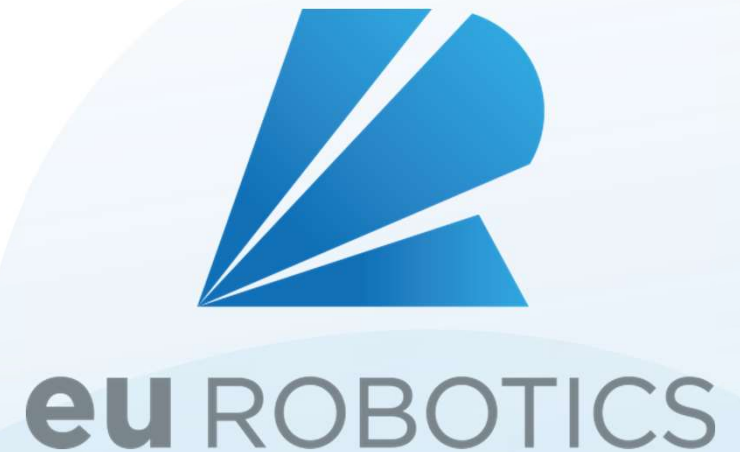


November 2023 | Versailles

AI-Data-Robotics + Human

A way to go?

Prof. Juha Röning
euRobotics VP Research



ADR Forum, France

2023-11-09



Prof. Juha Röning
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Robots impact Everywhere

- Industrial
 - increased competitiveness
- Societal
 - health and well-being, food production, transport and security
- Economic impact in all sectors
 - robotic technology radiates
- Robots are physical
 - interact, manipulate, move, and shape
 - parts, goods and people.



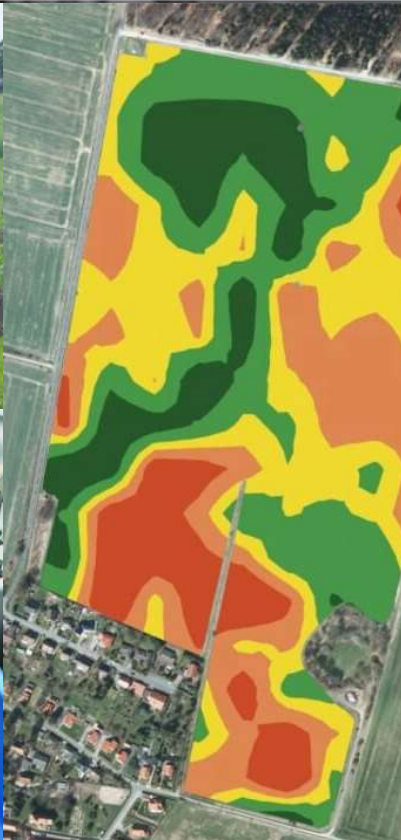
Healthcare Robotics

- Smart hospital buildings
 - Flexible services
 - Demographic change
- Rehabilitation
 - Progressive treatment
- Care at home
 - Elderly care
- Personalized treatment
 - Precision medicine
 - Cell therapies
- Better diagnosis
- Supporting medical innovation
 - Patient handling
 - Surgical procedures



Agri-Food

- Precision farming (fertilizer, pesticide, weeding)
 - Horticulture
- Harvesting automation
 - Fruit and vegetables
- Sorting and packing
 - Fruit and vegetables
- Livestock management
 - Feeding and Health
 - Milking
 - Manure collection



Dr. Roberto Iqbal, Robotics in Europe

Maintenance & Inspection of Infrastructure

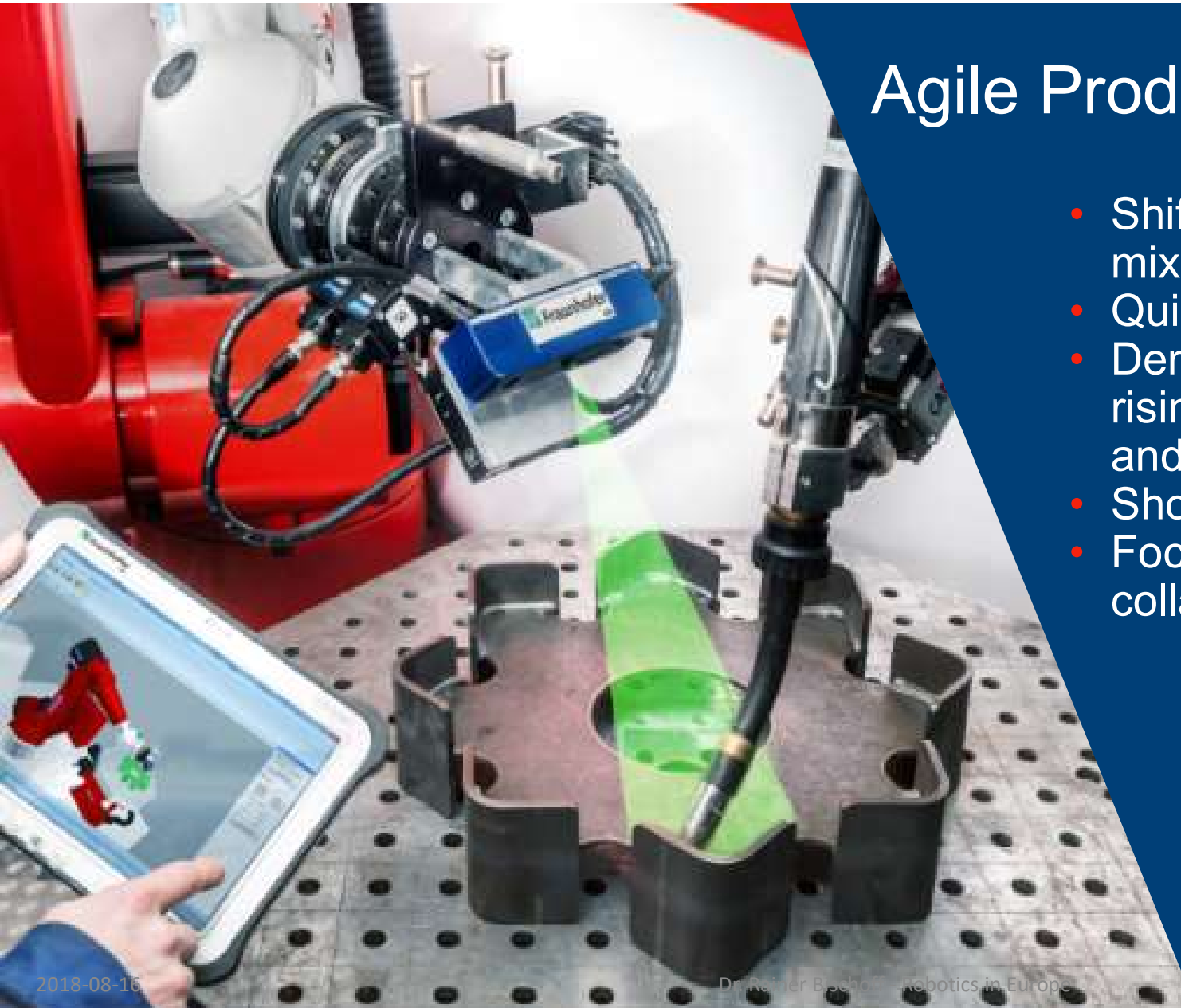
- Majority of assets need to be inspected at **regular intervals** – due to maintenance needs or safety requirements
- Assets may be located in hazardous and/or remote locations:
 - Transportation (rail, road, bridges, ...)
 - Energy, Oil & Gas, Nuclear, Renewables
 - Power distribution
 - Process industry (chemical, fertilizers, ...)
 - Fresh and waste water (pipes, pumps etc.)



Agile Production

- Shift from high volume/low mix to low volume/high mix
- Quicker automation ROIs
- Demographic changes and rising wages in the East and West
- Shortage of skilled labor
- Focusing human-robot collaboration & coexistence

- Answering challenges by:
 - Simplification
 - Digitisation
 - Collaboration
 - Connectivity



**What about
Artificial Intelligence
and collaborative
robotics?**





Moravec Paradox

“it is comparatively easy to make computers exhibit adult level performance on intelligence tests or playing checkers, and difficult or impossible to give them the skills of a one-year-old when it comes to perception and mobility”

Hans Moravec (1988)

Artificial Intelligence



Cortical homunculus



Charlie Chaplin **Modern Times** (1936) Visions on..



Industrial “Robotics”



Robotic Care

The present



Industrial Robotics



Robotic Care