



EUROPEAN MANUFACTURING INNOVATION



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SOFOCLES

Smart and Flexible Clamping system for Sealing



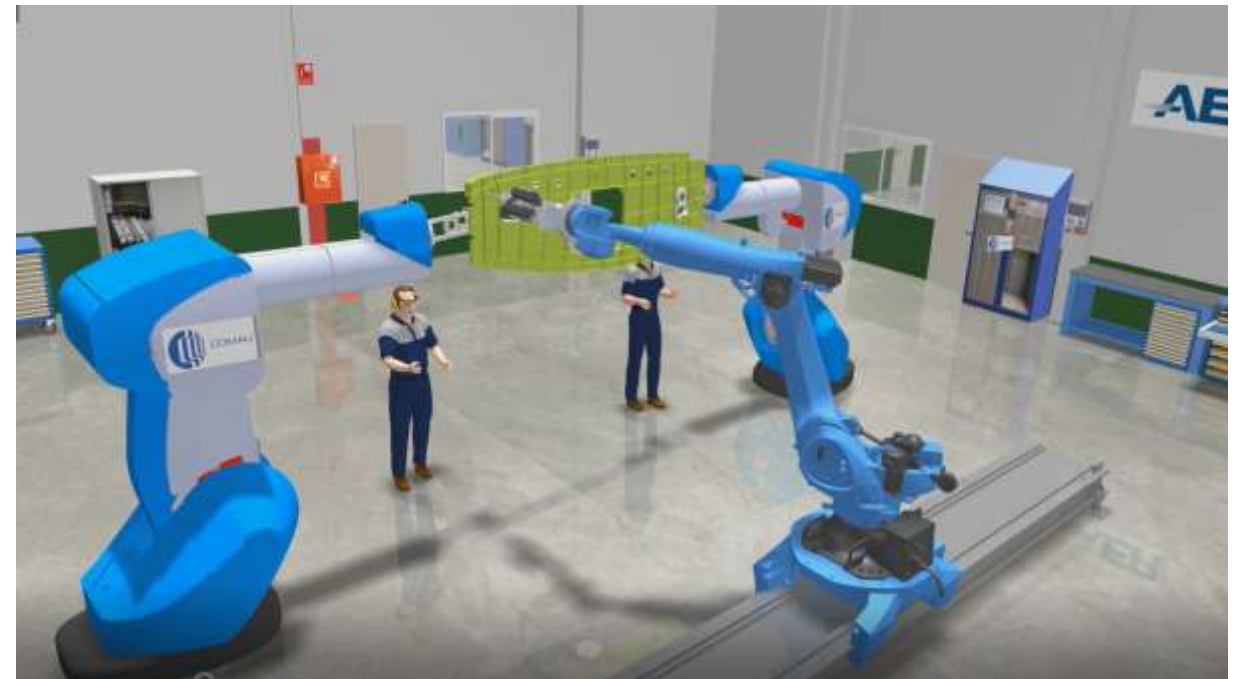
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SOFOCLES Project Partners

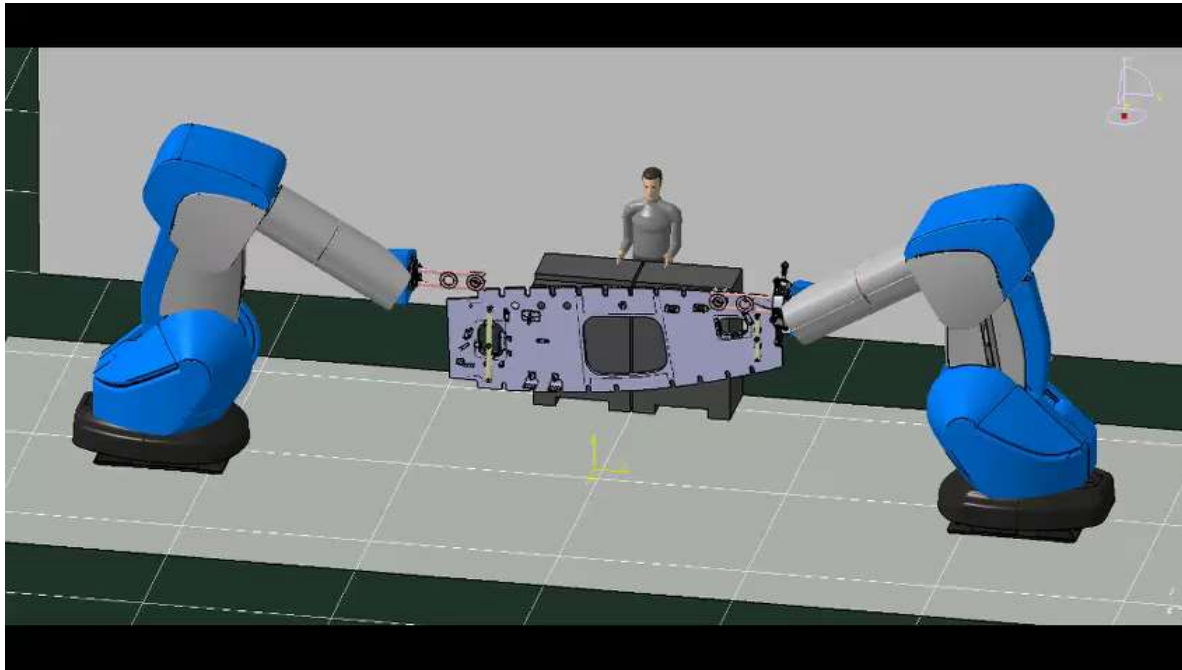


- Handling and tooling large parts for industrial process in the aeronautical sector as sealing, welding, WAAM ... might be time and specific knowledge demanding. In addition, different tools may be needed for different references of manufactured parts, which can require high investments.
- The Sofocles project proposes a flexible solution using two collaborative robots with flexible and reconfigurable grippers to achieve a robotic cell acting as manipulator placing the part in the different positions necessary to carry out the desired operations and as tooling keeping the part in position during the operation.



Dual High payload Collaborative Arm Coordination

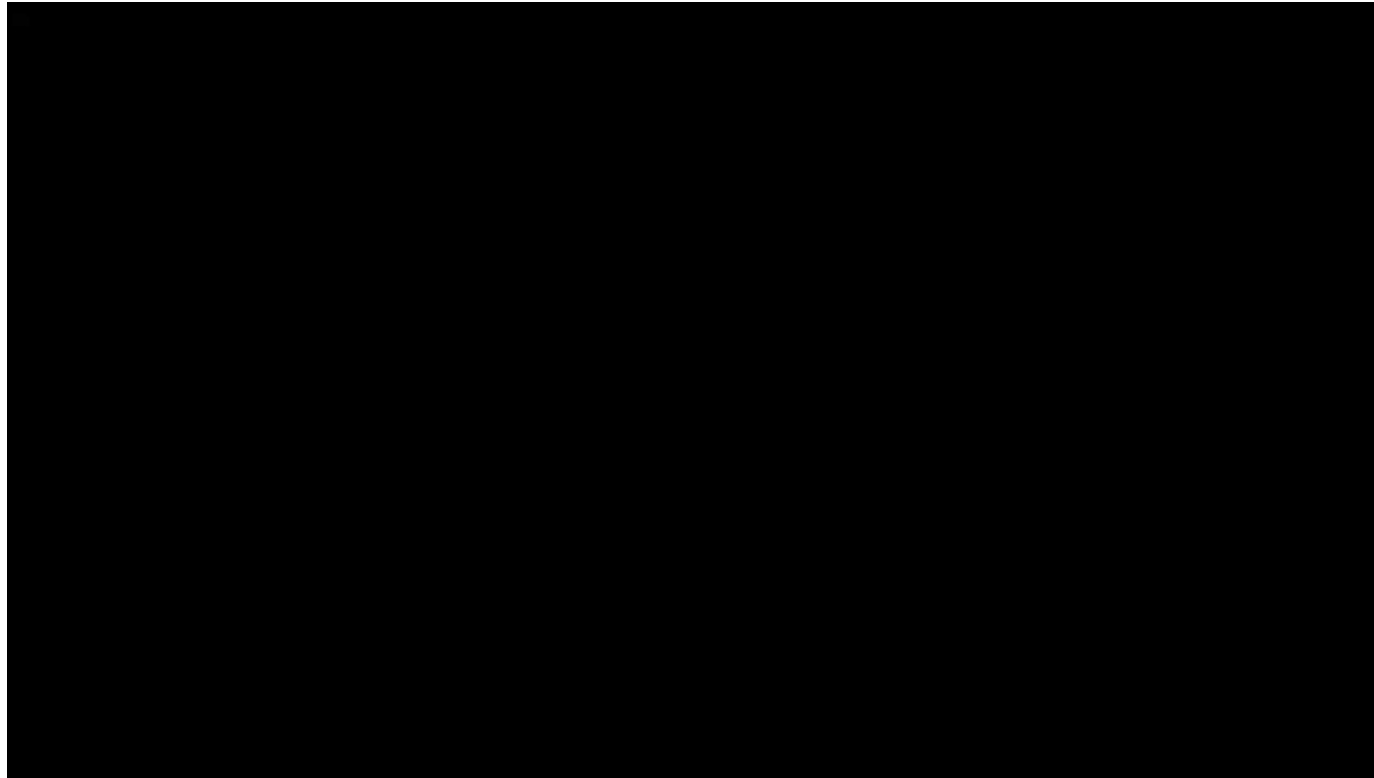
Reconfigurable and flexible gripper



Using collaborative robots with high payload and the monitoring of the work area allows the operator to interact safely with the robotic cell.

The reconfigurable and flexible gripper will allow the cell to handle pieces of different sizes and the compliant element will allow the efforts in the pieces to be acceptable.

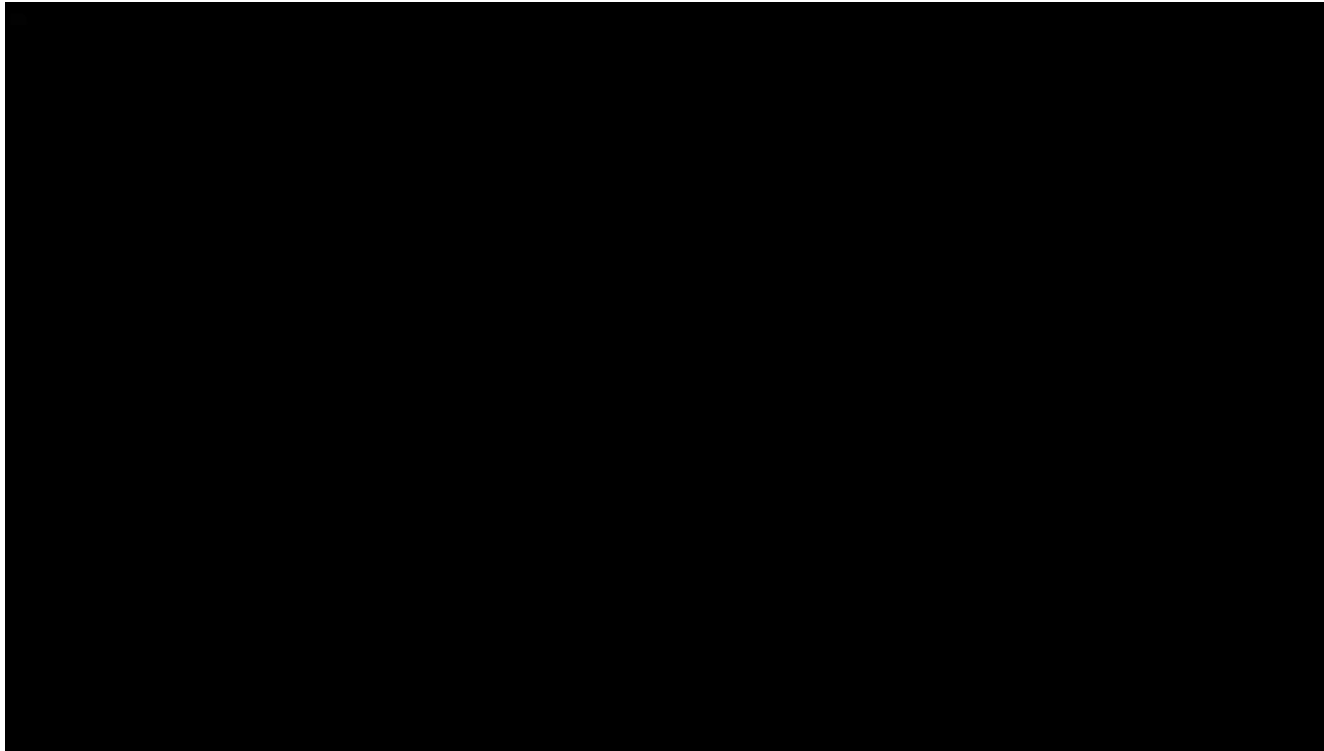
Digital twin





SOFOCLES Project developments

Virtual Reality Tool



- Reduction of the time of positioning and clamping the parts;
- Elimination of errors in the positioning and clamping of the parts in the cell, due to the H-R collaboration and smartization;
- Cost reduction of the needed tooling by its flexibility;
- Reduction of the costs of the cell, by using the same system for handling and tooling;
- Elimination of risks in the handling of large structural parts by the operators, by the implementation of a safe and efficient H-R collaborative system.

Reduction of the time of positioning and clamping the parts

Elimination of errors in the positioning and clamping of the parts in the cell, due to the H-R collaboration and smartization

Cost reduction of the needed tooling by its flexibility

Elimination of risks in the handling of large structural parts by the operators, by the implementation of a safe and efficient H-R collaborative system.

Reduction of the costs of the cell, by using the same system for handling and tooling

Manufacturing matters!

The manufacturing industry is a global base for **prosperity** and key to Europe's **economic, social** and **environmental** sustainability. Manufacturing is a main driver of **industrial innovation, job creation** and growth for the European society



Over **2.1 million** manufacturing enterprises



16.1% of the share of EU-28 GDP² (2016)



32 million jobs (16% of the total EU working population)



Total turnover of EUR **7.11 trillion**³



Approx. **13 million** jobs in the growing high-tech manufacturing industry¹