

## **CIRCEXTIN**

### **A strategic partnership to promote a circular economy approach in study programs related to the inclusive mining industry**

Wolf, K.H.A.A.

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# CIRCEXTIN

## A strategic partnership to promote a circular economy approach in study programs related to the inclusive mining industry

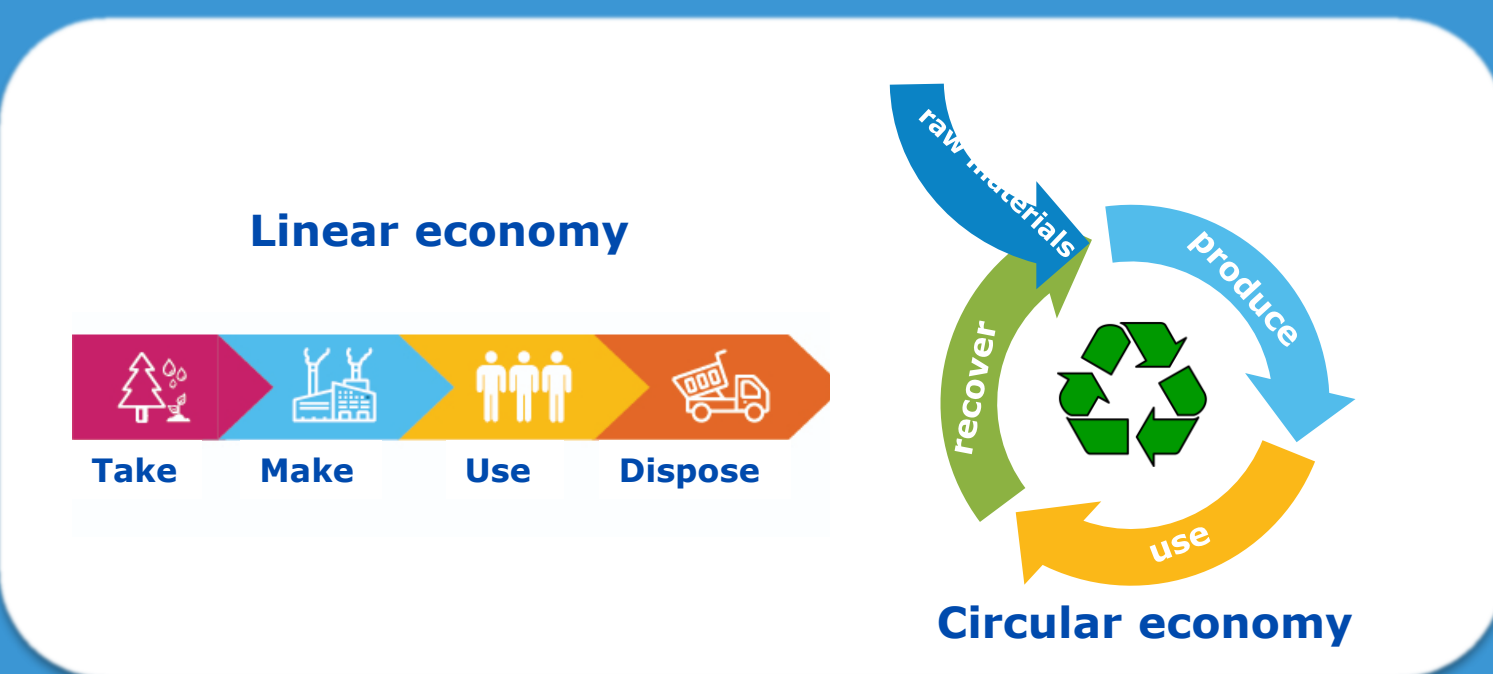
Projekt nr: 2020-1-PL01-KA203-082089

Action 2 ERASMUS+ "Cooperation for innovation and exchange of good practices" - Strategic Partnerships

**The main goal of the project is to create a comprehensive training platform that will be helpful in modifying and updating educational programs at universities related to the sub-surface exploitation related industry, with the latest and practical knowledge linked to the effective application of circular economy waste management principles.**

[www.circextin.eu](http://www.circextin.eu)

The circular economy is an economic concept in which products, materials and raw materials should remain in the economy as long as possible, and the generation of waste should be minimized as much as possible. This idea takes into account all stages of the product life cycle, starting from its design, through production, consumption, waste collection, to its management. In a circular economy, it is important that waste solids, fluids and gases, if it is generated, are treated as secondary raw material. All activities preceding the generation of waste are to serve this purpose.



The application of the circular economy principles is particularly important in the sub-surface utilization industry, which generates the second largest stream of waste (over 26%) in the European Union!

The CIRCEXTIN project is running from 2020 tot 2023. The project has four main deliverables:

### 1. Development of a model curriculum.

On the basis of surveys conducted among a number of stakeholders in the European Union (universities, enterprises), guidelines for creating a model curriculum at the master's level were created. Identified and developed:

- Entrance requirements for students
- Subject and profile of the graduate
- Learning outcomes
- The need and adequacy of the study program for science and the labor market

### 2. Creation of a short postgraduate course

Project partners created a postgraduate course that was launched at the Faculty of Mining, Safety Engineering and Industrial Automation of the Silesian University of Technology. Course in English "Circular economy in the mining industry - principles and application" consisted of six main teaching modules (85 contact hours), i.e.:

- Circular economy - principles and legal basis
- Mining waste management/underground storage and circular storage of CO<sub>2</sub>, H<sub>2</sub>
- Modern methods of mineral processing
- Environmental impact assessment
- Energy storage in coal mines and the use of post-mining infrastructure
- Waste storage and disposal

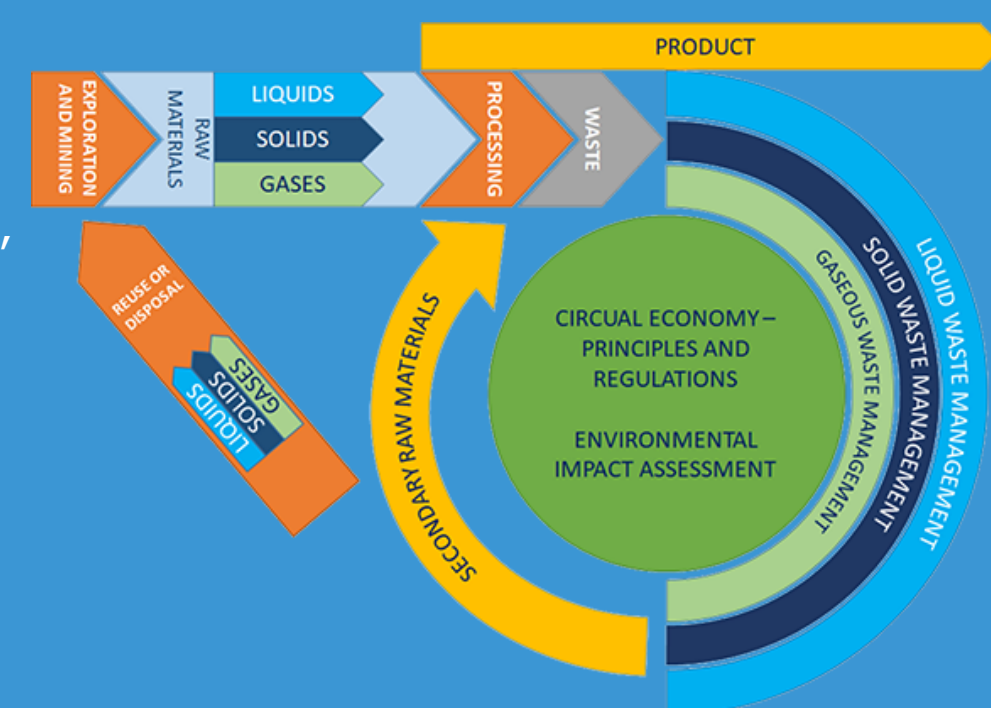
The course was created by university staff involved in the project with the support of industrial partners.

### 3. Creation of an open online course on a MOOC (Massive Online Open Course) platform

Based on the experience from the first two results, a course will be created on the Canvas platform (canvas.instructure.com)

### 4. Analysis of legal regulations related to sustainable development in the mining industry

The analysis of the sustainability of the extractive sector is linked to various indicators, such as the UN Sustainable Development Goals. A mathematical algorithm was developed to evaluate the above-mentioned balance index, taking into account various variants of multi-criteria algorithms.



Multi-criteria analysis of the achievement of the Unsustainable Development Goals in the mining industry



The partners in the project are distinguished European Universities, i.e. Montanuniversität Leoben (Austria), TU Delft (Netherlands), Universidad Politécnica de Madrid (Spain) and the Technical University of Tallinn (Estonia). An extremely important support for the project is the participation of two industrial partners, i.e.; JSW Innowacje S.A. and the COBANT Group S.A., and further the non-governmental organization of the Polish Society of Circular Economy. The composition of the consortium allows for a very broad approach to the issues of waste management in the mining industry, starting from energy minerals, including oil, gas, oil shale and coal, ending with common and metallic minerals.

Project coordinator



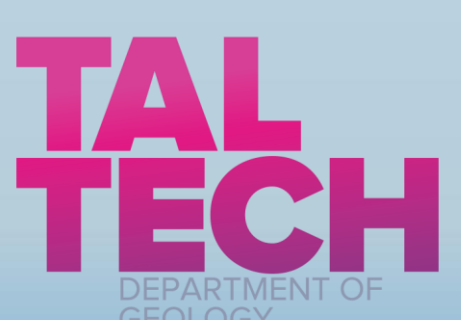
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It changes lives, it opens minds.

