focused on optimising recovery and evaluating downstream processing options in collaboration with international research institutions.

The project is positioned within a stable jurisdiction with direct access to allied markets, highlighting its potential role in diversifying global supply chains and addressing the current concentration of processing capacity outside Western economies.

From Channel Migration to Mineralization: Heavy Mineral Potential in Meandering Systems

Nicolas Jacquelot, Heling Minerals

Beyond Static Models:

Adaptive Estimation Approaches for River-Hosted Mineral Systems

Rafaela Machado, DMT Brazil



This study presents the geological characterization and geostatistical modelling of a heavy mineral sand deposit located in West Africa and formed within a highly dynamic meandering fluvial system.

Exploration activities integrated stream sediment and grab sampling (>500 samples), dredging, surface sampling, Electrical Resistivity Tomography (ERT) surveys (>15 km lines, bathymetry acquisition, and over 4,000 meters of drilling across meander bends. These activities delineated potential mineralized zones and confirmed stratigraphic controls. The main units are muds, fine sands, and heavy mineral-enriched coarse-medium sands (THM in 45 µm–1 mm fraction), with ilmenite (Ti proxy), rutile/anatase (TiO₂), and zircon (Zr proxy) concentrated in channel lags and trap sites (point bars, scour pools) via hydraulic sorting from the Mesoarchean basement provenance.

A key challenge in this type of deposit is the strong influence of fluvial dynamics on sediment organization. Lateral channel migration, shifts in flow energy, and the development of localized trap sites generate abrupt facies transitions and irregular geometries. Representing this complexity in a numerical model requires well-defined geological domains and estimation methods capable of capturing the true spatial behaviour of the system.

Implicit 3D geological modelling in Leapfrog Geo defined five lithological domains, validated with >95% adhesion to drill data. The modelling workflow incorporated domain based variogram analysis and the use of Ordinary Kriging with dynamic anisotropy, allowing the interpolation to follow the natural curvature of the paleo channel.

The results provide a clearer understanding of the sedimentological controls that govern heavy mineral **concentration in these environments** and reveal continuous mineralized intervals with favourable grade trends.

These findings highlight the geological potential of the deposit, support the definition of exploration priorities and contribute to the early-stage assessment of its economic viability. The outcomes also provide a technical basis for future drilling strategies, metallurgical investigations and project development planning.

Panel: Innovation in Future Mining – Automation, Sensing and Subsurface Insights

Advancing Mine Safety and Productivity with Fleetwide, Retrofit Automation

Dr Eric Pohlmann, Nerospec SK GmbH



As the mining industry accelerates toward autonomy, retrofitting existing fleets with automation becomes a decisive advantage. Nerospec SK's agnostic retrofit solutions enable OEM-independent automation for underground and surface operations, bridging today's safety and productivity challenges with tomorrow's autonomous mines.

Through integrated systems such as the cyberHUB controller, Precision Positioning System (PPS), and Vehicle Intervention Control (VIC), fleets gain precision control, EMESRT Level 9 safety compliance, and 24/7 operational capability.

Real-world deployments show up to 23% Overall Equipment Effectiveness improvement by extending production into traditionally idle shift-change periods. From autonomous haulage trains to LHDs and dump trucks, Nerospec SK demonstrates that sustainable mining automation can be achieved fleetwide, without dependence on a single OEM or extensive infrastructure, paving the way for safer, smarter, and more efficient mines.

Validation of Perception Sensors in Modern Mining Operation

Adam Pekarski, RWTH Aachen University, Institute for advanced Mining technologies (AMT)



In the context of automating heavy machinery in mining, safe perception sensors are essential for creating accurate models of the environment required for autonomous operation and are becoming increasingly important. Sensors such as LiDAR, RADAR or cameras provide essential data and information but face significant challenges due to the harsh environmental

conditions in mining operations. Extensive and systematic testing and validation under real-world conditions is required to ensure their performance and safety under difficult environmental situations.

At the Institute for Advanced Mining Technologies (AMT) we conduct long-term testing in operational environments to evaluate sensor reliability and accuracy over time. We also focus on the development of robust testing methodologies that can effectively evaluate sensor performance under various challenging conditions.

This presentation will showcase our ongoing research aimed at advancing safe sensor technologies for mining automation.

Deep geological survey using 2D seismics in Lower Lusatia

Dr Birgit Futterer, Landesamt für Bergbau, Geologie und Rohstoffe



Deep geological survey using 2D seismics in Lower Lusatia – best-practice example from planning to implementation and evaluation
As part of the deep geological survey of Brandenburg, a comprehensive 2D seismic exploration campaign was planned and carried out in south-eastern Brandenburg in 2025. The objective of this investigation is the geoscientific assessment of potential utilisation options, particularly with regard to geothermal applications.

The planning included, among other things, detailed preliminary planning of the measurement campaign, including the derivation of optimal profile routes. Geological and geophysical baseline data were taken into account. The planned exploration depth of up to 4,000 m provides insights into deeper geological structures (Zechstein, "Rotliegend" and pre-Permian basement). Particular attention was also paid to identifying and minimising potential infrastructural and topographical constraints in order to ensure an efficient and technically feasible measurement campaign.

The results presented provide valuable insights from well-founded planning through to successful implementation.

**Graphene Meets Mining:
Advanced Water Decontamination for Sustainable Operations**
Marco Antonio Salazar Moreno, NANOINVENTA



Mining operations face increasing pressure to manage water sustainably, in a context where efficiency and process quality are becoming critical. In this scenario, water treatment is evolving into more advanced solutions, where technology plays a central role.

This talk presents how nanotechnology, particularly graphene-based solutions developed by NanoInventa, is transforming water management in mining. Through highly efficient adsorption processes, it is possible to remove up to 98% of heavy metals, optimizing treatment times, reducing energy consumption, and improving water quality.

The impact goes beyond treatment itself, enabling more stable, predictable, and easily integrated processes within mining operations, reducing variability, enhancing operational continuity, and optimizing resource use.

In this way, nanotechnology not only improves water treatment but also drives more efficient, intelligent, and sustainable mining operations.

GeoLithAI: AI-Based Lithology Recognition
Marissa Griselda Vallejo Pablo, UNMSM



GeoLithAI is an AI-based solution for geological mapping and mineralogical characterization using mine images and videos. Through convolutional neural networks, it identifies geological domains from visual data, helping reduce geologists' exposure to hazardous areas and accelerating interpretation workflows.

The system is designed to connect image-based predictions with 3D geological modeling, supporting grade control, ore/waste differentiation, and mine planning.

GeoLithAI combines geology, computer vision, and safety to promote a more efficient and digitally integrated mining workflow.

Mitigating ESG risks and ambitions

Raw materials from Europe: high demands and a patchy legal framework

Anna Schönwald / Maja Wilke, PowerShift e. V.



In the Critical Raw Materials Act, the European Union has set itself the ambitious target of sourcing 10% of the raw materials it consumes annually from within the EU by 2030. This goal is to be achieved through strategic projects in countries such as Sweden, Portugal, Spain, and Germany. EU representatives emphasize that Europe adheres to the highest human rights and socio-ecological standards for extraction and processing. In response, the Naturschutzbund (NABU) and PowerShift have delved into this issue, conducting a comparative study that scrutinizes the existing legal frameworks.



The study focuses on the protection of water quality, environmental preservation, and the safeguarding of democratic participation rights. The findings and recommendations of this study will be presented at the Mining Forum.

The study investigates three mining projects – Mina Doade (Galicia), Mina do Barroso (Northern Portugal), and Zinnwald (Saxony) – as well as the participation rights of the Sami in Sweden. The presentation will address the following key issues:

- International comparison of water quality standards Strengths, weaknesses, and the necessary changes the EU must implement
- Fast-track procedures undermine effective democratic participation
- “Overriding public interest” as a leverage for risk
- Tailings & mining waste: EU regulations fall short of “best practice”
- Without protective safeguards, “sacrificed zones” are created

Embedding Climate and Nature in the Mining Sector’s Transition Pathways

Anna Raffaelli, Carbon Trust



As global demand for critical minerals accelerates, the mining sector faces mounting expectations to align with climate and nature goals. Climate and biodiversity risks increasingly translate into financial, operational, and reputational pressures, shaping access to capital, markets and community trust.

Yet, these same dynamics present opportunities for mining companies to strengthen resilience, secure competitiveness, and enable the global energy transition. This presentation explores how integrating climate and nature considerations into transition planning can drive strategic advantage.

Drawing on emerging global frameworks and practical case studies from African and international mining contexts, it highlights how mining companies can quantify, mitigate, and disclose climate- and nature-related risks, while capturing opportunities in low-carbon technologies, nature-positive value chains, and sustainable resource development.

Panel: Legacy site management
and geological disposal of radioactive wastes

Advancing Mineral Asset Valuation

Sanjei Bhoowanpursadh, DMT Kai Batla



This presentation examines the limitations of traditional mineral asset valuation methods and proposes a more integrated framework. Deterministic approaches such as market, cost and income methods remain essential, but they fail to capture the uncertainty and complexity of modern mining projects.

By incorporating probabilistic modelling, real options analysis and risk adjusted financial metrics, valuations can better reflect variability, optionality and capital structure. The framework also highlights transparency, ESG integration and regulatory alignment, while recognising the growing role of advanced analytics and data science in strengthening credibility, decision making and resilience in resource valuation.

Brazil's Critical Minerals - Opportunities for Brazilian-German Cooperation

Tim Schlösser, GIZ



Beyond it's long history as a hotspot for mining, Brazil holds significant future potential in the mining of Critical Minerals as well as in associated value addition. In order to facilitate Brazilian-German cooperation in this space, BMZ has commissioned GIZ and DMT to collect an up-to-date overview of relevant mining projects in Brazil.

The 21 examined projects are all in at least FEL2 development stage and cover rare earths, silicon, lithium, and graphite. In addition to the project description, regulatory requirements for market access and support measures by Brazilian and German government entities are featured. Key results of the analysis will be presented at the Mining Forum 2026.

Water management during and after mine rehabilitation

Ulf Barnekow, Wismut



Since 1991, Wismut GmbH has been rehabilitating the former mining sites of Seelingstädt and Ronneburg in Thuringia. Both sites are located in the Thuringian catchment area of the Weiße Elster river. At the Seelingstädt site, rehabilitation work has included, among other measures, the large industrial tailings facilities Trünzig and Culmitsch of the former Seelingstädt processing plant.

At the Ronneburg site, radioactive waste rock materials and residues were concentrated and covered in the Lichtenberg open-pit backfill body. The Ronneburg mine has been flooded. At both sites, treated water is discharged into receiving waters, while the salt load in the Weiße Elster has to be managed at times.

The presentation provides an overview of the development of water management over the past three decades, lessons learned and an outlook for the future.

Construction of the Konrad repository – overview and status of work

Moritz Kellner, BGE



The conversion of the former Konrad iron ore mine into a repository for low- and intermediate-level radioactive waste is continuing in 2026. In general, the Konrad mine and its intended function as Germany's federal repository for radioactive waste are well known. However, experience has often shown that interested specialist audiences are not familiar in detail with its history, mining conditions, legal framework, the current status of the conversion work, or the outlook towards commissioning.

The presentation therefore aims to provide a general overview of the “what, where and how” and to give the audience a comprehensive insight into the Konrad repository in general, as well as into its mining-specific characteristics and conditions in particular.

MCDA for site selection procedures in storage

Frank Charlier, RWTH Aachen



The site selection process for a repository for high-level radioactive waste is currently underway in Germany. To enhance the transparency and traceability of decision-making processes, verbal-argumentative approaches can be supplemented by multi-criteria decision analysis (MCDA).

The aim of the project is to investigate the applicability of MCDA, specifically PROMETHEE I & II, for evaluating three disposal concepts: drift disposal, horizontal borehole disposal and vertical borehole disposal. Qualitative and quantitative criteria such as operational and long-term safety are taken into account in a four-stage process comprising definition, structuring, modelling and verification.

Initial results show that MCDA can transparently structure decision-making processes, systematically evaluate relevant factors and identify compromises. The approach strengthens the robustness of disposal concepts, improves traceability and acceptance in the German site selection procedure, and provides impetus for international repository projects in early selection phases.

Disposal of Radioactive Waste in Deep Boreholes

Tilman Fischer, BGE Tec



The long-term management of high-level radioactive waste is one of the most pressing challenges associated with nuclear energy managing. While many national programs, such as the German program, consider deep geological repositories in mines to be the most suitable disposal solution, countries with smaller inventories are looking for more cost-efficient solutions. One of the most promising alternatives to conventional mined repositories is the disposal of the waste in deep boreholes. This method offers enhanced isolation by placing waste several kilometers below the earth's surface within stable rock formations.

Several countries with relatively small inventories of nuclear waste are actively exploring the option of deep borehole disposal. Two examples to be named in this context are Norway and Australia. Both countries are actively exploring deep borehole disposal as a potential solution within their radioactive waste disposal programs.

The Norwegian Nuclear Decommissioning Authority (NND) is investigating this approach as a potential national solution for spent nuclear fuel, working alongside international partners. Within different frameworks, the entire spectrum of radioactive waste disposal – from site selection to closure and long-term safety – has been described and analyzed. Furthermore, a comparison with other solutions has been part of this work. The second example can be found in Australia, where research institutions and private companies are investigating this topic. Advanced safety assessments have already been carried out in the past based on generic concepts. Furthermore, first steps towards a full-scale demonstration project have been taken.

Major points of discussion are the technical feasibility and the safety case.

The challenges here can be found, similar to mined repositories, in different concepts. Main technical parameters are the borehole depths and diameters, which depend on the individual formation and requirements. Varying waste canister designs are considered as a result of this broad variety of deep borehole disposal concepts. Other relevant areas to be considered are the emplacement operation itself, as well as the closure and sealing of the borehole once disposal is complete. All these considerations result in safety assessments.

The examples and considerations mentioned highlight the growing global interest in this area, which is also reflected in the ASTRA work package in the EURAD2 project and in a research project coordinated by the IAEA. These projects examine topics such as site selection, engineered barrier systems, and long-term development behavior. Furthermore, important, yet less technical, considerations such as societal acceptance are heavily discussed among the experts involved. A key aspect of this work is comparing deep borehole disposal with established repository concepts with the aim to provide a balanced assessment of its potential role in a sustainable radioactive waste management strategy.

Panel: Increasing Productivity – Digitalization, Selective Mining and Automation

Selective Mining with ML enhanced PFN logging tool

Thomas Heinig, Umwelt- und Ingenieurtechnik Dresden



The common method in mining to control grade, quality and choice of mining blocks for further processing is blast hole bulk sampling (by hand). Major challenges are small drill hole diameters, large bulk samples and lab analysis turnaround times. OreLog® is a slim and light borehole logging tool that uses pulsed fast and thermal neutron analysis for advanced geochemical and geophysical measurements. This offers in-situ quantification of elemental mass fractions for key elements and geophysical parameters, including porosity.

The data analysis uses a novel application of Convolutional Neural Networks (CNNs) which is capable to handle multidimensional inputs, as in the case of OreLog®, where all the nuclear reactions are evaluated simultaneously. Case studies at iron ore deposits showed production-readiness and outperformed the conventional approach. Other field trials in exploration offer the prospect of finding specific target elements e.g., Lithium.

Automated welding repair and upgrade of worn tools

Dr. Max Biegler, Fraunhofer



The Praid salt mine in Romania was flooded in May 2025 by the Corund River, leading to the submersion of underground mine workings. To detect early signs of collapse, SALROM SA implemented a temporary microseismic monitoring system using high-frequency seismic sensors. Seven stations were set up to monitor micro tremors, which indicate geomechanical and chemical processes occurring underground. While sensors could not be initially placed in the flooded levels, data is collected remotely for analysis. The system identified seismic activity clusters, helping to map stress zones. Future studies will use FEM and BEM models to analyze stress changes and back-calculate rock mass strength.

This method also integrates Acoustic Emission (AE) data to predict rock strength and deformation. The goal is to enhance safety by improving rock mass parameter predictions, offering a non-invasive tool for better mine stability and risk assessment.

SIL++ Adding Availability to Hoisting Safety

Gareth Price, Siemag-Tecberg



Modern hoisting systems are handling unprecedented volumes of material with increasing speed and enhanced safety. As mining operations become more time-sensitive, hoists are no longer secondary utilities; they are integral, digitally-integrated components of a plant’s core control architecture.

However, while existing industry standards and regulations focus almost exclusively on safety, they offer little guidance on ensuring system availability – a factor that directly dictates a mine’s profitability. This paper outlines Siemag-Tecberg’s comprehensive methodology for the design, manufacture, commissioning, and maintenance of our hoisting solutions that transcend safety standards to deliver the superior availability required for optimal mineral processing.

This methodology covers the development of an entire hoisting solution as well as individual components such as motor controllers, braking systems, speed limiting controllers, shaft signalling systems etc.

Building the Nervous System of the Modern Mine

Christian Edilberto Portugal Zambrano, Jebi S.A.C

Edge AI is transforming open-pit mining productivity. This presentation examines how the convergence of real-time computer vision, selective fragmentation analysis, and automation enables mine operators to extract more value from existing assets – without new equipment or greenfield infrastructure.

Drawing on active deployments in Australia, Zambia, and Peru (HudBay Constancia), Jebi demonstrates how its product portfolio – spanning GET tooth wear detection, real-time fragmentation analysis, boulder detection, and IoT-based safety monitoring – delivers actionable intelligence at the pace of the production cycle. Camera systems and edge computing hardware process each excavator bucket load in real time, closing the blast-to-mill feedback loop within a single shift.

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Patronage

Under the patronage of the



1.1 German Federal Ministry for Economic Affairs and Climate Action

We are proud and delighted that the Federal Ministry for Economic Affairs and Energy (BMWE) is once again taking on the patronage of the MiningForum.

The 18th edition of the MiningForum is once again under the patronage of the Federal Ministry for Economic Affairs and Energy. The BMWE has confirmed its commitment and support for MiningForum 2026, emphasising the importance of a stable and sustainable supply of raw materials that combines economic efficiency with future-oriented, climate-friendly solutions.

More than 400 experts from over 40 countries will discuss solutions that our industry can provide for the energy and raw materials transition under the motto Raw Materials Momentum.

www.bundeswirtschaftsministerium.de

Partners



1.2 Institute for Advanced Mining Technologies (AMT) / RWTH Aachen University

In research, teaching and transfer, the AMT headed by Univ.-Prof. Dr.-Ing. Elisabeth Clausen is committed to safe, efficient and responsible raw material extraction through the automation, digitalization and electrification of mining machines and processes. With its interdisciplinary, application-oriented and industry-oriented research and development, the AMT team is not only a strong and reliable partner of regional companies but also part of Germany's as well as Europe's top research.

At the exhibition booth, you will have the opportunity to learn about the "Human. Centred Climate Smart Mine" and current technological developments as well as research, teaching and transfer activities and to discuss possibilities for collaboration.

AMT – Institute for Advanced Mining Technologies
RWTH Aachen University

Wüllnerstr. 2
52062 Aachen
Germany
Mail: info@amt.rwth-aachen.de

Contact:
Univ.-Prof. Dr.-Ing. Elisabeth Clausen
Tel.: +49 241/80 95680
Mail: eclausen@amt.rwth-aachen.de



1.3 BDI - The Federation of German Industries

The BDI is the umbrella organization of German industry and industry-related service providers. 39 industry associations, 15 state representatives and more than 100,000 companies with around eight million employees make the organization the voice of German industry. The BDI works for a modern, sustainable and successful industry in Germany, Europe and the world.

The Federation of German Industries (BDI)

Breite Straße 29
10178 Berlin
Germany
Tel.: +49 30/2028-0
Mail: info@bdi.eu
Web: www.bdi.eu



1.4 European Association of Geoscientists and Engineers - EAGE

EAGE is a professional association for geoscientists and engineers. With a worldwide membership of about 19,000, we provide a global network of commercial and academic professionals and students. EAGE operates three Circles: Oil & Gas Geoscience; Environment, Minerals & Infrastructure, and Sustainable Energy, making it truly multi-disciplinary and international in form and pursuits.

communities@eage.org
Kosterijland 48
3981 AJ Bunnik
The Netherlands
<https://eage.org/>



1.5 UNIDO

UNIDO, a United Nations specialized agency, holds a unique mandate to promote and accelerate inclusive and sustainable industrialization, as reflected in Sustainable Development Goal 9: **“Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.”** Given the central role of industry in economic growth, UNIDO’s work contributes to all SDGs.

Guided by the principle of **“Progress by Innovation”**, the Organization leverages new ideas, advanced technologies, and knowledge-sharing to drive shared prosperity. UNIDO strives for a fair global economy free from poverty and hunger, where sustainable industry fosters progress, raises living standards, and protects the environment and climate.

<https://www.unido.org/contact-us>



About UNIDO’s Global Alliance for Responsible and Green Minerals

The **Global Alliance for Responsible and Green Minerals** is a multi-stakeholder initiative with a holistic approach under the leadership of UNIDO. The Global Alliance promotes fair, sustainable and inclusive mineral supply chains, from extraction to recycling. It aims to support local value addition, create job opportunities, enable fair benefit sharing and enhance transparency while safeguarding human rights and the environment.

UNIDO acts as the convener of the Alliance, bringing together governments, private sector, labor unions, financial institutions, academia, non-governmental organizations and affected communities.

Global-alliance@unido.org

UNIDO HQ
Vienna International Centre
Wagramer Straße 5
P.O. Box 300
A-1400 Vienna
Austria

<https://www.unido.org>

Exhibitors



2.1 AHK Chile

The Chilean-German Chamber of Commerce and Industry (AHK Chile) promotes the development of modern, sustainable, and innovative mining, strengthening cooperation between Chile and Germany across the entire value chain of the sector. Through its Mining Business Center, the institution fosters the exchange of knowledge, technology, and best practices, connecting companies, authorities, academia, and suppliers from both countries. This platform facilitates joint projects, business missions, market studies, and spaces for strategic dialogue—such as the Chilean-German Forum on Mining and Mineral Resources – aimed at addressing the challenges facing the industry.

The focus is on driving more efficient and responsible mining by integrating technological innovation, digitalization, electrification, and solutions for the decarbonization of production processes.

Likewise, AHK Chile encourages the development of sustainable supply chains and the efficient use of resources, contributing to ensuring that mining continues to be a key driver of the country's economic and social development. In this context, Chilean-German collaboration makes it possible to combine Chile's leadership in mining with Germany's technological and industrial expertise, promoting an industry prepared to meet the challenges of the energy transition and the economy of the future.

AHK Chile
Av. El Bosque Nte. 0440,
7550092 Santiago, Las Condes
Región Metropolitana
Chile

chileinfo@ahkchile.cl
<https://chile.ahk.de/de>
Phone: +56 2 3284 8500

Contact:
Iris Wunderlich
iwunderlich@ahkchile.cl



2.2 allmineral

allmineral develops machines and systems for processing gravel, sand, coal, slag, ores, and recycling materials. Customers benefit from tailored solutions and extensive expertise.

Through continual optimization and innovation, allmineral delivers highest quality and durable products. With a focus on resource-efficient technologies, allmineral emphasizes dry material processing for a sustainable future.

allmineral Aufbereitungstechnik
GmbH & Co. KG
Willstätterstraße 15
40549 Düsseldorf
Germany





2.3 Beak Consultants

Beak Consultants GmbH an independent, employee-owned geoscientific consulting firm with more than 30 years of experience providing innovative, data-driven solutions for the raw materials sector. We are at the forefront of integrating advanced data analysis, artificial intelligence (AI) and geographic information systems (GIS) for mineral exploration.

Our multidisciplinary team of over 50 scientists and technicians (including geologists, geophysicists, environmental experts and IT specialists) works collaboratively to develop customized strategies for our clients.

We unite expertise from the geoscientific, environment, GIS, and IT sectors to provide comprehensive services, including complex information management systems, map production tools, and Web-GIS databases for mining and geological authorities. Our team has extensive global consulting experience, having successfully completed projects in over 30 countries across North and South America (including Canada and the US), Europe, Africa, and Asia.

The project DeepBEAT aims to develop ground-breaking technologies to use geochemistry for the detection of deep-seated land deposits. Transforming Europe's exploration sector by integrating cutting-edge technologies and sustainable practices will push Europe towards a climate-neutral and socially responsible economy. The exploration of deep land deposits should employ environmentally friendly, socially acceptable, and ultra-low impact methodologies to ensure the citizens that exploration activities can be conducted responsibly.

Beak Consultants GmbH
Am St. Niclas Schacht 13
09599 Freiberg
Germany
www.beak.de
<https://deepbeat.eu/>



2.4 Berthold Technologies

Berthold Technologies GmbH & Co. KG
Calmbacherstr. 22
75323 Bad Wildbad
Germany
Tel.: +49 7081 177 551
industry@Berthold.com



2.5 Bochumer Eisenhütte

As the inventor of the TH profile, Bochumer Eisenhütte has over 175 years of experience in the development and manufacture of support materials. Today, the company is an internationally active supplier of rigid and yieldable support systems for mining, tunnelling, sewer construction and final disposal mining.

With comprehensive engineering expertise and its own Steel Centre featuring an accredited testing laboratory, Bochumer Eisenhütte ensures the highest quality standards and reliable solutions for demanding infrastructure and mining projects worldwide.

Projects in the green energy sector, particularly hydropower, are also becoming increasingly important.

The focus is always on the cost-effective and safe implementation of our customers' projects —supported by the expertise and dedication of our employees.

Bochumer Eisenhütte – for the infrastructure and raw material security of tomorrow.





2.6 Branchenverband Steinkohle und Nachbergbau

The German Coal and Post-Mining Association (bsn), previously known as the German Coal Mining Association (GVSt) until it was renamed on 1 March 2021, is the trade association, employers' association and collective bargaining party for the German coal mining industry, which is now in the post-mining era following the end of coal mining.

As a trade association, the bsn represents the interests of its members in matters relating to post-mining activities, with a focus on mine drainage, environmental protection and land reclamation, as well as in other issues relating to former mines, such as shaft stabilisation and rehabilitation. To this end, the association cooperates in central and umbrella organisations in the German federal states, at German federal level and at European level. It engages in dialogue with political and administrative bodies.

As an employers' association, the bsn is the collective bargaining party for the German coal industry in the post-mining era and supports its members in matters of employment law, social law and

company pensions. An important milestone was the conclusion of a comprehensive post-mining collective agreement, which was signed in mid-2021 and replaced the collective agreements for the German coal industry with effect from 1 January 2022. In addition, the bsn performs tasks relating to the autonomous administration of mining-related social insurance institutions. At employers' association level, the bsn is also involved in the formulation of the framework conditions for its member companies through its participation in professional and umbrella associations.

Branchenverband Steinkohle und Nachbergbau e. V.

Im Welterbe 8
45141 Essen
Germany
bsnev@bsnev.de
www.bsnev.de

Contact:
Michael Weberink (Managing Director)
Tel.: +49 201 / 378 - 0
Fax: +49 201 / 378 - 4261



2.7 Bergsicherung Sachsen

BsS Bergsicherung Sachsen GmbH
Fundgrube Anna und Schindler Nr. 4
08289 Schneeberg
Germany
Tel.: +49 3772/28485
Fax: +49 3772/395783
info@bss-bergsicherung-sachsen.de
www.bergsicherung-sachsen.de

Contact:
Graduate Engineer Tobias Steinert, CEO



2.8 Castalytics

Castalytics GmbH focuses on applied artificial intelligence across various industries. Through the Castalyze(TM) method, internal and external data are interconnected to identify valuable patterns and relationships using precise self-learning algorithms. This allows companies to gain insights into business management, unlock untapped business potentials, and shape their future business. Castalytics builds on the experience of enercast in the fields of Power Forecast/Analytics and Big Data Management.

Castalytics GmbH
Stiftshof 4
34260 Kaufungen
Germany
www.castalytics.de
info@castalytics.de
Tel.: +49 160 90 98 41 68

Contact:
Bernd Kratz
b.kratz@castalytics.de



2.9 CDM Smith

CDM Smith SE
Am Umweltpark 3-5
44793 Bochum
Germany
Tel.: +49 234 68775-0
cdmsmith.com
info@cdmsmith.com
Contact:
Jana Heymann
Head of Infrastructure/Geotechnics
Berlin location



2.10 CFT Compact Filter Technic

CFT GmbH Compact Filter Technic is a system provider for state-of-the-art technology in the field of dedusting, ventilation and climate control. At the heart of the business there are high-quality products and services for mining, tunnelling, tunnel refurbishment as well as for other specific industrial applications.

The products make a significant contribution to workplace safety, health and the environment and at the same time promote the efficiency and life expectancy of the equipment. CFT is part of the internationally operating CFH Group. The holding company bundles several subsidiaries and associated companies under its umbrella, which have one thing in common: excellent engineering services that enable innovative solutions in the field of air at the workplace as well as in the field of energy and the environment.

CFT GmbH Compact Filter Technic

Neckarstraße 23
45768 Marl
Germany
Tel: +49 2365 8726-0
mail@cft-gmbh.de
www.cft-gmbh.de

Contact:
Markus Thomeczek
Executive Vice President – Sales
Authorised representative
Phone: +49 2365 8726-957
markus.thomeczek@cft-gmbh.de



2.11 Daldrup & Söhne AG

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Daldrup & Söhne AG
Lüdinghauser Str. 42-46
59387 Ascheberg
Germany
Phone: +49 2593 9593 0
info@daldrup.eu
www.daldrup.eu
Contact:
Karl Daldrup
Executive Board – Head of Exploration



2.12 D-EITI

The Extractive Industries Transparency Initiative (EITI) promotes transparency and accountability regarding revenues from the extractive sector and supports the responsible management of natural resources. It is implemented in more than 50 countries worldwide. Germany has been supporting the initiative politically and financially since its establishment in 2003 and has been successfully implementing the initiative in Germany (D-EITI) since 2016.

Germany - Extractive Industries
Transparency Initiative

Reichpietschufer 20
10785 Berlin
Germany
<http://www.d-eiti.de>



2.13 German Mineral Resources Agency (DERA) at BGR

The German Mineral Resources Agency (DERA) is the national information and advisory platform for mineral raw materials and secondary raw materials and is part of the Federal Institute for Geosciences and Natural Resources (BGR). Considering the energy transition and further key and future technology developments, DERA evaluates commodity markets and international mineral supply sources to make German companies and political stakeholders become aware of potential price and supply risks along the value chain.

German Mineral Resources Agency

Wilhelmstraße 26
13593 Berlin
Germany
dera@bgr.de
www.dera.bund.de

Contact:
Dr Inga Osbahr
Phone: +49 30 36993236



2.14 DMT GROUP

Excellence and innovation – that is the claim of DMT GmbH & Co. KG (DMT GROUP) as an independent, globally active company for engineering services and consulting in the markets of “plant engineering and process engineering”, “infrastructure and construction” and “raw materials and energy”. The aim is to create sustainable added value for all clients. Knowledge, digitalisation and internationalisation are the key to this.

As part of the Energy & Resources business unit of the TÜV NORD GROUP, DMT GROUP brings over 280 years of experience to the table, acts as a holding company of 14 subsidiaries with over 1,100 employees from more than 30 locations, acts in a spirit of partnership, trust, solution-orientation, sustainability and ethics, realises hundreds of projects around the globe every year, is involved in dozens of mostly international innovation projects and thus ensures the success that customers expect all over the world under the guiding principle of engineering performance.

DMT GmbH & Co. KG

Am TÜV 1
45307 Essen
Germany
dmt-group.com

Contact:
Knut Hirsch
Tel.: +49 151 125 23558
knut.hirsch@dmt-group.com



2.15 Deutscher Markscheider-Verein e. V. (DMV)

Deutscher Markscheider-Verein e. V. (DMV)

Eschenstraße 55
31224 Peine
Germany

Contact:
Martin Schröder (Managing Director)
Dr Stefan Hager (Chairman of the Board)
Tel.: +49 5171 4431335
geschaeftsstelle@dmv-ev.de
www.dmv-ev.de



2.16 European Association of Geoscientists and Engineers - EAGE

EAGE is a professional association for geoscientists and engineers. With a world-wide membership of about 19,000, we provide a global network of commercial and academic professionals and students. EAGE operates three Circles: Oil & Gas, Geoscience, Environment, Minerals & Infrastructure, and Sustainable Energy, making it truly multi-disciplinary and international in form and pursuits.

European Association of Geoscientists and Engineers - EAGE

Kosterijland 48
3981 AJ Bunnik
The Netherlands
<https://eage.org/>
communities@eage.org



2.17 ESSER-WERKE

Since 1948, Esser-Werke has specialized in the development and manufacture of highly wear-resistant pipeline systems for pneumatical or hydraulic conveying. We supply companies such as mining companies, gravel and sand works, chemical industry, glassworks, plant engineering and concrete pumps. Our products are developed in close cooperation with our customers world-wide and can be individually adapted to the applications and requirements.

ESSER-WERKE GmbH

Zum Puddelhammer 25

59581 Warstein

Germany

www.essertwinpipes.com

LinkedIn / Instagram / Facebook /

YouTube

Contact:

Falk Pichler

Tel: +49 2902 896 206

pichler@esser-werke.de

Engineering contact:

Matthias Luig

Phone: +49 (0) 2902 896 210

luig@esser-werke.de



German Mining
and Resources Network

2.18 German Mining & Resources Network

The German Mining & Resources Network is a business-oriented platform which supports the German business community in the global mining and resource markets. The three thematic focuses of the network are raw Materials Supply, Mining Technology and Circular Economy.

German Mining &
Resources Network (GMRN)

Breite Straße 29

10178 Berlin

Germany

www.germanmining.net

Contact:

Tim Schmidt

Tel.: +49 151 1133 1840

rohstoffe@dihk.de





2.19 GFZ Helmholtz-Zentrum für Geoforschung, 3D-US Lab

The 3D-US Lab offers underground seismic surveys for the exploration of underground structures and seismic product solutions such as source and receiver systems for use in tunnels and boreholes. 3D underground seismics uses high-resolution three-dimensional images to map the surroundings of underground structures and provide information on the position and spatial orientation of geotechnically relevant structures such as faults.

For more than 20 years, the 3D Underground Seismics research group at the GFZ has been working on the development of seismic measurement methods and instruments for underground use, which are further developed to meet customer requirements.

In the Helmholtz Innovation Lab 3D-US Lab, the 3D Underground Seismics research group at the GFZ has established a network for technology transfer together with industry representatives and mining universities.

GFZ Helmholtz Centre for Geosciences

3D-US Lab
Telegrafenberg
14473 Potsdam
Germany
3duslab@gfz.de
www.3duslab.com

Contact:
Dr Rüdiger Giese
Tel.: +49 331 6264-1575
ruediger.giese@gfz.de



2.20 HAZEMAG

We are your global partner in the mining industry for innovative solutions and sustainable success, supported by product innovations, application experiences, and technical excellence. We take the time to understand requirements and deliver solutions. HAZEMAG stands for innovation, resourcefulness, and sustainability. We stand by our customers to solve complex challenges.

HAZEMAG Systems GmbH
Willstätterstraße 15
40549 Düsseldorf
Germany
Tel.: +49 211 522 88 213
info@hazemag.de
www.hazemag.com



2.21 Herrenknecht

With experience from more than 6,700 projects, Herrenknecht is the technology leader in the field of mechanized tunnel boring technology.

The product range includes tailor-made machines for traffic tunnels and supply and disposal tunnels, technologies for laying pipelines as well as drilling rigs for vertical and inclined shafts and deep drilling rigs. The product portfolio is completed by a wide range of systems for the mining and exploration sector.

HERRENKNECHT AG

Schlehenweg 2
77963 Schwanau
Germany
Tel.: +49 7824 302-0
Fax +49 7824 3403
mining@herrenknecht.com
www.herrenknecht.com

Contact:
Matthias Stöhr
Sales Manager Mining | EMBA, B. Eng.
Phone: +49 (0) 7824 302 3096
stoehr.matthias@herrenknecht.com

Daniel Jaskulski
Division Manager New Applications
Phone: +49 (0) 7824 302 5578
jaskulski.daniel@herrenknecht.com



2.22 Hofmeister

The Hofmeister Maschinen- und Stahlbau GmbH in Obergruna specializes in steel and mechanical engineering solutions for the mining industry. We manufacture and refurbish equipment components for shaft hoisting systems, including rope thimbles, mining conveyors and custom assemblies for underground operations – from design to installation. Our durable products are in service in numerous shaft facilities throughout Germany.

Hofmeister
Maschinen- und Stahlbau GmbH
Hammer 1, StT Obergruna
09603 Großschirma
Germany
www.hofmeister-maschinenbau.de

Contact:
Holger Zipser
Tel.: +49 (0) 37324-829846
h.zipser@hofmeister-obergruna.de



2.23 HUESKER Synthetic

HUESKER Synthetic GmbH
Fabrikstraße 13-15
48712 Gescher
www.HUESKER.com

Contact:
Mr Joris van den Berg
Phone: +31 (73) 20 200 70



2.24 IMDEX

IMDEX is a leading global mining technology company that enables drilling contractors and resource companies to safely find, define and mine orebodies with precision and at speed.

Why IMDEX?

When you partner with IMDEX, we give you the knowledge to model and mine with confidence. Our technology offering spans across the life of a mine, from exploration to extraction.

Our drilling optimisation products, rock knowledge sensors and real-time data and analytics provide you with all the benefits of working with one trusted technology provider for a complete solution.

Our Strengths

- Market leader across our technology portfolios
- One trusted technology provider
- Integrated range of solutions for exploration to extraction
- Award-winning cloud-based software IMDEXHUB-IQ™
- World-class R&D facilities
- Global presence with local on-site support in all major mining regions

Solutions

Our integrated range of drilling optimisation products, cloud-connected, rock knowledge sensors, directional core drilling, and data and analytics improves the process of identifying and extracting mineral resources. By providing knowledge of the rocks and a greater understanding of your resource, you can mine with confidence and precision with IMDEX.

End to end solutions include:

- Software
- Drilling Optimisation
- Downhole Navigation
- Structural Geology
- In-Field Analysis
- Driller Operable Geophysics

Why one solution provider?

IMDEX can provide a unique, integrated suite of technology and intelligence solutions.

These solutions support our customers to improve productivity, reduce costs and gain access to relevant, reliable information for critical decision making, anywhere and at any time.

IMDEX Limited IMDEX Germany GmbH

Königstraße 39
26180 Rastede
Germany
www.imdex.com



2.25 K-UTEC SALT TECHNOLOGIES

K-UTEC AG SALT TECHNOLOGIES

Am Petersenschacht 7
99706 Sondershausen
Germany
www.k-utec.de

Contact:
Eur.Geol. Dipl.-Geophys. Thomas Schicht
Manager Geophysics
Tel.: +49 3632/610187
Fax: +49 3632/610105
Thomas.Schicht@k-utec.de



2.26 Mineser

K-UTEC AG SALT TECHNOLOGIES

Mineser GmbH
Kaiserwerther Straße 215
40474 Düsseldorf
Germany
Tel.: +49 176 610 73572
www.mineser.de

Contact:
Mr Khashayar Dalaie



2.27 NetHelixEU

We talk about the green transition - but who's talking about what it truly takes to power it?

The answer lies beneath our feet. And **NetHelixEU** is reimagining how we bring those resources to the surface - not with louder drills, but with smarter systems:

- Autonomous machinery that keeps people out of harm's way
- Wearables & laser-based gas sensors for real-time health protection
- Immersive VR training for safer, more confident operations
- A unified digital brain (DSS) that optimizes everything—from energy to safety

This isn't incremental change. It's a ground-up reinvention of mining - where sustainability, safety, and productivity go hand in hand.

NetHelixEU



2.28 RAG

The name RAG remains inextricably linked with the history of an industry that has contributed to Germany's prosperity and economic strength for generations. However, this was also associated with a considerable impact on the environment and nature. We are shaping the future on the shoulders of this history. The mining era leaves us with lasting responsibilities and tasks. RAG has a broad portfolio of expertise. Expertise acquired through active mining - be it the development of raw materials, the demanding specialities of dewatering or the development and use of large-scale technology. The expertise gained from over 100 years of engineering practice also makes the difference in times of sustainable transformation.

RAG Aktiengesellschaft

Im Welterbe
03 - Zollverein IW 10
45141 Essen
Germany

Contact:
Christof Beike
christof.beike@rag.de
Tel.: +49 201 3782596



2.29 Ruhr Montan Group

Ruhr Montan Group (RMG) GmbH & CO KG

Hunscheidtstrasse 100
44789 Bochum
Germany
Sales@ruhr-montan.de
www.ruhr-montan.de





2.30 Schachtbau Nordhausen

With the company's history going back over 125 years, today SCHACHTBAU NORDHAUSEN GmbH is, both nationally and internationally, one of the leading providers of specialist services, machinery and products for utilities, waste disposal and permanent waste disposal sites.

As a subsidiary of the BAUER Group, SCHACHTBAU NORDHAUSEN GmbH's business activities focus entirely on future-oriented market segments with a high potential for synergy across the entire group.

The traditional Nordhausen company is highly characterized by customer-oriented collaboration between different, complimentary business divisions and is increasingly positioning itself as an innovative and highly specialized provider of products and services for sophisticated specialist solutions in all sectors of mining.

- Lateral and inclined development
- Shaft sinking
- Shotcrete- and anchorworks
- Plugging and permanent preservation
- Hoists, headframes, platforms
- Engineering office

In addition to mining, the SCHACHTBAU NORDHAUSEN GmbH offers a broad range of services and a comprehensive expertise in plant engineering, steel construction and mechanical engineering.

In-house production in all three areas ensures the highest quality, flexibility, and consistent implementation from planning and design to assembly. The close integration of engineering and production enables tailor-made, economical solutions and the reliable implementation of demanding projects.

SCHACHTBAU NORDHAUSEN GmbH
Industrieweg 2a
99734 Nordhausen
Germany
www.schachtbau.de



2.31 Technische Hochschule Georg Agricola (THGA), University

For more than 200 years, natural resources have shaped the special profile of our university Technische Hochschule Georg Agricola (THGA). Today we have continued our legacy of industrial roots in a future-oriented way. At the Research Center of Post-Mining, experts explore how the complex tasks related to the closure, recultivation and follow-up of former mining regions can be managed responsibly. The scientific team focuses on future potential. Therefore, they are working together on an interdisciplinary basis in four research areas:

1. Perpetual tasks and minewater management
2. Geomonitoring in post-mining
3. Material sciences for the preservation of industrial heritage
4. Land use & transition

The research activities currently focus on the tasks arising in connection with the discontinuation of active coal mining in Germany.

That said, post-mining is by no means limited to the mining areas located in the Ruhr, Saar and Ibbenbüren districts. The Research Center see this as a global remit, and one that has potential for every other branch of mining throughout the world.

Technische Hochschule Georg Agricola, University
Herner Straße 45
44787 Bochum
Germany
Tel.: +49 234/968-02
www.post-minig.org



2.32 Technische Universität Bergakademie Freiberg

Akademiestraße 1
09599 Freiberg
Germany
www.tu-freiberg.de

Contact:

Institute of Mining
and Special Civil Engineering:
Prof. Dr.-Ing. Helmut Mischo
Tel.: +49 3731/39-2044
Helmut.Mischo@mabb.tu-freiberg.de

Institute of Mine Surveying and Geodesy:
Prof. Dr.-Ing. Jörg Benndorf
Tel.: +49 3731/39-2612
Joerg.Benndorf@mabb.tu-freiberg.de

Institute of Mechanical Engineering:
Prof. Dr.-Ing. Martin Sobczyk
Tel.: +49 3731/39-2192
Martin.Sobczyk@imb.tu-freiberg.de



2.33 Technische Universität Dresden

Dresden University of Technology –
Institute of Material Handling and
Industrial Engineering
01062 Dresden
Germany
Tel.: +49 351 463-32538
technische.logistik@tu-dresden.de



2.34 TSU – Verein für Technische Sicherheit und Umweltschutz e. V.

with TSU Gesellschaft für Technik,
Sicherheit und Umweltschutz mbH

TSU e. V.
Hersdorfstraße 6
99867 Gotha
Germany
Tel.: +49 3621 301035
Mobile: +49 175 9525175
info@tsuev.com
www.tsuev.com

Contact:
Prof. Dr. Günther Apel
guenther.apel@tsuev.com
Dr. Martin Anders
martin.anders@tsuev.com

TSU GmbH
Hersdorfstraße 6
99867 Gotha
Germany
Tel.: +49 3621 301036
Mobile: +49 162 2901809
info@tsugmbh.com
www.tsugmbh.com

Contact:
Dr. Michael Beyer
michael.beyer@tsugmbh.com



2.35 VBGU

The Association for Mining, Geology and the Environment (VBGU) represents the economic and socio-political interests of the raw materials industry and post-mining. Its members represent a broad cross-section of the industry: from the exploration and evaluation of raw materials, to extraction and processing, to the return of the used areas to society. This includes the national and international mining and raw materials industry, which operates in areas such as the raw materials-related industry, mining, mining conservation, geotechnical engi-

neering, recycling, water management, environmental engineering/technology, geothermal energy, and the remediation of mining and industrial sites. With their diverse expertise, our members make an important contribution to ensuring that an independent, reliable, and sustainable supply of raw materials is possible in Germany.

VBGU e. V. (Association for Mining, Geology and the Environment)

Poststr. 30
10178 Berlin
Germany
www.vbgu.de

Contact:
Managing Director,
Ass. iur. Ivonne Arenz
Tel.: +49 30 400 54270
info@vbgu.de



2.36 VDMA

VDMA e. V.
Mining & Minerals
Lyoner Straße 18
60528 Frankfurt am Main
Germany
<https://vdma.eu/mining-minerals>

VOITH

2.37 Voith

Voith
Voithstraße 1
74564 Crailsheim
Germany
www.voith.com

Contact:
M.Eng. Martin Efferoth
Business Development Manager Mining
Tel.: +49 1522 3318537



2.38 WIM – Women in Mining & Resources

WIM Germany
Gründungszentrum Clausthal-Zellerfeld
Agricolastraße 8
38678 Clausthal-Zellerfeld
Germany
info@wimgermany.org



2.39 Wismut

Rehabilitation of uranium ore mining legacies in Saxony and Thuringia

Wismut GmbH is a federal government-owned company operating in Saxony and Thuringia. Its principal business is the decommissioning, cleanup, and rehabilitation of uranium mining and processing sites.

The Wismut Project has emerged as an important international reference project for state-of-the-art remediation technologies in conjunction with the rehabilitation of radioactively contaminated sites.

Wismut is also an important partner on the regional level that makes a substantial contribution to foster the economic development of sites under remediation.

The company's sole shareholder is the Federal Republic of Germany, represented by the German Federal Ministry of Economic Affairs and Energy. Since its foundation in 1991, the company is headquartered in Chemnitz/Saxony.

Wismut GmbH
Jagdschänkenstraße 29
09117 Chemnitz
Germany
www.wismut.de



Mediapartners



3.1 GDMB

GDMB Gesellschaft der Metallurgen und Bergleute e. V. (short: GDMB) is THE platform for experts of the nonferrous industry in the German-speaking market and fosters the technicalscientific knowledge exchange among metallurgists and miners of industry, science and administration.

Instruments are technical committees and dedicated seminars, the largest conference for non-ferrous metallurgists in Europe - the European Metallurgical Conference (EMC) and specialist journals, namely World of Mining – Surface & Underground and World of Metallurgy – ERZMETALL.

With all its instruments, GDMB contributes to the harmonization of depth of integration of technical, processual or organizational solutions for major contemporary challenges.

GDMB Society of Metallurgists and Miners e. V.

Paul-Ernst-Straße 10
38678 Clausthal-Zellerfeld
Germany
Tel.: +49 5323/9379 0
Fax: +49 5323/9379 37
gdmb@gdmb.de
www.gdmb.de



3.2 GeoResources

The **GeoResources publishing house** supplies technical visitors from all over the world with information on all aspects of the subjects of GeoResources – work in soil and rock, extraction of raw materials, mining, tunneling and geotechnical subjects.

The news are distributed in English and German via the online portal www.georesources.net. In addition the portal offers English and German online journals with articles dealing with new developments, interesting projects and basic themes. The journals are available as printed versions as well.

The GeoResources editorial team has long-term technical and editorial expertise. The GeoResources publishing house collaborates with professional technical translators.

GeoResources Verlag
Oleanderweg 12
47228 Duisburg
Germany
www.georesources.net
Contact:
Dr.-Ing. M.A. Katrin Brummermann
(Chief Editor)
Phone: +49 151/70 888 162
kb@georesources.net
Dipl.-Ing. Manfred König
(Editor and Chief Editor)
Tel.: +49 172/244 1616
mk@georesources.net



3.3 International Mining

International Mining (IM) is a global publication covering mining and minerals processing technology, methods, equipment and services. Read principally by the mining industry itself, it helps extractive operations, both surface and underground, keep abreast of the latest innovations and solutions to help them lower costs, increase performance and availability, enhance safety and of course maximise production.

This includes everything from better maintenance and site audits, through to autonomy and digitalisation. From juniors through to the largest mining groups with multiple locations, mine managers know they can rely on **IM** to keep them in the know.

Team Publishing
2 Claridge Court
Lower Kings Road
Berkhamsted
Hertfordshire
HP4 2AF
United Kingdom
Web: www.im-mining.com



www.miningindustryprofessionals.net

3.4 Mining Industry Professionals Network Forum

The **Mining Industry Professionals Network Forum** is the new and fastest growing Mining related community in the world and the industry's only spam-free, independent curated Forum for intelligent conversations with mining thought leaders. Professionals in and serving the mining industry worldwide are invited to join the Mining Industry Professionals Network.

Mining Industry Professionals
Network Forum

<https://miningindustryprofessionals.net>

MINING REPORT Glückauf

3.5 Mining Report Glückauf

Mining Report Glückauf is one of the leading technical and scientific journals for mining, raw materials and energy. Containing industry surveys and studies, and in-depth reports on mines, mining companies, mining regions, issues and key technical trends, Mining Report Glückauf primarily aims at key decision makers in the mining industry and mining administration. In addition, Mining Report Glückauf is available at administrative authorities, municipalities, research and testing institutions as well as at universities. Mining Report Glückauf is regularly published in English and German and with special issues in Russian and Chinese. The Mining Report Glückauf is distributed at international key events and exhibitions worldwide.

The main topics dealt with in Mining Report Glückauf are:

- Mining: Planning, development, operation and decommissioning of mines below and above ground.
- Post-mining: Land recycling, land reclamation, water retention, reuse.

- Raw materials: Exploitation of raw materials (coal, ore, salts, rare earth, natural stone, gravel and sand).
- Energy: Energy policies, energy sector, energy feedstocks, energy supply.
- Work safety, occupational health and safety, environmental protection in the mining industry.

All Mining Report Glückauf articles can also be found online at www.mining-report.com.

Branchenverband Steinkohle
und Nachbergbau e. V.

Im Welterbe 8
45141 Essen
Germany
www.bsnev.de

Contact:
Dipl.-Ing. Andreas-Peter Sitte
Tel.: +49 162/9490043
andreas.sitte@bsnev.de
www.mining-report.de



3.6 Mining Weekly

Mining Weekly is a leading provider of global mining news. Mining Weekly provides in-depth coverage of mining projects and personalities shaping the mining industry.

Each day, regional email newsletters, as well as a global edition, provide a convenient news roundup of mining developments around the world.

www.miningweekly.com
Phone: +27 11 622 3744
subscriptions@creamermmedia.co.za



3.7 RDB

The RDB e. V. is the association of engineers, technicians and managers in all branches of mining, in wide areas of the raw materials industry and processing in surface and underground mining, in authorities, planning offices and institutes, in technical colleges, technical colleges and universities.

The RDB e. V. stands for:

- Professional training in technical, scientific and socio-political areas
- Exchange of experience in applied techniques and working methods
- Safeguarding the interests of the profession

The RDB e. V. is committed to:

- Maintaining and preserving mining traditions
- Preservation and promotion of mining camaraderie

The RDB e. V. offers:

- Free subscription to the bi-monthly trade journal "bergbau"

The RDB e. V. promotes:

- Legal protection and counselling in legal issues arising from the employment relationship or social security provision

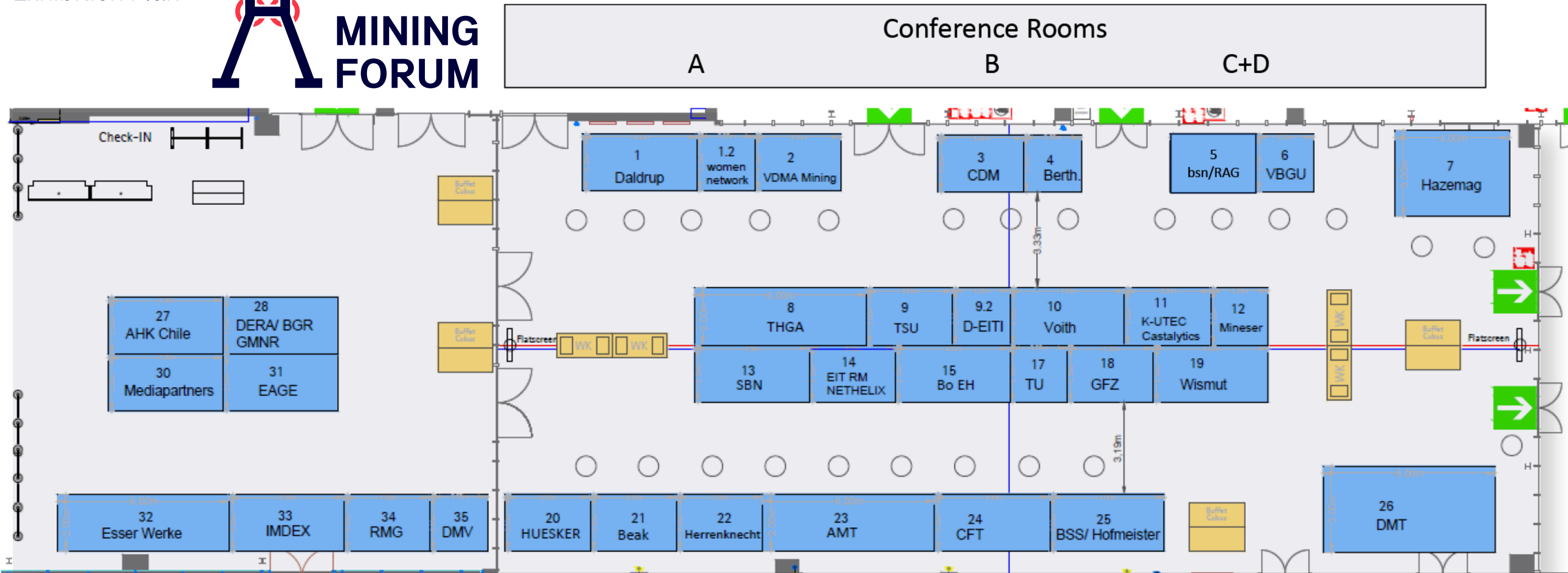
RDB e. V.

Ring Deutscher Bergingenieure
Juliusstraße 9
45128 Essen
Germany
Tel.: +49 201/232238
www.rdb-ev.de

Contact:

Ulrich Dondorf
Phone: +49 201/228997
Ulrich.Dondorf@rdb-ev.de

Exhibition Plan



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Imprint

Organization

Carolyn Tepel
Tel.: +49 201 172-2006
Fax: +49 201 172-1006
carolyn.tepel@dm-t-group.com

Overall management

Jens-Peter Lux

Organizer



DMT GmbH & Co. KG
Am TÜV 1
45307 Essen
Germany
miningforum@dm-t-group.com
www.the-miningforum.com



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Venue

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Sonnenallee 225
12057 Berlin
Germany
Tel.: +49 30 6831-0
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