WBW
SCIENCE TO BUSINESS

Montanuniversität Leoben
Wirtschafts- und Betriebswissenschaften
Leitung: Univ.-Prof. Dipl.-Ing. Dr. mont. Wolfgang Posch

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Sustainability Management for Industries (SMI)

1st SMI Online Forum

Book of Abstracts

Environmental Social Governance (ESG) ... Distraction or Revolution?

The SMI Online Forum

An Event Organized by the Chair of Economics and Business Management (WBW) at the Montan University of Leoben

In Collaboration with the European University on Responsible Consumption and Production EURECA-PRO

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EURECA-PRO

Co-funded by the European Union

Content

Environmental Social Governance (ESG) ... Distraction or Revolution?

1st SMI Online Forum

As an interdisciplinary discussion platform, „Sustainability Management for Industries" (SMI) promotes the exchange of knowledge between scientists and experts on interesting and future-oriented topics relating to the „green transformation" of European industrial companies. In this context, the Chair of Economics and Business Management (WBW) has successfully organized the SMI conference series every two years at the University of Leoben since 2005.

The 1st SMI Online Forum on Nov 5th 2024 is an international online event planned for the first time by the Chair of WBW in collaboration with EURECA-PRO, in which current topics on the „green transformation" of European industrial companies are discussed. In line with the SMI discussion platform, topics from international speakers from science and industry will be presented and discussed with participants in this new online format.

In Collaboration

EURECA-PRO

European University on Responsible Consumption and Production

Co-funded by the European Union

This online forum aims at various stakeholder groups such as leading researchers, managers, employees, experts and PhD students from the fields of corporate energy and sustainability management, sustainable finance and all sectors involved in the „sustainable transformation" of industrial companies.

Publishers

Univ.-Prof. Dipl.-Ing. Dr. mont. Wolfgang Posch
Mag. et Dr. rer.soc.oec. Gerald Feichtinger
Dipl.-Ing. Dr. mont. Volkmar Kircher

Program

12.15 **Opening and Welcome**
Wolfgang Posch, Economics and Business Management, Montan University of Leoben
Volkmar Kircher, International Relations and European University, Montan University of Leoben

12.20 **Looking ‚under the hood' of an ESG Score**
Claudia Lucciola, Bloomberg LP

12.40 **ESG Risk Management from a Financial Institution's Perspective**
Matthias Frisch, Raiffeisenbank International

13.00 **Monetization of LCA-based Impacts**
Gerald Feichtinger, Economics and Business Management, Montan University of Leoben

13.20 **Coffee Break (online)**

13.30 **Digital Product Passports in the Hydrogen Supply Chain: Enhancing Transparency and Sustainability through Blockchain**
Volker Wannack, Blockchain Competence Center, University of Applied Sciences Mittweida
Jonathan Osswald, Faculty Applied Computer Sciences & Biosciences, University Mittweida

13.50 **ESG and Mining**
Angelika Haindl, Mining Engineering and Mineral Economics, Montan University of Leoben

14.10 **Integrating Sustainable Mining Practices to Achieve Europe's Green Digital Economy and Climate Neutrality by 2050**
Emmanouil Varouchakis, School of Mineral Resource Engineering, Technical University of Crete

14.30 **Summary and Closing**
Wolfgang Posch, Economics and Business Management, Montan University of Leoben

LUCCIOLA, Claudia

Team Leader | Fixed Income Advanced Specialists Enterprise Analytics
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Bloomberg

„Looking ‚under the hood' of an ESG Score"

Sustainability has become a strategic driver for institutional investors as they position businesses for the future. ESG scores help investors assess the ESG risks associated with a company and how these are being mitigated. However, having transparency of what is „under the hood" of an ESG Score is vital to understanding the meaning of these scores. In this session, we will go through each pillar (E, S and G) of the score, the idea of sector-materiality and then go through how a Tobacco company can have a higher ESG score than an Electric Vehicle company.

FRISCH, Matthias

Mag. MSc | Product Owner, ESG Data Hub
Raiffeisen Bank International, Vienna (AUT)

„ESG Risk Management from a Financial Institution's Perspective"

ESG aspects play an increasingly crucial role in the financial system – physical and transition risks are having a growing impact on a financial institution's balance sheet through its credit exposure to companies.

The "ESG Risk Management Principles" provides a comprehensive framework for managing ESG risks within a bank. It all starts with the "why" a bank needs to manage ESG related risks, showing how climate change can impact the balance sheet of a financial institution. Environmental, Social and Governance risk drivers can impact diverse financial risk categories through various transmission channels. The framework outlines key principles and processes for integrating ESG considerations into risk management practices in a stepwise approach: starting with the definition and identification of risks, followed by measurement and analysis, further on to steering, and finally processes and governance. Overall, the framework provides a structured approach ensuring a high standard of internal governance and compliance with regulatory requirements.

One of the most important steering tools at present is the "Financed Emissions" metric, which allocates customers' Scope 1, 2 and 3 emissions to the financial institution based on the proportion of their "financed" customers' total balance sheet. By managing financed emissions, the financial institution can track the decarbonization of its customers and, if necessary, generate pressure to take more ambitious action. Risks from climate change will be increasingly factored into credit relationships lending criteria, loan pricing, and sectoral strategies.

FEICHTINGER, Gerald

Mag. Dr. | Senior Scientist
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„Monetization of LCA-based Impacts“

In recent European legislation, the principle of life cycle thinking is becoming increasingly important and is now being used for various applications, such as environmental product declarations (EPDs) and digital product passports (DPPs), for a wide range of products. In general, the life cycle assessments (LCAs) standardized by the ISO 14040/44 series of standards enable an analysis of ecological, economic and social impacts along entire supply and value chains.

The results of such LCAs are comprehensive, depending on the chosen impact assessment method and the associated environmental impact categories, and their interpretations can be time-consuming. In a further step, these environmental impacts can be aggregated into an overall assessment score using weighting approaches. The economic assessment in the form of monetarization of the individual environmental effects is, among others, one approach to calculate a single cost-based score in terms of total external environmental costs that can be incorporated into the further decision-making process of a corporation.

In a case study with steel-based wear parts, the calculation of the associated total external environmental costs using two different monetization approaches is shown and critically analyzed. A comparison with the production costs shows that these external costs represent significant additional ecological costs.

OSSWALD, Jonathan

BSc | Scientific Assistant

Faculty Applied Computer Sciences & Biosciences, Univ. Mittweida (GER)

WANNACK, Volker

Dr. | Research Coordinator and Project Leader

Blockchain Competence Center, University of Applied Sciences Mittweida (GER)

„Digital Product Passports in the Hydrogen Supply Chain: Enhancing Transparency and Sustainability through Blockchain"

The growing global focus on sustainable energy solutions has positioned hydrogen as a critical player in the decarbonization of industries. However, ensuring transparency and accountability in hydrogen's lifecycle, particularly its certification as "green hydrogen," remains a challenge. Digital Product Passports (DPPs), supported by blockchain technology, offer a potential solution by providing a secure, immutable record of hydrogen production, distribution, and consumption data. This study aims to explore the role of DPPs in enhancing the traceability and regulatory compliance of hydrogen supply chains.

Through blockchain technology, we aim to establish a decentralized, tamper-proof system where hydrogen's origin, production method, and carbon intensity can be verified. Our methodology involves analyzing pilot DPP projects in various industries, with a focus on adapting these models for the hydrogen sector. We use smart contracts, decentralized identifiers (DIDs), and non-fungible tokens (NFTs) to track the lifecycle of hydrogen batches and their corresponding sustainability data.

We hypothesize that the implementation of DPPs will significantly improve transparency and reduce fraud in the hydrogen market by enabling real-time tracking of key metrics. Early findings suggest that DPPs can streamline hydrogen certification processes and enhance cross-border trade by ensuring compliance with international standards.

The results of this study are expected to contribute to ongoing discussions on how to standardize hydrogen product data, paving the way for wider adoption of blockchain technology in the energy sector. Future research will focus on scaling DPP applications across different regions and hydrogen production methods, with the goal of optimizing regulatory frameworks and reducing costs in hydrogen logistics.

HAINDL, Angelika

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„ESG and Mining“

Modern mining will continue to be a part of society, but it is imperative that it aligns with sustainable measures. Within the field of economics, there are several methods that can be employed to integrate sustainability into the valuation of mines. A crucial aspect for mining companies and the process of mine valuation is linked to mine planning.

The presented study focuses on an approach to integrate environmental, social and governance (ESG) aspects into the mine planning process. Several indices are defined and used to enhance the standard net present value (NPV) to a transformed value, similar to a cost-benefit analysis (CBA). The objective of this analysis is to ascertain whether ESG aspects can be integrated into the mine planning process and to identify the assumptions that are required for such an integration. Furthermore, a simplified case study and sensitivity analysis demonstrate that the optimal mining sequence is influenced by the incorporation of ESG aspects into mining blocks.

It is recommended that implementation be flexible to permit iterations between mine plans and the incorporation of guidelines and standards currently under development. The aforementioned flexibility is established through the utilisation of scripts that are integrated into commercially available mine planning software.

VAROUCHAKIS, Emmanouil

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TECHNICAL UNIVERSITY OF CRETE

„Integrating Sustainable Mining Practices to Achieve Europe's Green Digital Economy and Climate Neutrality by 2050"

Realizing Europe's ambition for a green, digital economy and achieving climate neutrality by 2050 necessitates significant progress in sustainable mining, processing, production, reuse, and recycling, alongside the implementation of environmentally responsible mining practices. The sustainability of the mining sector is fundamentally dependent on the continuing conservation of natural resources, as contemporary societies will persist in their demand, production, and consumption of metals and minerals.

This paper examines the incorporation of sustainability principles within the mining industry, highlighting the need to balance social, environmental, and economic dimensions. Social factors encompass health, as well as social and cultural aspects, while environmental considerations include the management of emissions and waste, site rehabilitation post-extraction, biodiversity preservation, energy efficiency, and climate change mitigation. From an economic perspective, the emphasis is on promoting social development, increasing prosperity and competitiveness, optimizing resource management, and advancing a circular economy. Furthermore, the mining sector must confront ongoing sustainability challenges, particularly its existing carbon and climate impacts, which are currently inadequate in many areas. A comprehensive sustainability framework is proposed, addressing six primary categories: water, land, air, socioeconomic factors, health and safety, and quality of life. Tackling these multifaceted issues requires systemic approaches, including advanced geostatistical methods, to identify underlying causes and avert further environmental harm. This study delineates the essential strategies and actions needed for the mining industry to effectively support Europe's long-term sustainability and climate neutrality goals.

The research project is implemented in the framework of H.F.R.I call "Basic research Financing (Horizontal support of all Sciences)" under the National Recovery and Resilience Plan "Greece 2.0" funded by the European Union – NextGenerationEU (H.F.R.I. Project Number: 16537).

Greece 2.0
NATIONAL RECOVERY AND RESILIENCE PLAN

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SMI Books

Erfolg durch nachhaltiges Energie- und Ressourcenmanagement

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Follow Ups

With the interdisciplinary discussion platform „Sustainability Management for Industries" (SMI) the Chair of Economics and Business Management (WBW) promotes the exchange of knowledge between scientists and practitioners in the fields of sustainability and energy transformation.

2025

Autumn 2025 — 11th SMI Congress

Since 2005, the WBW successfully organises the SMI congress every two years which promotes the exchange of knowledge between scientists and practitioners in the fields of sustainability and energy transformation as an interdisciplinary discussion platform. Participants have been able to benefit from innovative and implementation-oriented ideas, which have already been presented in the course of this congress series. The 11th SMI congress is expected to take place in autumn 2025 at the Montan University of Leoben and aims at executives and managers of future-oriented organisations as well as employees, scientists and interested parties in the fields of business, energy, environmental, innovation and sustainability management.

2026

Autumn 2026 — 2nd SMI Online-Forum

The SMI Online Forum is an international online-event series planned and organized by the WBW in collaboration with EURECA-PRO, in which current topics on the "Twin Green and Digital Transition" of European industrial companies are discussed. In line with the SMI congress series, topics from international speakers from science and industry will be presented and discussed with participants in an online format. The 2nd SMI Online-Forum is expected to take place in autumn 2026 and aims at leading researchers, managers, employees, experts and PhD students from the fields of corporate energy and sustainability management.

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organized by

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