

# CONVERGING

Social industrial collaborative environments integrating AI, Big Data and Robotics for smart manufacturing

## Discover CONVERGING

The CONVERGING project aims to Develop, deploy, validate and promote smart and reconfigurable production systems including multiple autonomous agents (collaborative robots, AGVs, humans) that are able to act in diverse production environments.

### Vision

*The ambitious vision of CONVERGING is to develop a human – robot collaborative social-industrial environment by bringing together the advances of Big Data, AI, Robotics, and Social Sciences and Humanities for safer, more flexible, reconfigurable, and modular production environments.*

### Pilots


The CONVERGING results project will be demonstrated in 4 industrial full-scale pilots running in actual production environments of each sector:



#### Automotive

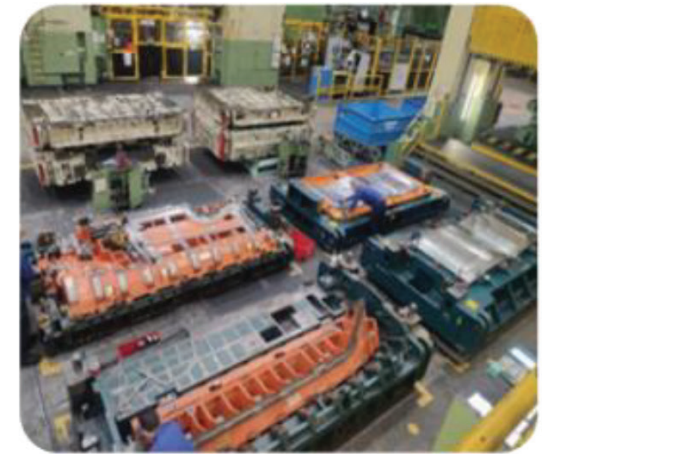
Automation of the entire process of mold inspection and polishing process with the use of a smart mobile manipulator.

**Current state**




Multiple workers – Hazardous environments (ergonomic strain)

**Current state**




Subjective measurements – No Process data

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Easy setup / Teaching of new parts

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Combination of AGV+ Robot Arm

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Working while moving  
Autonomous Path planning  
Process logging



#### Aeronautics

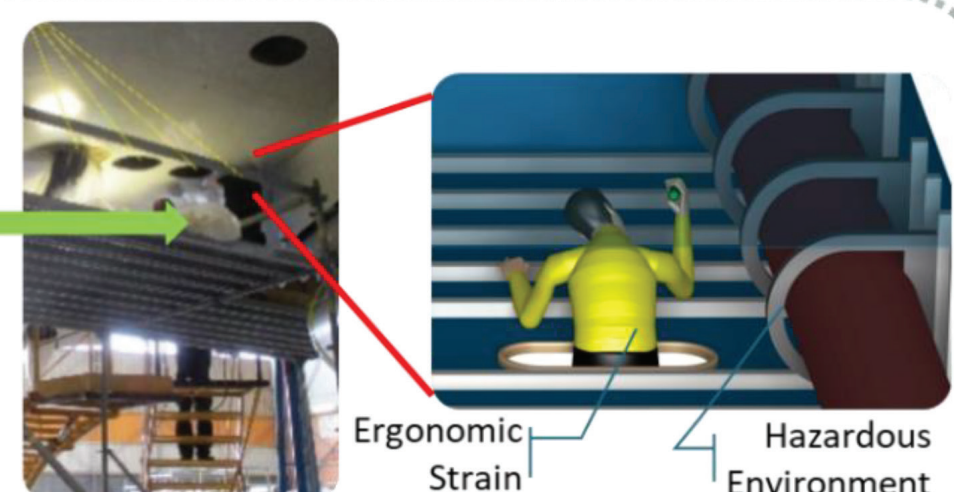
Improve the efficiency and safety of inspecting and repairing fuel tanks through the use of robotic technology, AI-based systems, and augmented reality tools by reducing the necessary precautions and complete the work more efficiently.

**Current state**



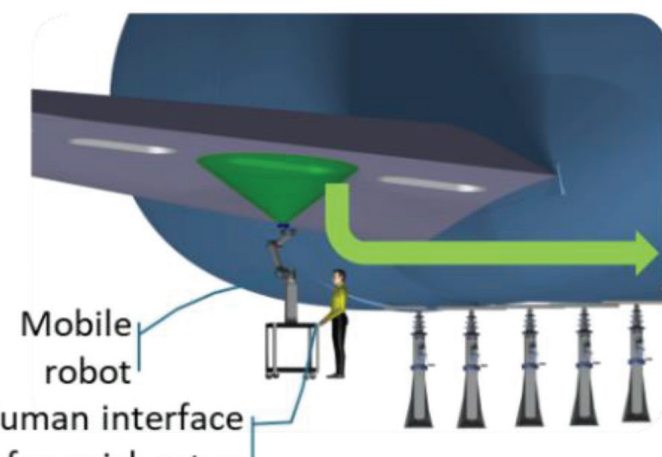
Wing  
Tank Entrance

**Current state**



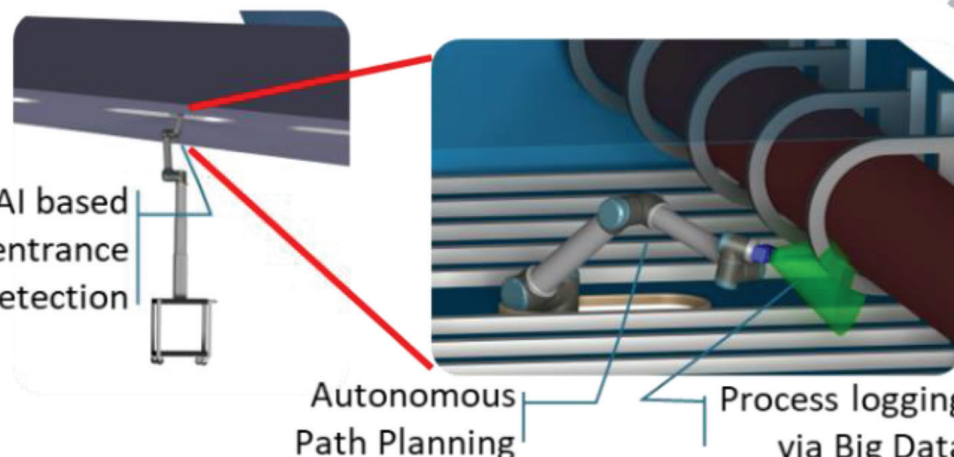
Ergonomic Strain  
Hazardous Environment

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Mobile robot  
Human interface for quick setup

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AI based entrance detection  
Autonomous Path Planning  
Process logging via Big Data



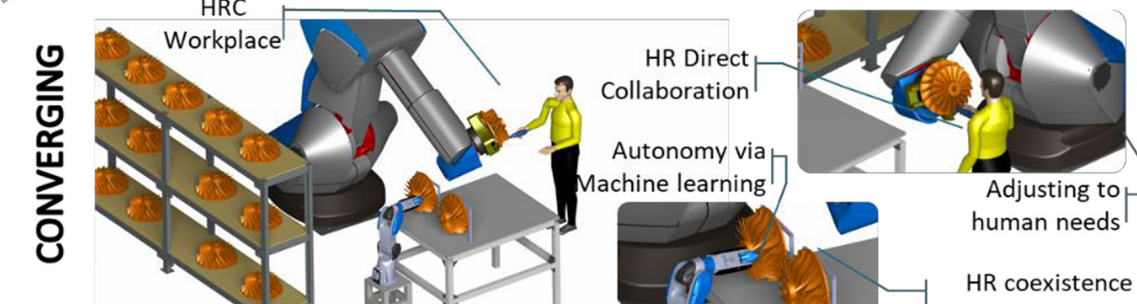
#### White Goods Industry

Human and robot coordination of their actions through an AI station controller, and the system will improve the repeatability of cable routing, reduce ergonomic risk factors, and deal with variability in coil supply.

**Current state**



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HRC Workplace  
HR Direct Collaboration  
Autonomy via Machine learning  
Adjusting to human needs  
HR coexistence and space sharing



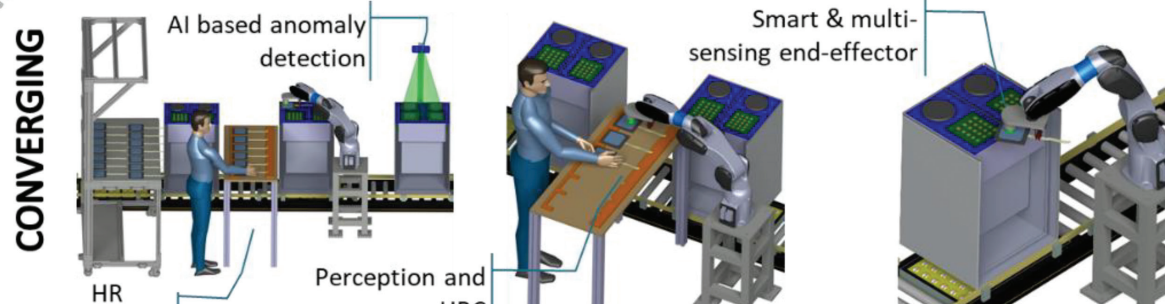
#### Additive Manufacturing Sector

Implement robots to perform support removal and surface finishing operations in collaboration with humans to maximize efficiency.

**Current state**



**CONVERGING**



AI based anomaly detection  
Smart & multi-sensing end-effector  
HR coexistence  
Perception and HRC



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