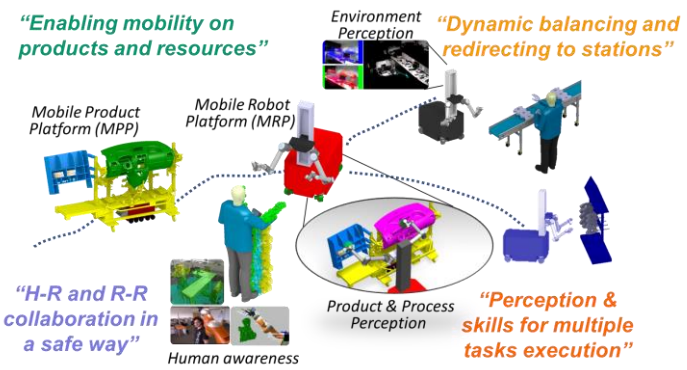
PROJECT APPROACH



THE VISION

Enabling mobility on products and resources.

Enabling perception of the task and the environment

Dynamic balancing of workload and redirecting to stations

Fast programming and automatic execution of multiple tasks

Safe collaboration between humans and robots

CONSORTIUM

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LMS Laboratory for Manufacturing Systems & Automation

Consortium

PSA GROUPE

AERnnova

ingeniería mantenimiento industrial

tecnalia Inspiring Business

roboception

SICK Sensor Intelligence.

INTRASOFT INTERNATIONAL

This project has received funding from the EU Horizon 2020 research and innovation programme under grant agreement No: 723616

THOMAS

Mobile dual arm robotic workers with embedded cognition for hybrid and dynamically reconfigurable manufacturing systems

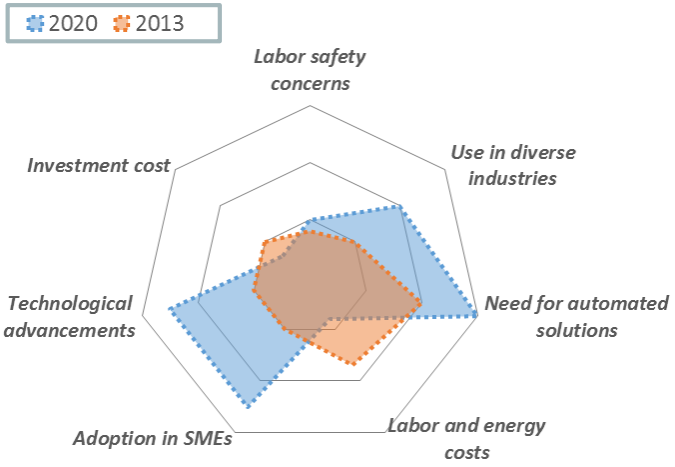
2016-2020

www.thomas-project.eu

MOTIVATION

- ❑ Currently there are 2.3 million industrial manufacturing SMEs in the EU (99% of all companies)
- ❑ Small scale production exhibits "one of a kind" product variability requiring production structure & process / equipment flexibility
- ❑ Strategies for reducing cell's maintenance and auxiliary systems cost & effort required
- ❑ Complex manual tasks cannot be fully automated with a good ratio of cost vs robustness
- ❑ At least 85% of the production tasks in major industries are automatable using robots

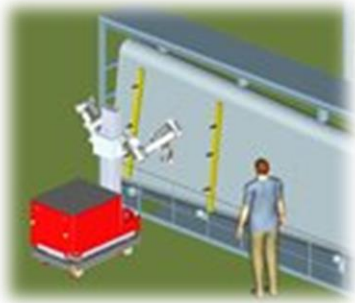
Impact on robotics technology market



PROJECT APPROACH

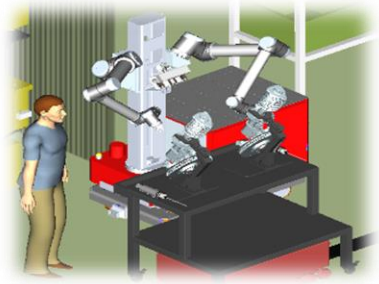
The project is driven by two pilot cases:

Aeronautics Industry



- Dual arm Mobile Robot Platform (MRP)
- Human Robot shared workspace
- Novel HR interaction mechanisms
- Perception skills
- Real time work re-organization

Automotive Industry



- Dual arm Mobile Robot Platform (MRP)
- Mobile Product Platform (MPP)
- Robot to Robot coordination
- Hybrid safety
- Perception for navigation

TARGETED RESULTS

- ❑ Mobile dual arm manipulator for flexible operations
- ❑ System for enabling docking and collaborative operation of mobile units
- ❑ Generic Perception skill libraries for Application-ready solutions
- ❑ Mobile robots navigation library with vision-based accurate localization
- ❑ Fenceless environment monitoring and robot control software libraries
- ❑ Global communication & synchronization framework

Expected Benefits

- ✓ Increase reconfigurability by introducing mobility of resources and products
- ✓ Increase system's adaptability through task and environment awareness
- ✓ Reduce programming efforts by automatic programming of multiple operations
- ✓ Reduction of set-up and new product adaptation costs – increased efficiency
- ✓ Increased flexibility and resource utilization by dynamically reorganizing the workload
- ✓ Reduce operator's physical strain by automating manual tasks