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ACROBA

connect & produce through agile production

AI-Driven Cognitive Robotic Platform for Agile Production Environnements

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22.9.2022 Substituting Kai Salmela, ROBOCOAST EDIH

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The ACROBA project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101017284.

The good old times…

ROSENLEW · Suominen · outokumpu · REPOLA · oras · Finlayson EST. 1820 · AHLSTROM · kemira

1900-1970

Traditional industry needed Automation services

SERMATECH Group · UTU · SATMATIC · CIMCORP · PIIR-GROUP Oy

1970-1990

The rise of AI

Koivu Solutions · Headai · bluugo · Hubble · Botteja · ELINAR · festum

+100 companies…

2010-2020

“Traditional industry” still strong in Satakunta (2019):

- 1 320 industrial companies
- Turnover 6.8 Billion per year (Exports 4.3 Billion Euros)
- Exports per capita over EUR 20 000 (4. highest in Finland)

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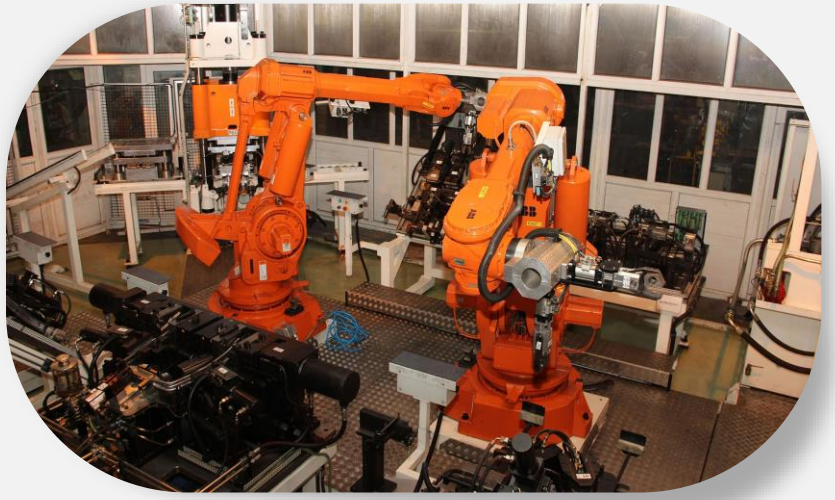
Problem



Todays robots are good in repetetive task.

- Expensive to update
- Small batches unprofitable
- NOT AGILE – low reacting

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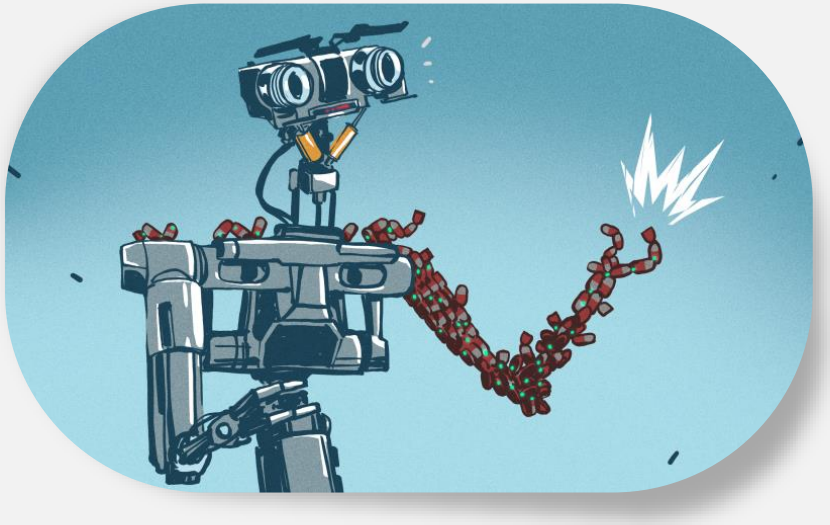
Solution



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New robotic platform for Agile manufacturing

- Plug'n Produce
- Open source ROS
- Cognitive AI

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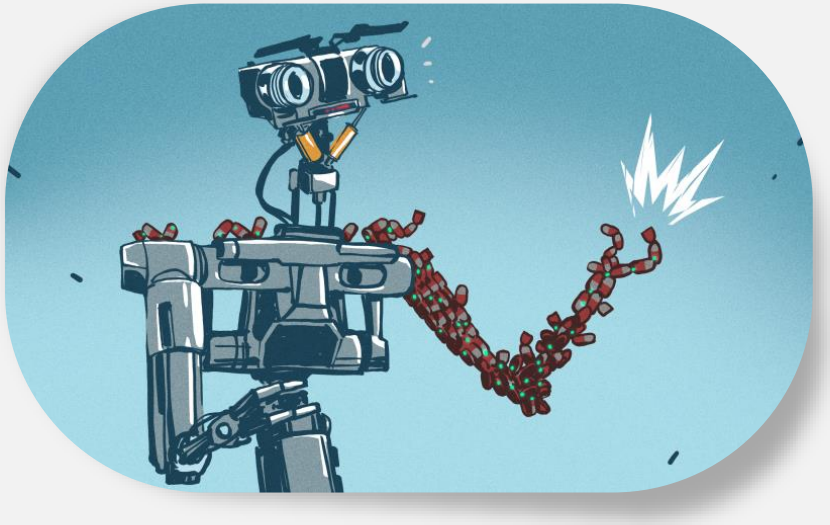
ROS



Robot Operating System (ROS)

- Software designing tools
- Open source community
- Support for many programming languages
- Lightweight

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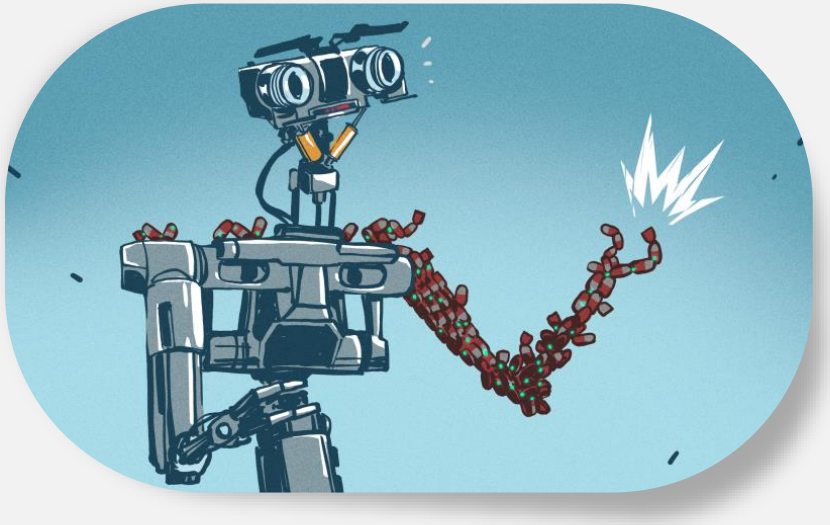
ROS 1/2



ROS1 mature

- Server / client architeture

ROS2 under construction

- Decetralised approach

- ROSBRIDGE

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With ROS:

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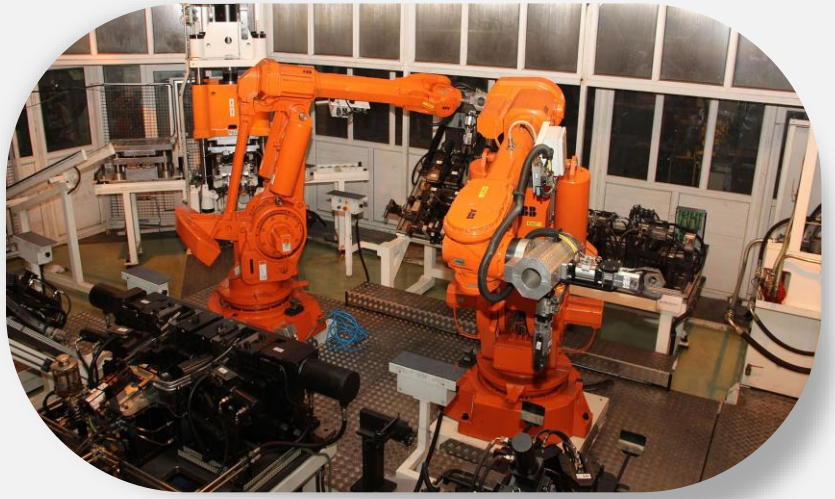
Digital Twin



Key technology behind ACROBA

- Digital replica of a production line
- Not just a simulation
- Two-way flow of information

USE CASES

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Five indurstrial use cases

The demonstration of the potential of ACROBA platform

STERIPACK

CABKA

MOSES

ICPE

IKOR

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STERIPACK

SteriPack is 100% focused on contract manufacturing services for medical device under ISO 13485 system and contract packaging services for the pharmaceutical industry under cGMP. Founded over 25 years ago in Ireland, SteriPack was born from a desire to do it better.

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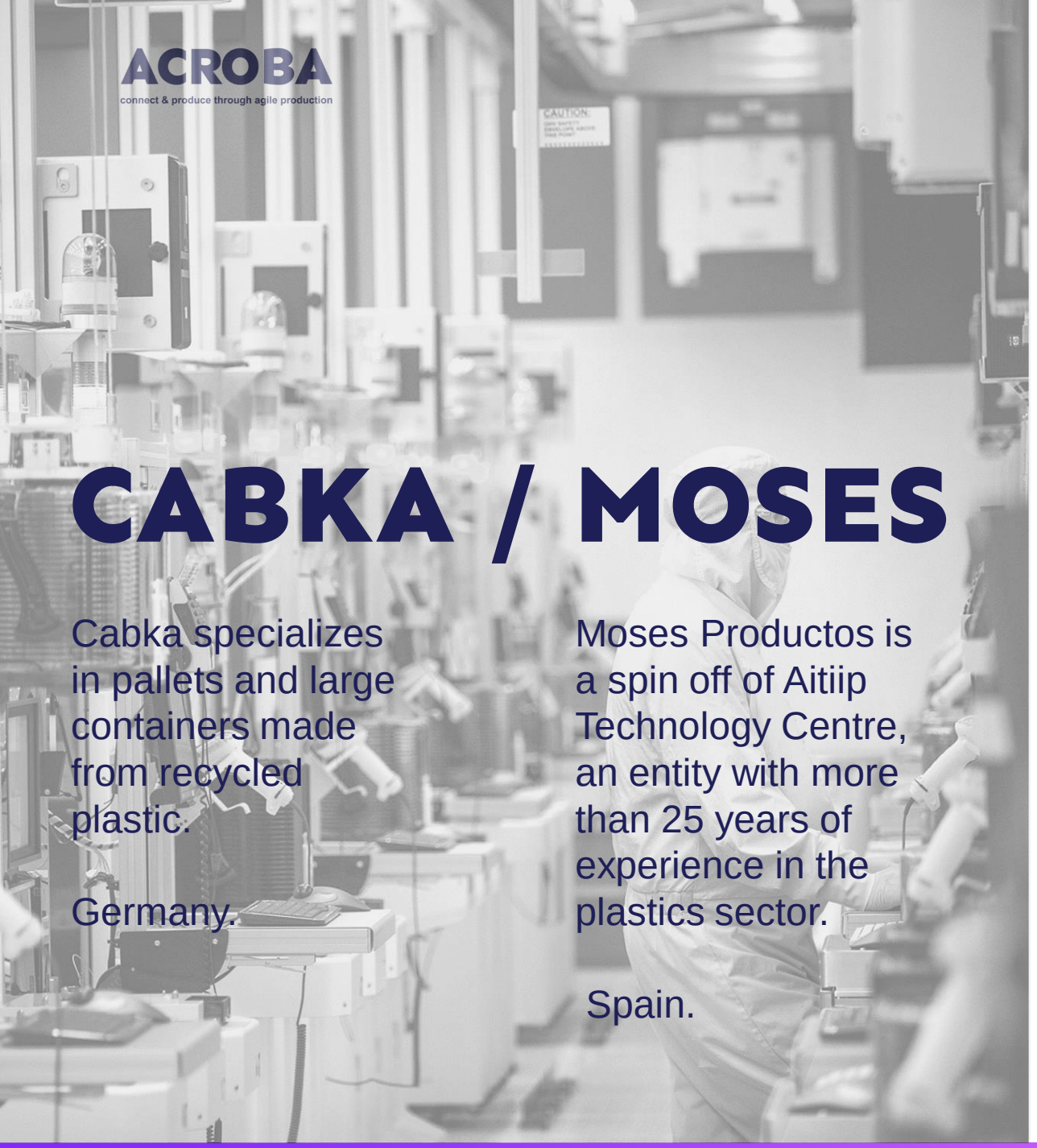
Lights-out production line

Contract manufacturer of medical devices Class I and Class II

Designers CAD file → ACROBA

DIGITAL TWIN educate robots
3D printer – Cleaning – Quality control

Agile production line
- fast responses
- fully automated



CABKA / MOSES

Cabka specializes in pallets and large containers made from recycled plastic.

Germany.

Moses Productos is a spin off of Aitiip Technology Centre, an entity with more than 25 years of experience in the plastics sector.

Spain.

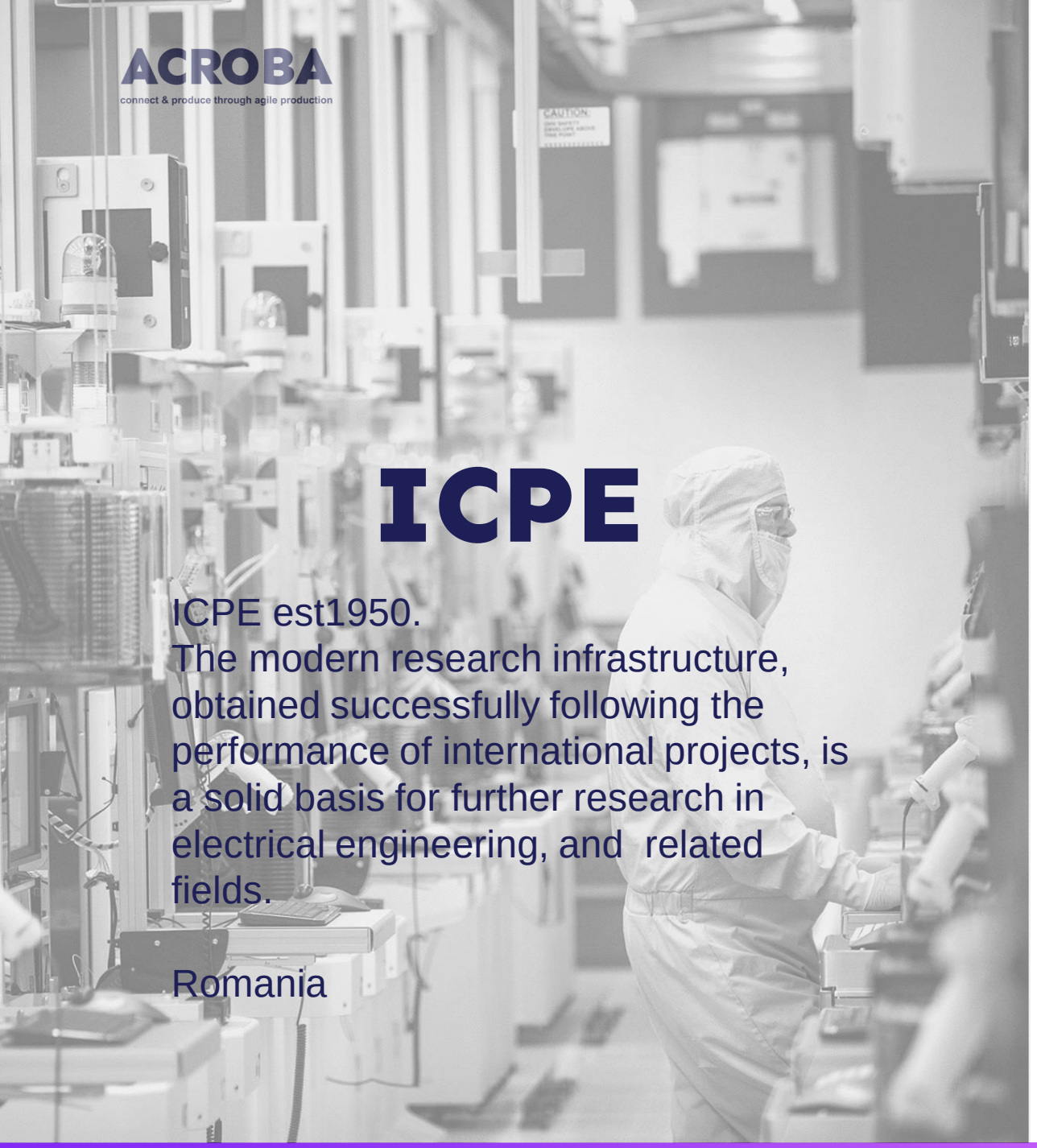
PLASTIC MANUFACTURING PLS FOR LARGE PART FINISHING

Manufacturing plastic pallets and large container lids

ACROBA is put to productline to gather data

A Digital Twin is created monitoring of the injection machine parameters, raw material parameters and environmental conditions

Later ACROBA will do automated quality control



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ICPE

ICPE est1950.
The modern research infrastructure, obtained successfully following the performance of international projects, is a solid basis for further research in electrical engineering, and related fields.

Romania

ELECTRIC COMPONENTS ASSEMBLY PL FOR ELECTRIC MOTORS MANUFACTURING

Manufacturing plastic pallets and large container lids

Coil winding: CAD file → cobot + vision system

Magnet bonding with adhesive: CAD → high precision robot → Vision quality control 0.1mm

Slotless coil bonding: Cobot with gripper that can control force and predict coil bending

Automation will reduce waste

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IKOR

We are a global company committed to innovation that provides a total service for the design and manufacture of electronic circuits (EMS), including complete supply chain solutions for world-leading industrial and technological companies.

Spain

ASSEMBLY PILOT LINE FOR ELECTRONIC CIRCUITS PRODUCTION

EMS manufacturer

Currently, this process is being done manually in a line with 3-4 operators; the goal after the ACROBA deployment is to introduce collaborative robots between the technicians that assemble PTHs in parallel.

Collaborator toolkit can educate robot to work with human in Digital Twin

50 bins of pieces

Project partners

Bern University of Applied Sciences

BIBA

Mr. NeC B.V.

aitiip centro tecnológico

Universidad de Deusto
University of Deusto
Deusto

EMC2

CABKA

iKOR SPAIN MEXICO CHINA

sigma CLERMONT

IRISH MANUFACTURING RESEARCH

nutai

SteriPack CONTRACT MANUFACTURING

STAM MASTERING EXCELLENCE

vicomtech MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

moses advanced materials

ICPE

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