



Funded by
the European Union

Project funded by



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Education,
Research and Innovation SERI

COROB project is funded by the EU's Horizon Europe programme under Grant Agreement number 101120640. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them. This work has received funding from the Swiss State Secretariat for Education, Research and Innovation (SERI).

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22 February 2024



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COROB

Cooperative Robotics Powered by AI and Data for Flexible Production Cells

AMBITION

THE GOAL

COROB aims to develop a flexible, cooperative and intelligent multi-robotic solution for arc welding-based manufacturing processes (joining and additive manufacturing), to offer new operational capabilities that allow to increase the efficiency and improve the flexibility of industrial processes.

A GLOBAL SOLUTION

COROB, conceived as a global solution, will employ a cooperative multi-robot system powered by Inspection, Monitoring, Control and AI techniques to optimize the welding process, and the adjacent manufacturing stages for time, cost, energy, and resource reduction.

VALIDATION

The solution will be validated in two semi-industrial use cases focused on arc-welding joining and wire-arc additive manufacturing for repairing, ready to be extrapolated to other processes such as assembling, painting or finishing.

IMPACT

SCIENTIFIC IMPACT

Develop and integrate novel technologies combining robotics, AI and data to boost manufacturing for strategic sectors and industries. It will demonstrate a feasible solution for **flexible, agile and reconfigurable manufacturing** using cooperative robots enhanced by AI and humans, which is supposed to be the next-generation robotics.

ENVIROMENTAL IMPACT

Propose easy adaptation of the processes to changing conditions with a fast response, ensuring (i) the significant **reduction of fixtures and scrap ratio** and (ii) **repairing for circular economy**. In both cases the use of materials and energy consumption will be reduced.

INDUSTRIAL IMPACT

The development and adoption of COROB novel digital solutions and the training material developed to facilitate adoption of the solution will contribute to regain European industry's digital leadership across the supply chain

