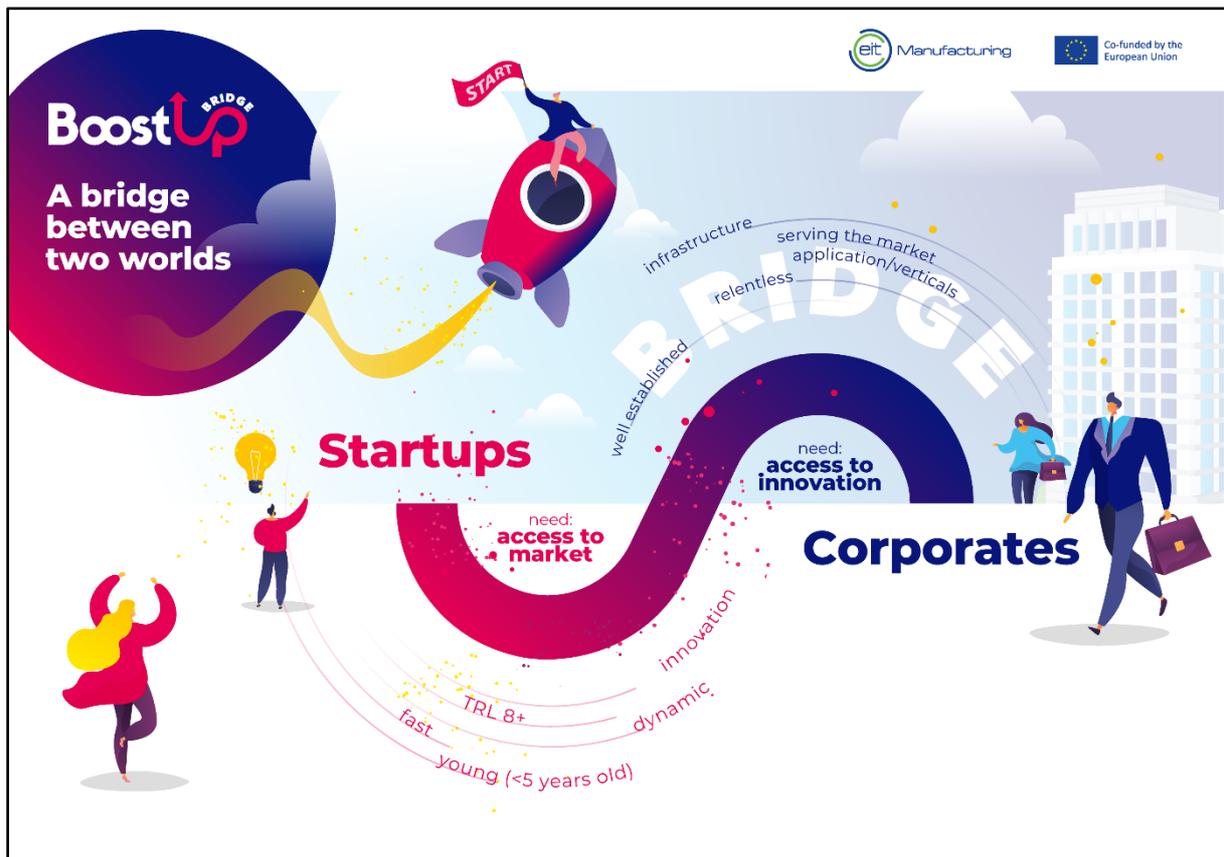


BoostUp! BRIDGE 2021 edition

an Access to Market Competition from EIT Manufacturing

INDUSTRIAL CHALLENGES



1. NET ZERO OPERATIONS



CONTEXT Energy Efficiency & Green Impact

CHALLENGE The industrial site of Cassinetta di Biandronno (VA) hosts 3 factories and several support function departments with energy intensive processes. In pursuit of decarbonizing their operations via reduced energy consumption and optimization, some key elements in the roadmap are:

- a. Effectively measure and drive energy efficiency combining data analytics and AI, targeting energy-intensive production processes and enabling data-driven decisions for critical process equipment within painting units.
- b. Enable a dataset and analysis for guiding technical intervention for retrofitting or implementing alternative technologies fostering the reduction of fossil-fuel impact.

This challenge aims at identifying and implementing a solution to address the first key element in the roadmap (point a above), i.e., designing and implementing a process to measure and drive the energy efficiency and performance of a painting process line at the site of Cassinetta.

Solutions also addressing the second point b (optional) will have a higher evaluation. However, please bear in mind that the winning solution must be implemented by no later than 31 December 2022.

Solutions must be scalable. Based on their performance once implemented, they may be extended to other production lines at WHIRLPOOL EMEA and/or in other corporates or industrial sectors.

IMPACT To drive solutions for key energy-intensive production processes with scale-up opportunities within WHIRLPOOL manufacturing plants network. Furthermore, solutions will help set the approach for fostering solutions within the industry, currently facing the constraints of brown field/existing equipment energy retrofit.

The expected impact is also a meaningful boost to WHIRLPOOL'S decarbonization roadmap and strictly connected with productivity and value creation.

2. *MEASURING & MODELLING CO₂ EMISSIONS*



CONTEXT Measuring and Modelling CO₂ emissions of direct material suppliers (from cradle to gate, including recycling).

CHALLENGE Climate change and the way towards carbon neutrality is one of the most pressing issues of our century, especially in the manufacturing industry. Legislation and consumer preferences force manufacturers to make this transparent and cut CO₂ emissions. While the reporting of direct emissions is already required and state of the art, the upstream and downstream emissions along the supply chain are gaining increasing interest. For VOESTALPINE it is a particular challenge to assess upstream emissions and to correctly allocate those to specific produced goods.

The challenge is focused on the upstream part and the main tasks are:

- a. visualize and calculate the (total) carbon contribution from raw material suppliers;
- b. include secondary/alternative raw materials and necessary recycling rel. aspects of the supplied materials;
- c. Investigate (quality, completeness, timeliness, ...) and include all available and necessary data sources.

All tasks should be in line with the existing IT infrastructure, processes, and interfaces of VOESTALPINE High Performance Metals, producer of high alloyed materials.

IMPACT A higher transparency of the CO₂ footprint (showing the different contributions on a product level) offers insights in optimization potentials to lower the footprint (focus on direct material suppliers incl. recycling) and can trigger customer motivation for a circular economy.

Furthermore, alternative products – with a lower CO₂ footprint – can be offered to the customer, as a result of optimization on a supplier level.

3. *OPTIMIZING PRODUCT SHELF LIFE*



CONTEXT Supply Chain and Operational Efficiency.

CHALLENGE Eroski aims at analysing and optimizing the shelf life of each provider's goods with an AI-driven model in order to improve economic and logistics efficiency as well as minimise product waste due to inaccurate shelf life calculations.

Each product has a different shelf life defined by the date of expiry or by studies conveyed by the quality department. This shelf life is distributed along the value chain in three stages by different actors: the manufacturer (provider), Eroski and the final consumer.

Providers must guarantee that the product arrives to Eroski (logistics points and shops) with a minimum remaining lifetime. Some providers have requested to adjust the agreed minimum lifetime span with the purpose of improving their service delivery because they are often unable to serve their orders due to such a constraint.

Eroski is looking for a technology provider that could create an AI-driven model to optimize each product's shelf life, considering the product's unique characteristics as well as the rotation levels. This would allow Eroski to better adjust the conditions with providers to make logistics more rationalized, improving the advantages to these providers. In addition, such a solution would reduce the volume of discarded products (food thrown out) while improving shelf life and the productivity of logistic flows.

IMPACT An improved lifespan would result in an improved service to providers, better operational efficiency in Eroski (with reduction of product waste) and improved value proposition to customers. Moreover, such an approach would be scalable both within Eroski and at other verticals.