CONSORTIUM

LMS
Laboratory for Manufacturing Systems & Automation

SAFRAN Snecma

VOLVO

lantegiBatuak

Prima Power

N. BAZIGOS SA

JERNBRO

Casp

IK4 TEKNIKER Research Alliance

we+

vicomtech IK4 Research Alliance

cea list

UNIVERSITY OF SKÖVDE

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MANUWORK

Balancing Human and Automation Levels for the Manufacturing Workplaces of the Future

www.manuwork.eu

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European Commission

PROJECT OBJECTIVES

- ✓ Create a framework for workplace adaptation based on socio-organizational factors.
  - ➢ Workplace attractiveness
  - ➢ Well-being and engagement of the worker in the design and adaptation phases based on their experience.
- ✓ Develop a human-automation load balancing method that determines the optimal trade-off between automation and human involvement at a workplace, taking into account the process flexibility required, available skills, safe integration of human and automation into the process and the overall load of the line.
- ✓ Develop a method for measuring worker satisfaction, safety and health at work, i.e. "ergonomics climate.
- ✓ Develop an advanced social networking shop-floor application, facilitating AR technologies, which will be used for knowledge capturing, networking, guidance and decision support.

ABOUT MANUWORK

Future manufacturing will be characterized by the complementarity between humans and automation. This requires new methods and tools for the design and operation of optimized manufacturing workplaces in terms of ergonomics, safety, efficiency, complexity management and work satisfaction. MANUWORK aims to focus on the development of an integrated platform for the management of manufacturing workplaces of the future.

MANUWORK supports the design and operation of human-centered manufacturing that is based on the human-automation symbiosis. In this paradigm the operators feel empowered and in control of their workstation while at the same time the system adapts in order to compensate for operators' limitations (skills, knowledge, disabilities), thus ensuring a socially sustainable working environment without compromising production targets.

MANUWORK

INDUSTRIAL PILOT CASES

The developments of the MANUWORK will be demonstrated in three industrial pilots and one pre-pilot setting:

- ➢ Automotive (VOLVO): The automotive use case focuses on the assembly of car engines targeting at optimal manual/automation load balancing with consideration of the real-time status and knowledge extracted from shop-floor.
- ➢ Aerospace (SAFRAN): The aerospace use-focuses on the final assembly of civil aircraft engines and the focus will be on feedback/ information sharing, workers' training and satisfaction
- ➢ Disabilities (LANTEGI): This pilot case uses the human-machine symbiosis paradigm for supporting people with different disabilities to perform complex assembly tasks.
- ➢ Machine tool (PRIMA, BAZIGOS): The machine tool use-case will form the basis for a pre-pilot validation activity planned prior to the industrial demonstrators of MANUWORK.

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