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Digitalization of Manufacturing SMEs - Norwegian perspective

Ass. Prof. Gabor Sziebig

Department of Industrial Engineering
Faculty of Engineering Science and Technology
UiT – The Arctic University of Norway

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Faculty of Engineering Science and Technology – the short version

Engineering faculty with 180 employees, 1500 students.
Education programs in prequalification, bachelor, master, PhD.

Departments:
- Industrial engineering
- Building, energy and material technology
- Electrical engineering
- Computer science and computational engineering
- Engineering and safety

Research groups:
- Electromechanical systems
- Industrial engineering (**Intelligent production and logistics**, Arctic engineering)
- Building, energy and material technology
- Applied mathematics and homogenization
- Simulations
- IR, Spectroscopy and Numerical Modelling

Strategy starting point

Key Enabling Technologies for Technological Leadership

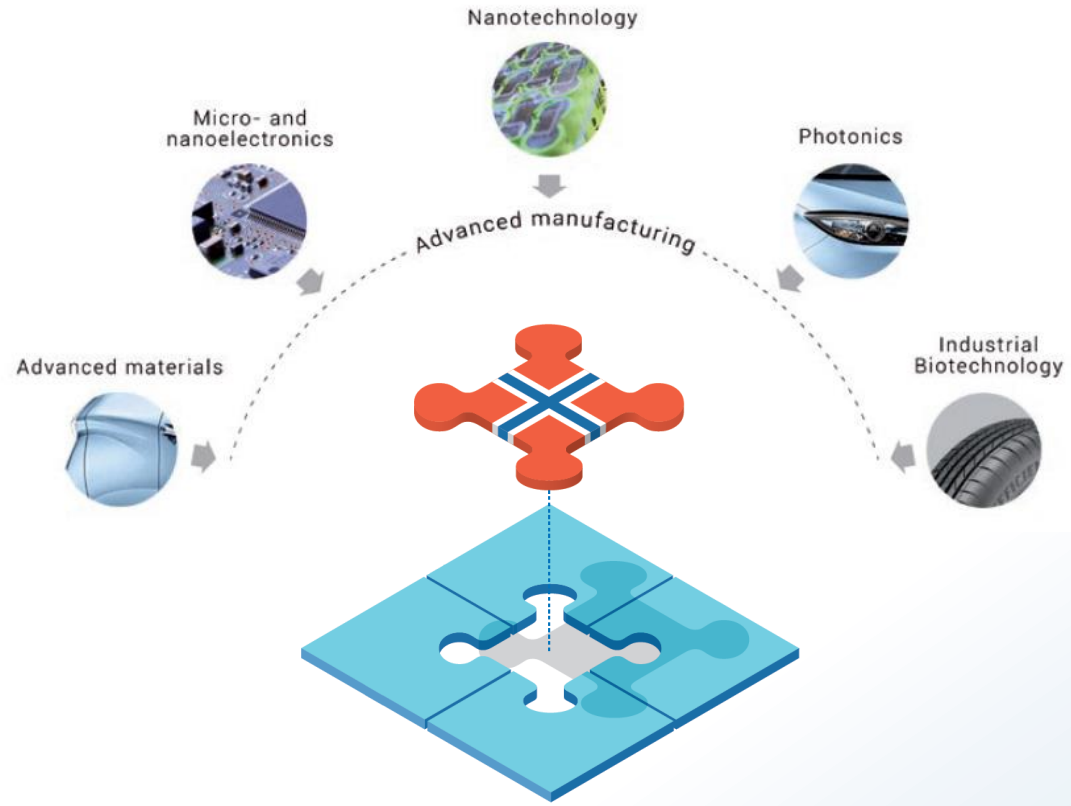
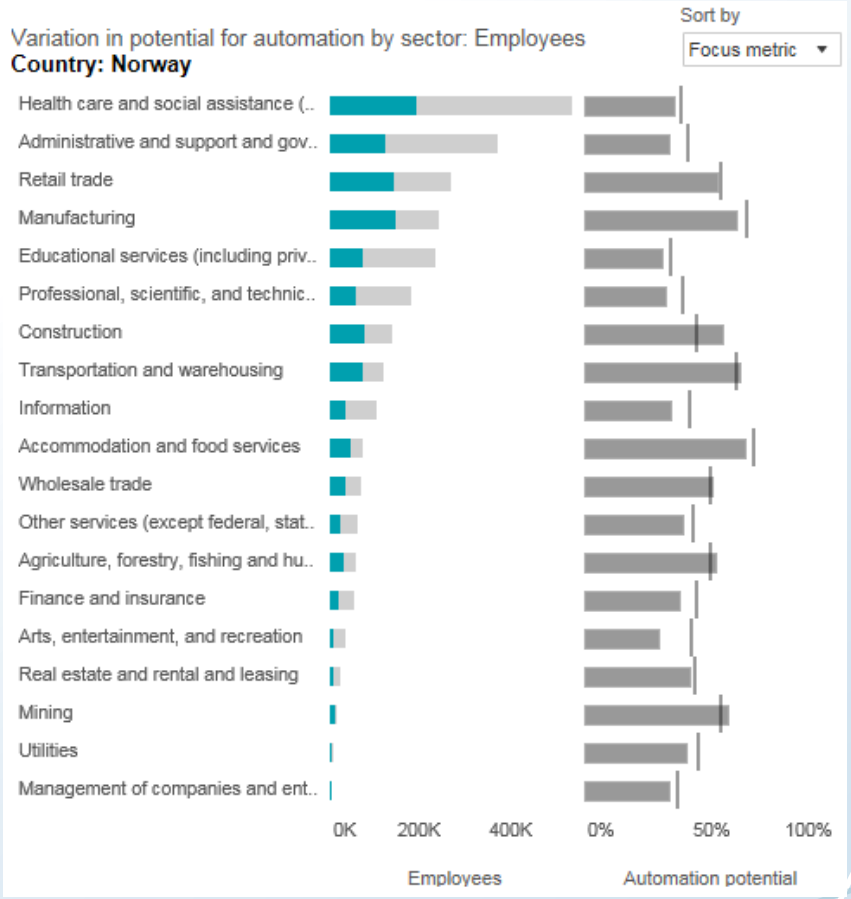
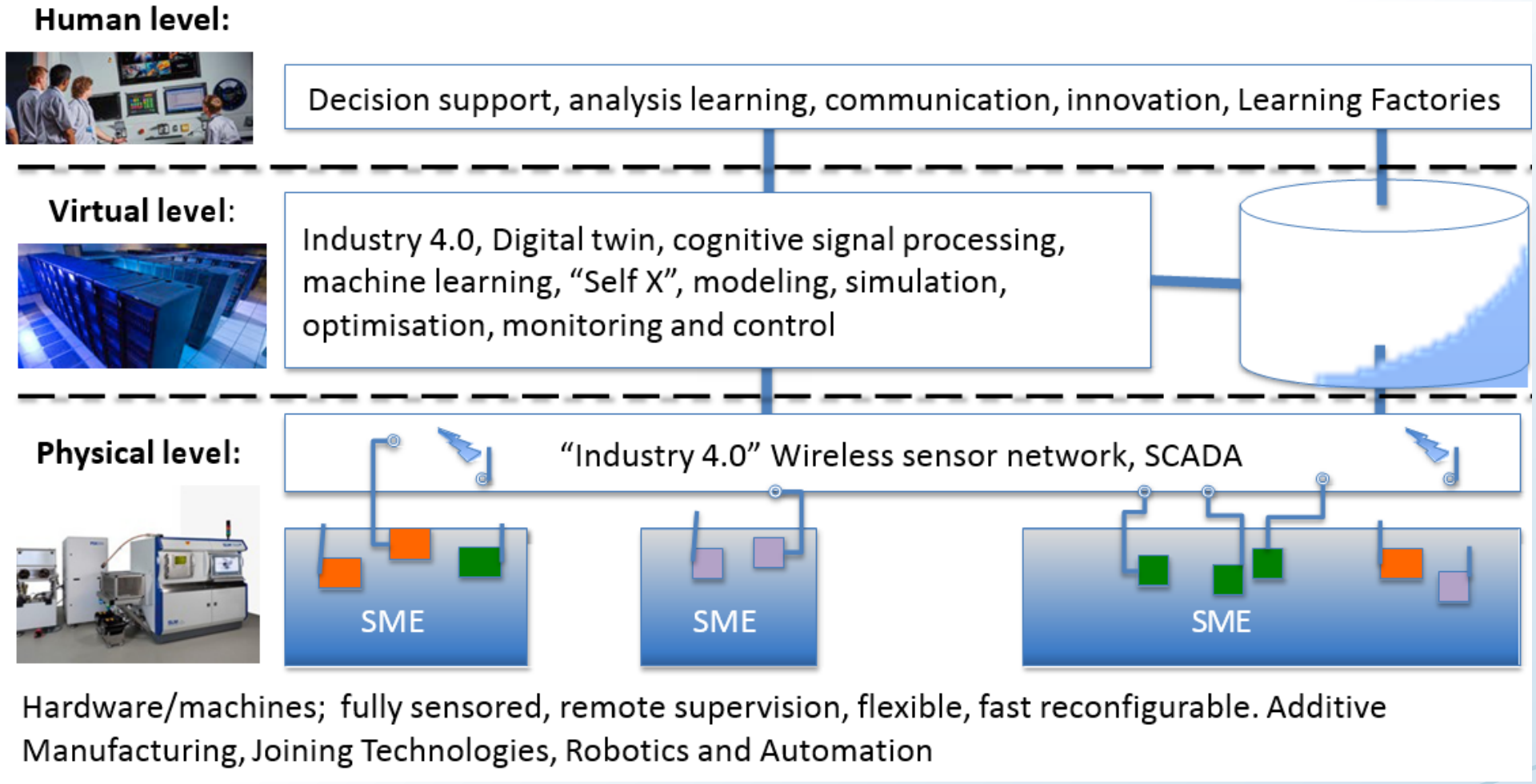


Figure source: European Commission High Level Expert Group on Key Enabling Technologies Final Report, 2015



Source: Where machines could replace humans—and where they can't (yet) , Michael Chui, James Manyika, and Mehdi Miremadi , McKinsey, July 2016

Research vision: Small Scale Intelligent Manufacturing (SIMS)

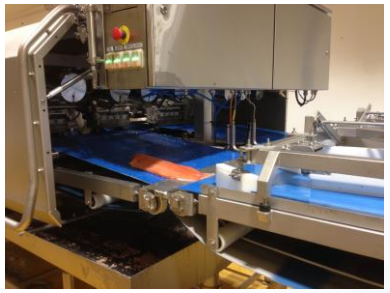


R&D – activities and projects

Innovative & Industrial Internet (I^3)

With a proactive prospective application of research and development where the aim is to identify the key factors of innovation and the use of modern technology to create a creative test environment for competence increase for small and medium-sized enterprises (SMEs) in the region. The test environment is expected to contribute to the goal of strengthening the corporate commercialization capabilities.

http://www.innoarctic.com/



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CENTRIA RESEARCH AND DEVELOPMENT

LULEÅ UNIVERSITY OF TECHNOLOGY

INTERREG IV A NORD

R&D – activities and projects

Making Regional Manufacturing Globally Competitive and Innovative (TARGET)

This project will develop tools to enhance capacity of manufacturing companies in the NPA region to adapt and embrace new technologies and innovation. The toolbox developed will consist of subsets such as Digital manufacturing (robotics and simulation), New ideas and thinking (human centered and environmental thinking, competitiveness), Business models and modern Product innovation.

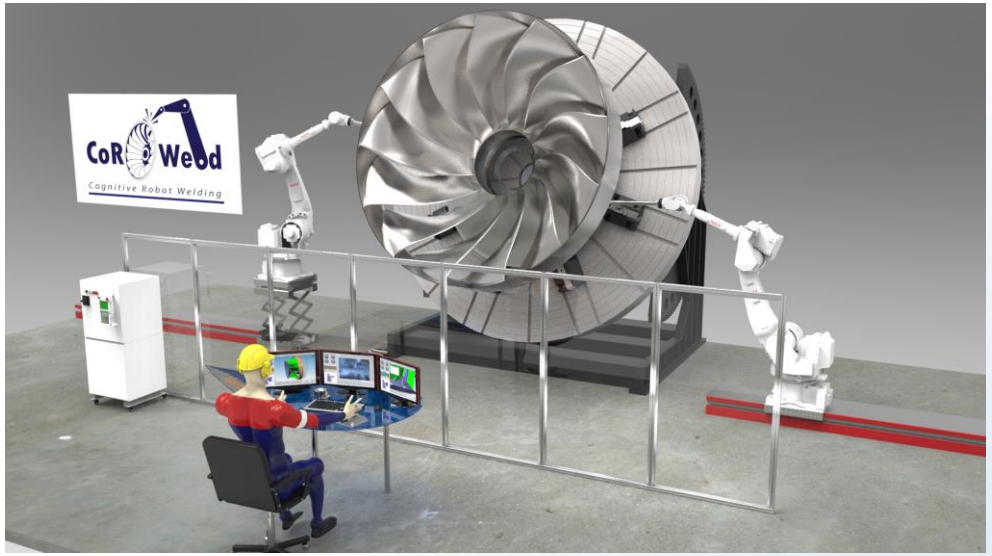
http://www.targetproject.eu/

R&D – activities and projects

Cognitive Robotized Multipass Welding for Heavy Constructions (CoRoWeld)

- To develop new industrial robot technology for heavy welding to improve EHS and competitiveness and of the Norwegian mechanical industry producing voluminous metal products.

Unfortunately, working tasks like these, are outsourced to low cost countries with less strict requirements to the working environment, instead of being solved by new industrial robot technology.



The Welding Institute
RAINPOWER
Forskningsrådet
中央大学 CHUO UNIVERSITY Knowledge into Action
PPM®
UNIVERSITY OF TROMSØ
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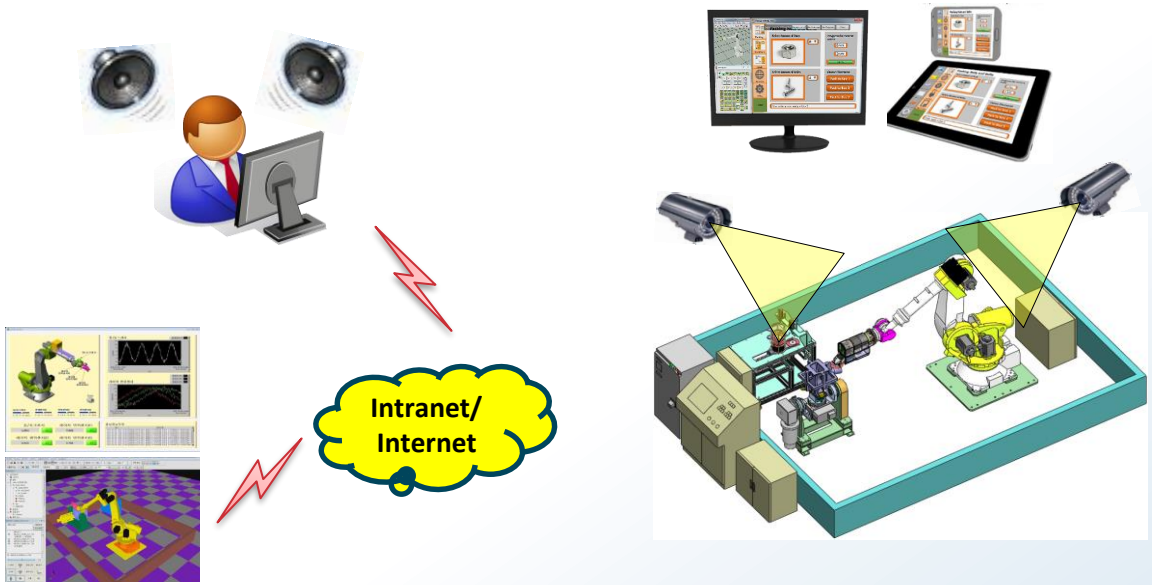
R&D – activities and projects

iVAR – Intelligent Versatile Avatar

https://www.eurostars-eureka.eu/content/meet-ivar-robot-robots

- Support the local user during training and reconfiguration of the robot system
- Provide intelligent, easy accessible user- and system documentation including FAQ
- Carry out error-monitoring, logging and intelligent diagnostics both from outside of the robot cell



What do we look for? Project opportunities

Our main competence is in advanced robotics and manufacturing
Small batch size, one of a kind production

- H2020-DT-ICT-02-2018
- TOPIC : Robotics - Digital Innovation Hubs (DIH)

- H2020-DT-FOF-02-2018
- TOPIC : Effective Industrial Human-Robot Collaboration (RIA)

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