



# ALCHIMIA

## Second Newsletter

Welcome to ALCHIMIA's 2nd newsletter | November 2023

Dear ALCHIMIA community,

We are very excited to release our second newsletter! Within this newsletter, readers will easily be able to locate:

- [Statement from the Coordinator](#)
- [Sustainable Development Goals](#) and [LCA](#) Analysis Update
- An update on the ALCHIMIA Project Social Research
- Previews of our latest [blogs](#)!

The ALCHIMIA project is dedicated to promoting sustainable metalworking in the EU, and we are committed to continuing our work towards this goal.

We invite you to stay tuned for further updates on our progress and to follow us on social media to stay up-to-date with the [latest news](#) and developments. By working together, we believe we can make a significant difference in creating a more sustainable future for the metalworking industry.

Thank you for your support and interest in the ALCHIMIA project!



## Statement From the Coordinator

### STATEMENT FROM THE COORDINATOR

“ALCHIMIA has already completed its first year of project. After a year of intense and exciting work, ALCHIMIA has reached its first milestones and enters the phase of implementing and integrating the technical solutions that will achieve the project objectives once the functional and non-functional requirements of the use cases have been identified. The main outcomes reached during this period are the first version of ALCHIMIA Federated Learning and Continual Learning framework, which provides features to allow training Machine Learning and Deep Learning models in a decentralised manner, including multiple capabilities in terms of aggregation and communication protocols.

In parallel, based on initial data sets shared by CELSA, work is being carried out on the creation of local models including analysis and cleaning of process data, adaptation of the dynamic Electric Arc Furnace (EAF) process model to the CELSA plant and initial adjustment of parameters; and the development of a demonstration web application with the main functions of scrap characterization, optimization of scrap mix and visualization of the results of the EAF process modelling. The next step will be to integrate the overall model into the Federated Learning framework.”

[click to read the full statement](#)

Jesús Benedicto



## The Sustainable Development Goals and LCA Analysis

# SUSTAINABLE DEVELOPMENT GOALS



The ALCHIMIA Project is deeply committed to aligning with the United Nations [Sustainable Development Goals](#) (SDGs), particularly focusing on SDG7 (Affordable and Clean Energy), SDG9 (Industry, Innovation, and Infrastructure), and SDG12 (Responsible Production) by improving energy efficiency in the steel sector through innovative technologies and reducing waste generation.

ALCHIMIA will produce an SDG assessment, identifying both the potential positive and negative impacts of the project on the SDGs. Additionally, ALCHIMIA is carrying out a [Life Cycle Assessment](#) (LCA) analysis to measure environmental impacts, paving the way for sustainable advancements.

This initiative aims to contribute to a more sustainable future and is part of broader European policies like the EU Green Deal, with ALCHIMIA playing a pivotal role in advancing climate-neutral objectives through its efforts in the steel industry.

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## ALCHIMIA Project Social Research

The ALCHIMIA Project social science research team has contributed to the project's latest report with its analysis of social requirements and human-centric recommendations of the ALCHIMIA project. This is an integral part of

the ALCHIMIA project through its alignment with human-centred design principles and the EU Guidelines for Ethical and Trustworthy AI.

The social requirements for ALCHIMIA were elicited through online surveys and on-site interviews conducted with different types of actors working in the four plants, covering all aspects of production processes likely to be affected by ALCHIMIA.

For the human-centred design recommendations, the social science team reflexively analysed and evaluated the alignment of the design and development activities in the ALCHIMIA project with six human-centred design principles.

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## Discover ALCHIMIA Blogs



## The benefits of Transfer Learning for the European Steel Industry

Discover how Transfer Learning is revolutionising the European Steel industry in [this blog](#).

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## LCA in the ALCHIMIA project

Discover how the Life Cycle Assessment methodology measures environmental impacts, paving the way for sustainable advancements in this [blog](#).

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## ALCHIMIA Project Ex-ante Evaluation Findings

Discover ALCHIMIA Project's ex-ante evaluation findings in this [blog](#), which highlights strong support for the project's objectives, potential challenges in integrating ALCHIMIA into production processes, and recommendations for human-centred design principles.

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## The importance of the SDGs in the ALCHIMIA Project

The ALCHIMIA Project is deeply committed to aligning with the United Nations Sustainable Development Goals (SDGs), particularly focusing on SDG7, SDG9, and SDG12.

Read our [blog](#) to find out more.

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## ALCHIMIA: Revolutionizing Metalworking with AI for Sustainable Production

Read this [blog](#) to learn more about the ALCHIMIA project and discover how the power of artificial intelligence is reshaping the steel industry, making it more precise, efficient, and environmentally friendly than ever before.

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**Don't forget to follow us on X and LinkedIn!**



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[alchimia-project.eu](http://alchimia-project.eu)

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