



inos
AUTOMATION
Let us be your vision!



Vision solutions for logistic automation

Sensor guided palletizing and handling applications

Mengele / Schenk-Deisenhofer - Mobile Robotics Summit 2025 – Masterclass 8th October 2025

» inos closes gaps in the logistics process chain with sensor-guided box handling

Fully automated robot cells with vision systems and AGV connectivity are one example of how these gaps can be closed.

We will show you **various use cases** from our projects
Provide you an outlook on **future developments** and opportunities.

» Be impressed by the applications shown in our robot cell on booth H1-M18.



Vision solutions for logistic automation

Who we are



Pioneer in industrial automation and vision systems

Having more than 25 years of experience

Over 3.000 installed sensor systems worldwide

Own software for all developed applications

Market leader in Best-Fit applications

Over 38 installed Best-Fit systems

@Porsche, BMW, Audi, Ford, Tesla,

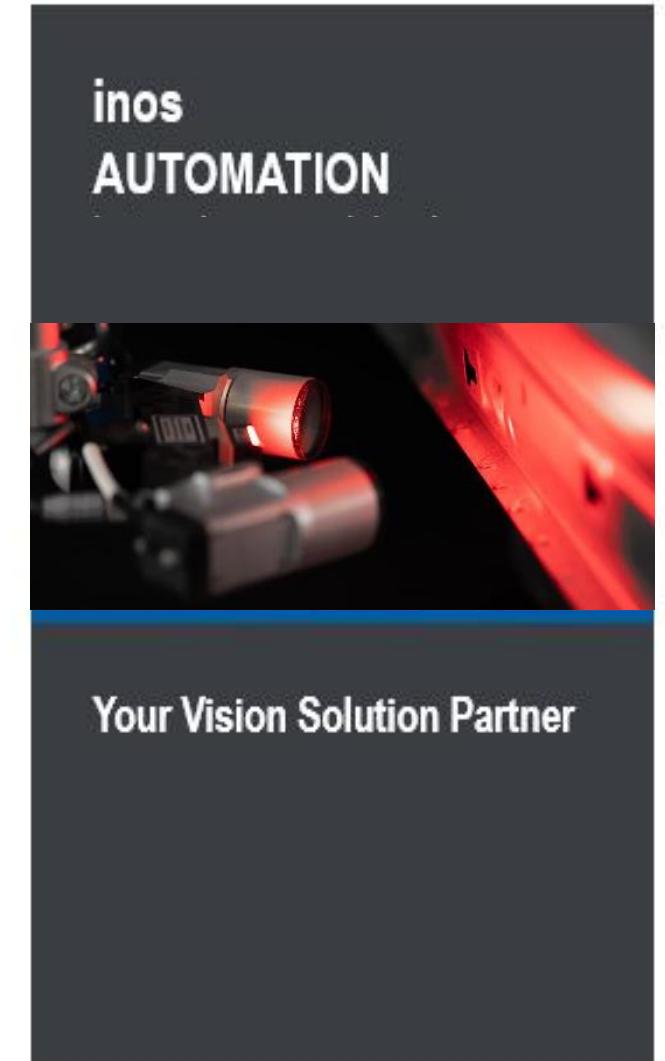
Volvo, Stellantis, etc.

Global solution provider for automation

Europe

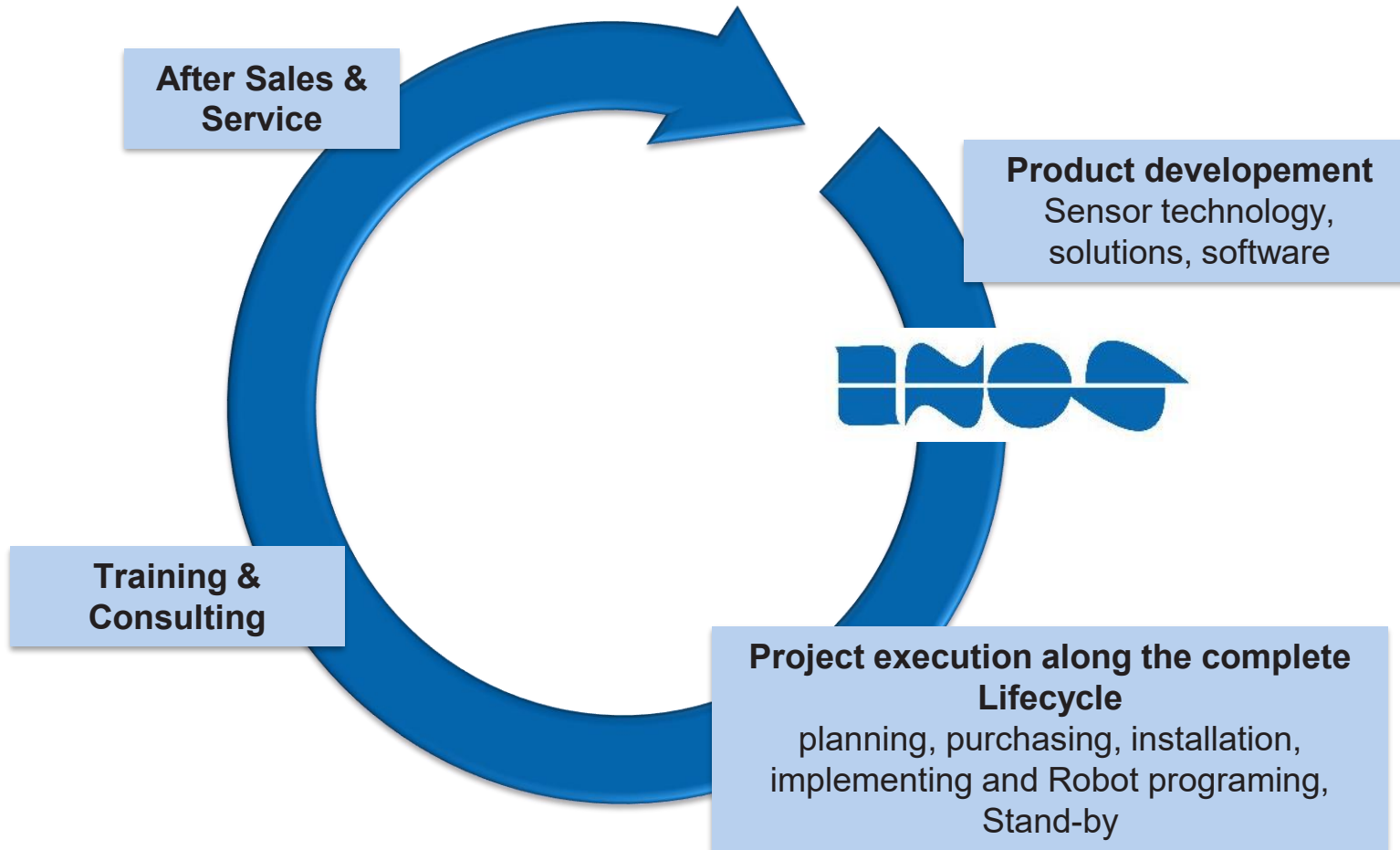
North- and South-America

China and India



Vision solutions for logistic automation

Scope of Supply



Vision solutions for logistic automation

Core Solutions Automotive



inos

BEST FIT / GAP&FLUSH

Best of Class in automated component alignment



Facts and Benefits

- » Market leader in this area
- » Using various sensor brands
- » Own inos software
- » Combination with G&F functionalities

inos

INLINE MEASURING

Metrology



Facts and Benefits

- » Using thermal and absolute compensation
- » Focus on robot guided solutions
- » Real time inos Analyzer
- » inos Visualization

inos

AUTOMATION



Your Vision Solution Partner

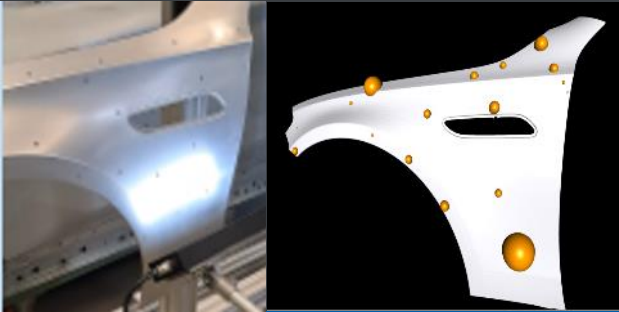
Vision solutions for logistic automation

AI driven solutions



inos SURFACE INSPECTION

Inos Deflectometry



Facts & Benefits

- » Synchronizing a line scan camera with multi-flash projector
- » Sensor with 4096 valid pixels
minimum scan time of 48.5 μ sec
- » X resolution = 0.08mm
- » Detection of defects in the range of 50 pixels (0,2X2mm)

inos WELDSEAM INSPECTION

Made by inos AI



Facts & Benefits

- » AI-based analysis of defects
- » Various welding technologies
- » Detection of splatters, pores, pinholes and edge offsets
- » Web-based 3D visualization
- » Open interface to multiple sensors

inos AUTOMATION



Your Vision Solution Partner

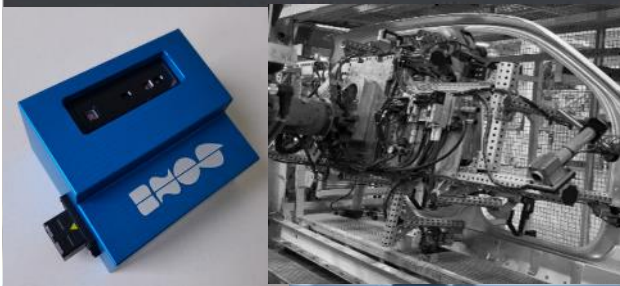
Vision solutions for logistic automation

Sensoric and logistic



inos SMART DE-RACKING

Product and solution in one package



Facts & Benefits

- » 3D point cloud alignment for robot guidance
- » Reduced hardware – all fitted on Gripper
- » Compact PC solution
- » Short installation time

inos SOFTWARE



Facts & Benefits

- » Own inos software development
- » Identical structure for all applications
- » No external software features
- » Easy adaptation on customer needs
- » Prepared for ICS (cyber security)

inos AUTOMATION



Your Vision Solution Partner

Vision solutions for logistic automation

KLT-Handling



inos
KLT-HANDLING
Your Logistic Solution Partner



Visit us at Booth
H1 –M18

Automation of your logistics processes by inos:

- » Flexible and modular system regarding shape, size and weight of boxes
- » Higher throughput: Automation and standardization of logistic processes
- » Security for employees: Safer workplace
- » Higher availability & Compensation of fluctuations



inos KLT Standard Handling solution with Flex-Gripper and Vision system



KLT Test cell at automatica 2025

Vision solutions for logistic automation

Sensor guided palletizing and handling applications

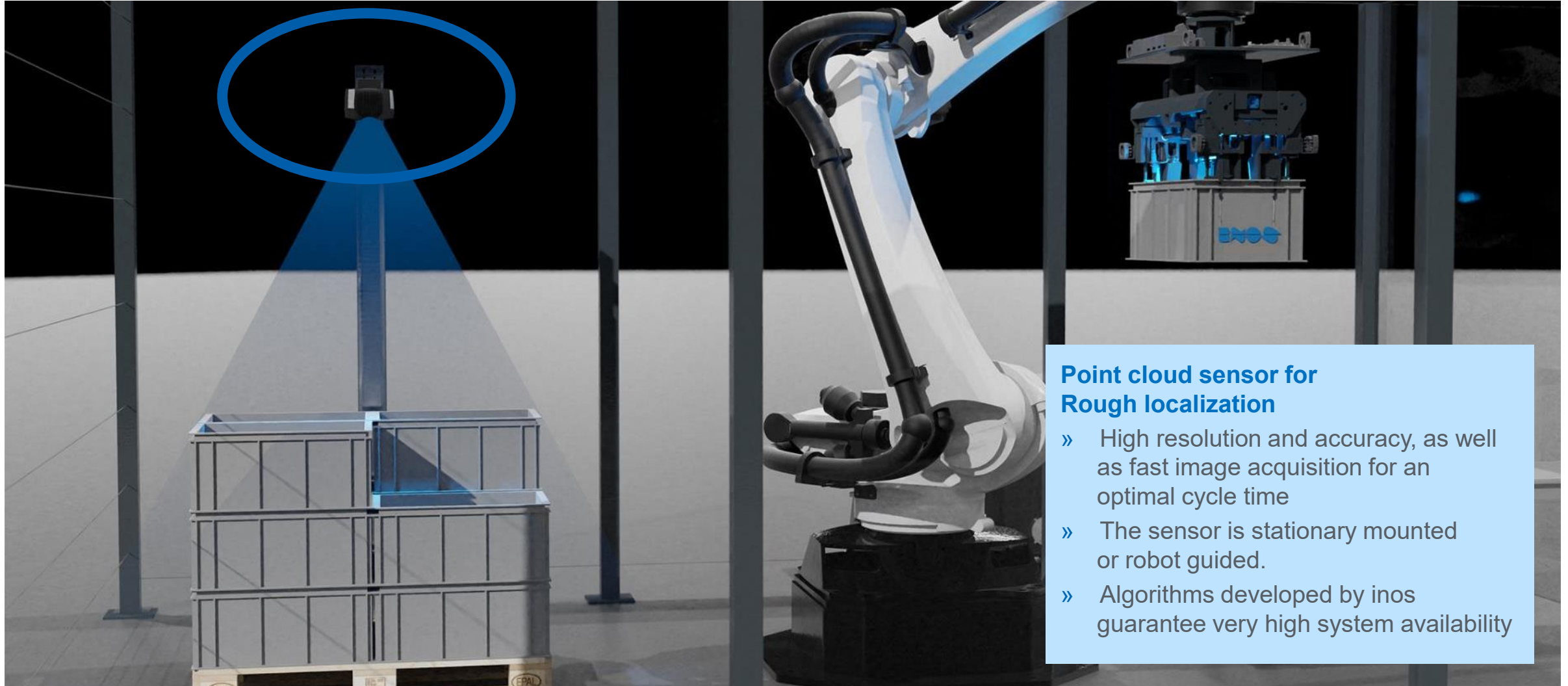
» What is “Vision solutions for logistic automation”

- “Vision solutions” support the automation for “non-trivial” (handling) requests to close gaps in the logistics process chain
- Fully automated robot cells with Sensor-guided box handling closes and AGV connectivity are one example of how these gaps can be closed.
- We will show you various use cases from our projects and provide you an outlook on our future developments and opportunities.
- Be impressed by the applications shown in our robot cell on booth H1-M18 located close to the exit of this masterclass.



inos | PALLETIZING & DEPALLETIZING

KLT Depalletizing – Sensor concept



Point cloud sensor for Rough localization

- » High resolution and accuracy, as well as fast image acquisition for an optimal cycle time
- » The sensor is stationary mounted or robot guided.
- » Algorithms developed by inos guarantee very high system availability

inos | PALLETIZING & DEPALLETIZING

KLT Depalletizing – Sensor concept



Gripper integrated cameras for Fine localization:

- » The robot aligns itself exactly to the gripping holes in the KLT
- » Detection whether the holes are free

inos | PALLETIZING & DEPALLETIZING

KLT Depalletizing – Size and Location detection

Conversion of mixed containers from pallets to conveyors by using industrial robots with inos Vision system and Flex-gripper

For detection of the location and type of KLT inos has developed a two-stage solution:

1. **Rough localization:** A 3-D image of the complete pallet creates a point cloud in which both the position and the type of container are recognized.
2. **Fine localization:** The robot moves over the container with the gripping tool developed by inos and aligns itself exactly to the gripping holes in the KLT with the cameras mounted on the tool. This also detects whether the holes are free.



inos KLT Standard Handling solution with Flex-Gripper at OEM

inos | PALLETIZING & DEPALLETIZING

KLT Depalletizing – Gripper

Conversion of mixed containers from pallets to conveyors by using industrial robots with inos Vision system and Flex-gripper

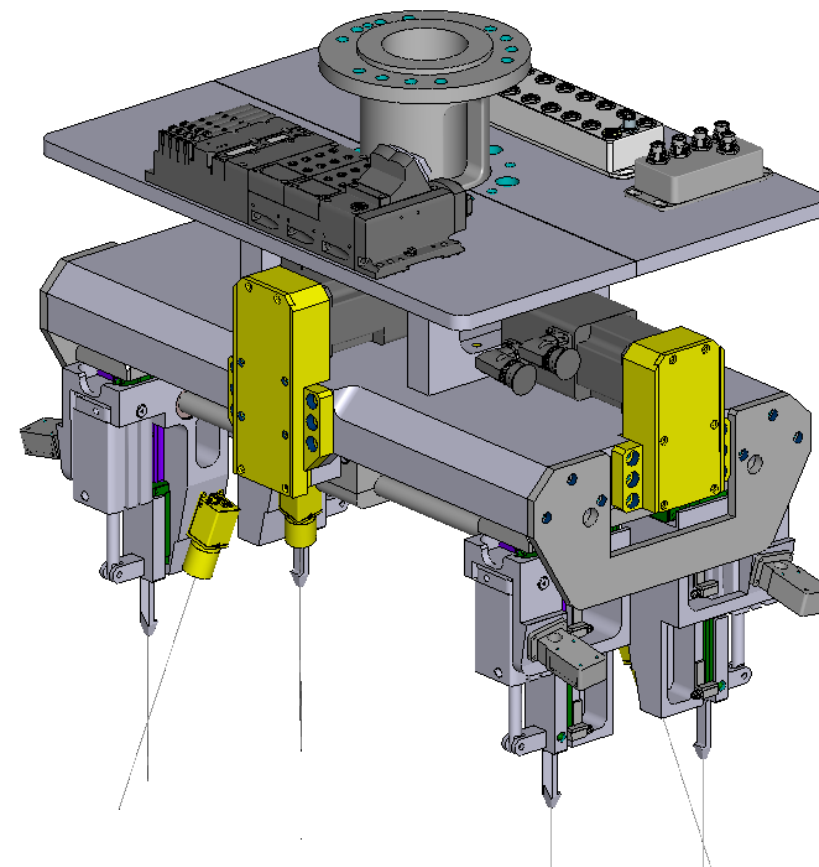
For gripping the KLT boxes inos has developed a flexible gripper:

The gripper has 2 axes, which are controlled via ProfiNet.

As a result, the gripper is independent of the type of robot used.

The gripper can be adjusted from 300 x 200 mm to 600 x 400 mm for the removal of KLTs of the standard sizes according to VDA 4500.

- » The gripping fingers, which are immersed in the gripping holes, are made of high-strength steel and are moved by robust pneumatics.
- » The gripper is designed for a maximum KLT weight of 75 kg.
- » Due to the inclusion of the KLT via the gripping holes, even the lid and fully filled KLT are no problem.



inos | PALLETIZING & DEPALLETIZING

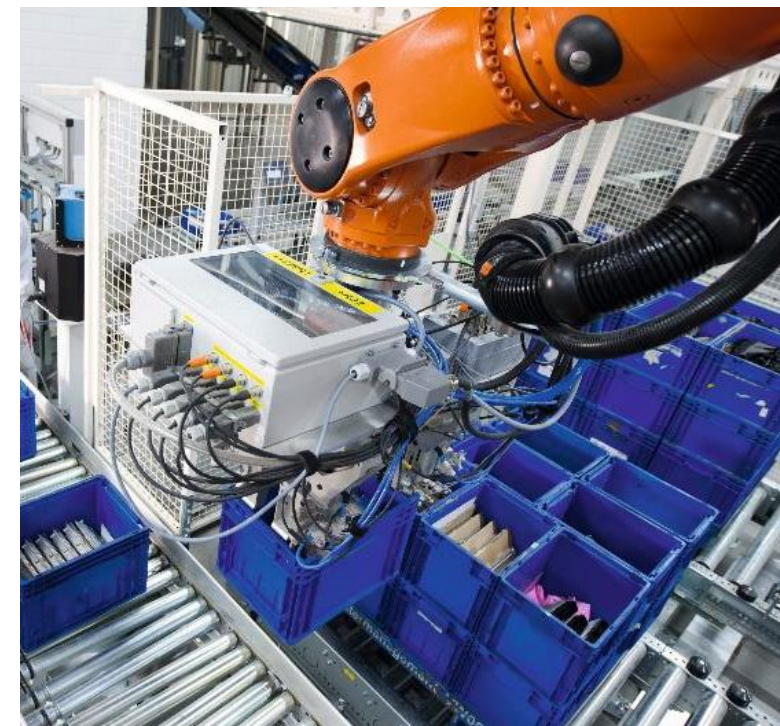
KLT Depalletizing – Customer benefit

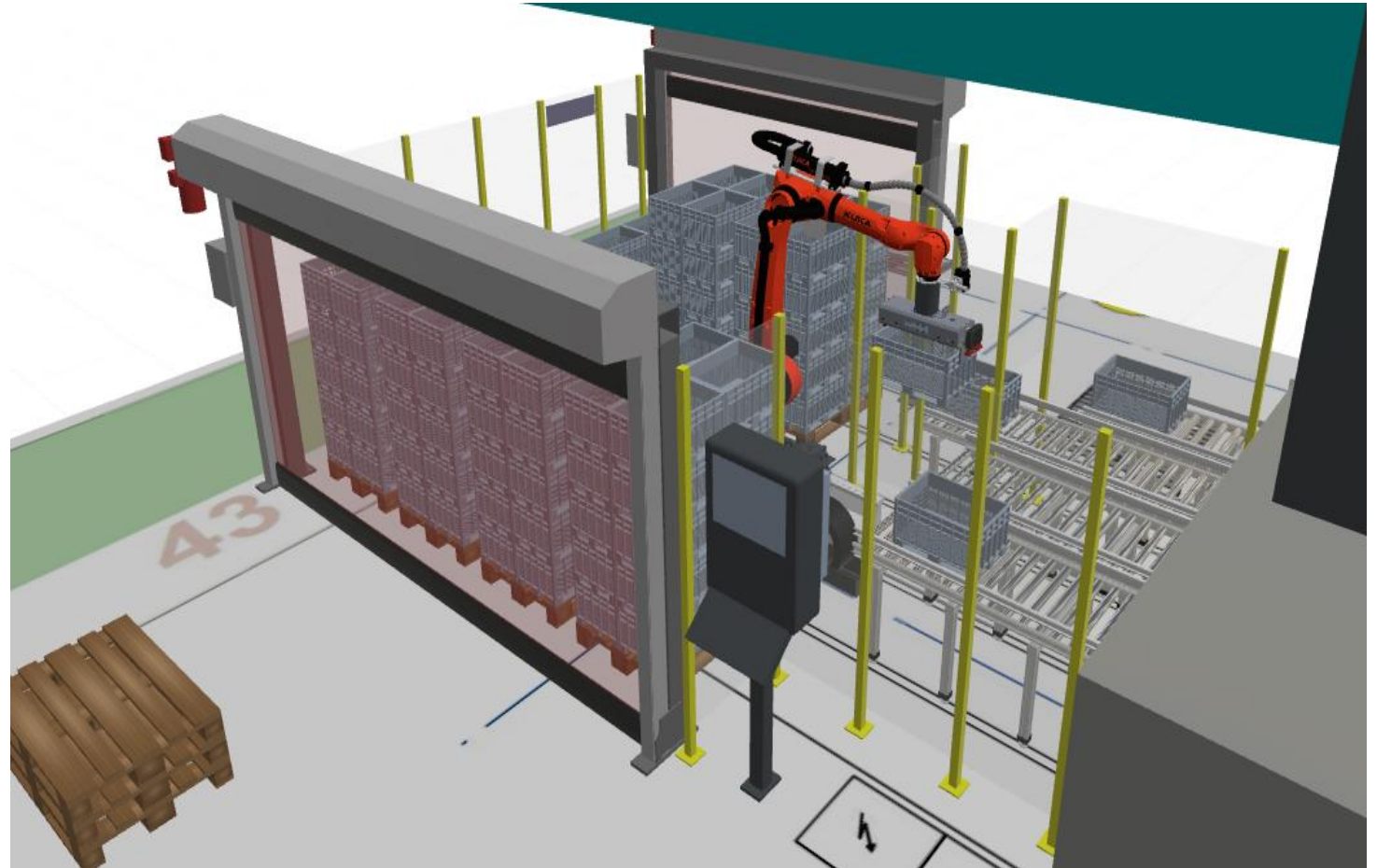
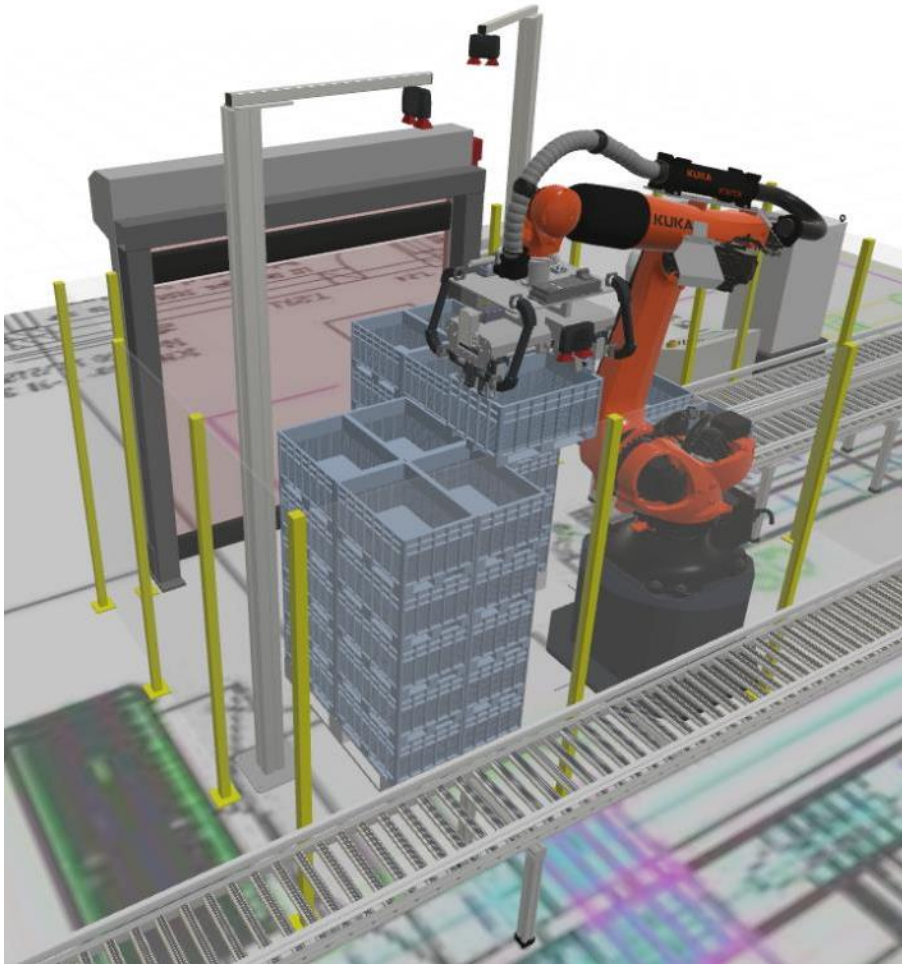
Reliable, flexible and fast

- » inos standard Scope of delivery: gripping tool, sensors, control cabinet with standard PC-based hardware and software as well as the sequence programming of the robot.
Turnkey projects incl. robots and PLC possible:
“From vision systems to Fully automated Solutions”
- » Depending on additional functions, such as label recognition and layout, the system is designed for a cycle time of approx. 9 -12 s per container. This corresponds to approx. 350 KLT containers per hour, depending on the pallet change concept.

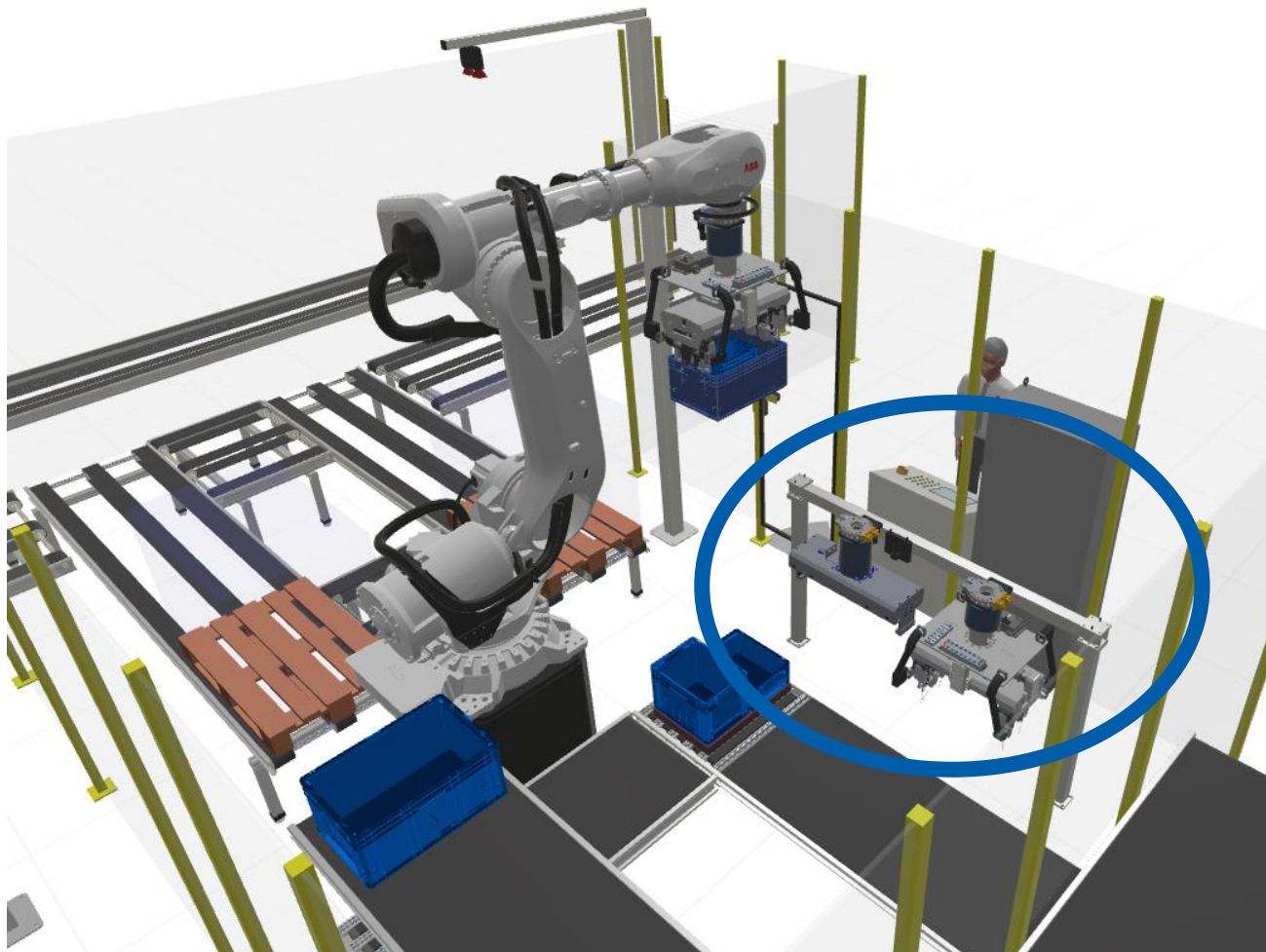
References:

- » 12 KLT cells in five plants, 12 cells in three new plants under construction

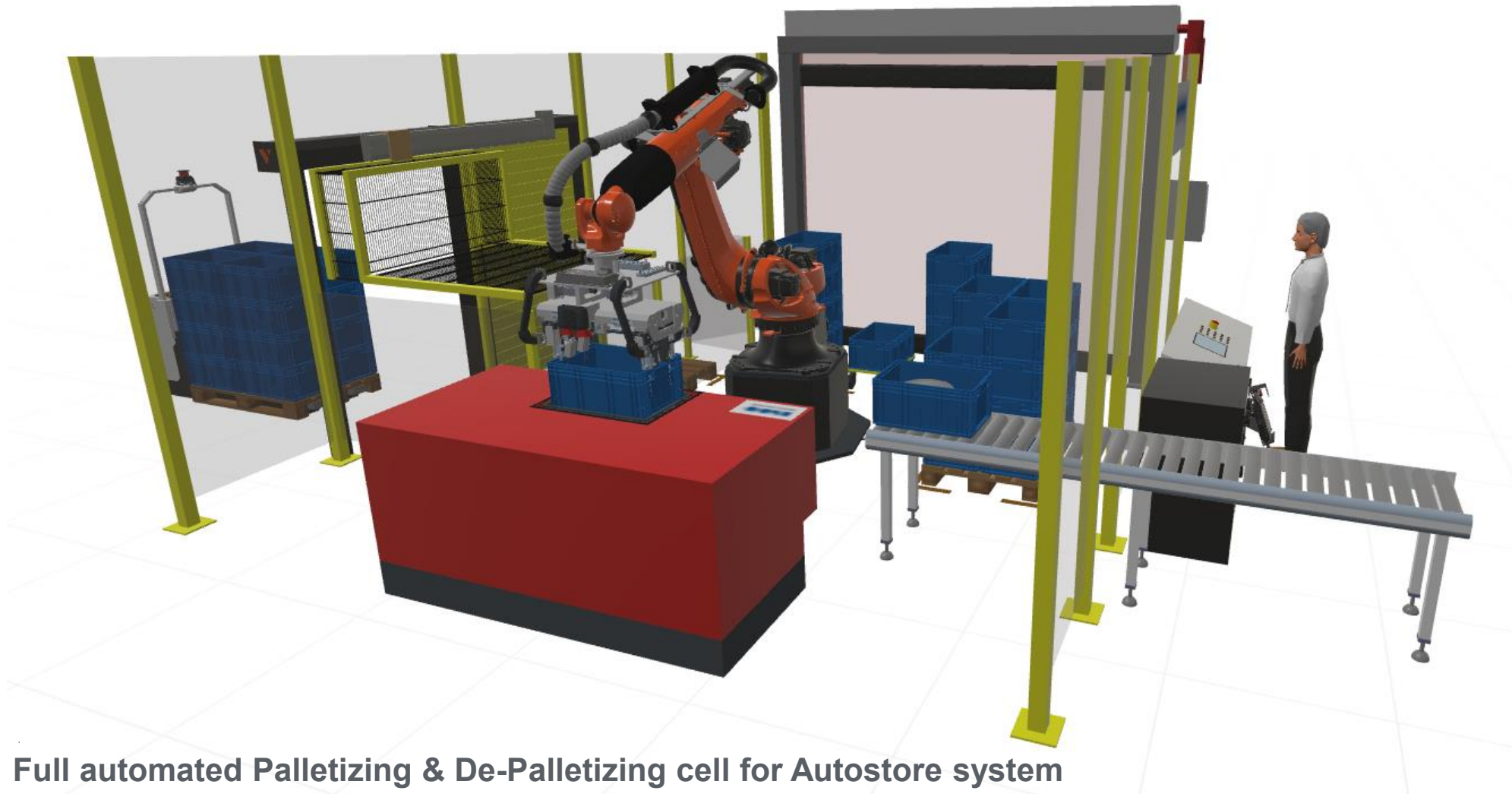




De-palletizing / Palettizing - Automation of existing manual De-palletizing area (robot on fix position / on linear axis)



De-Pallettizing of different boxes with change of grippers / identification of empty boxes / De-Palletizing from Trays



Full automated Palletizing & De-Palletizing cell for Autostore system

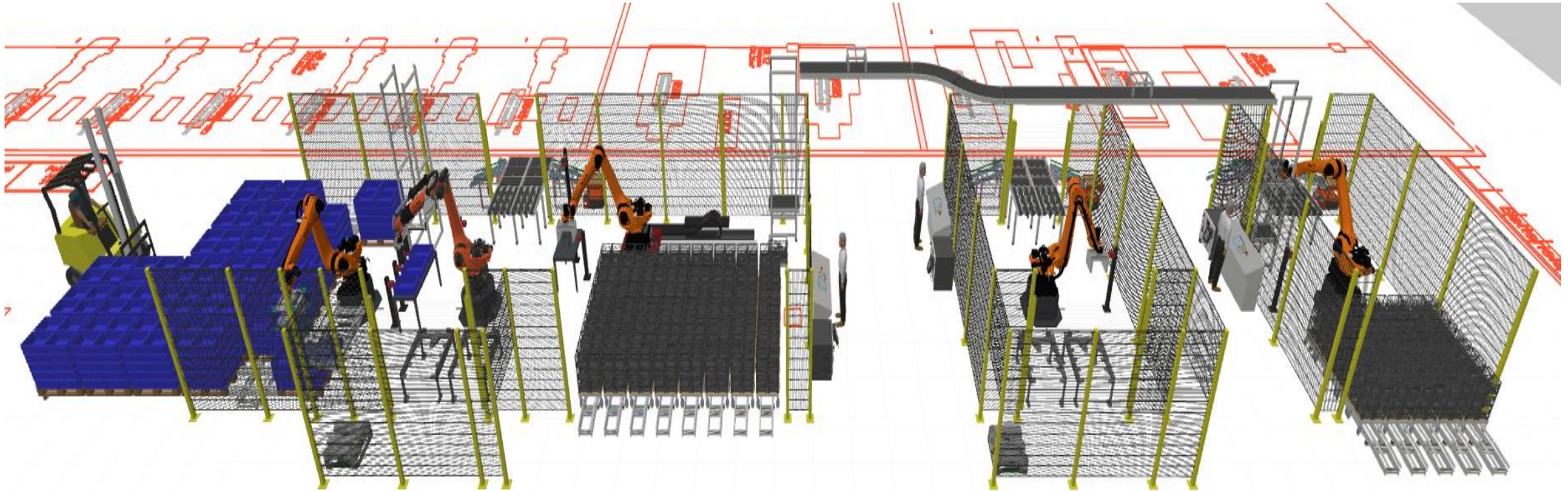


Material handling between AGV-Systems (Dolly to pallet)

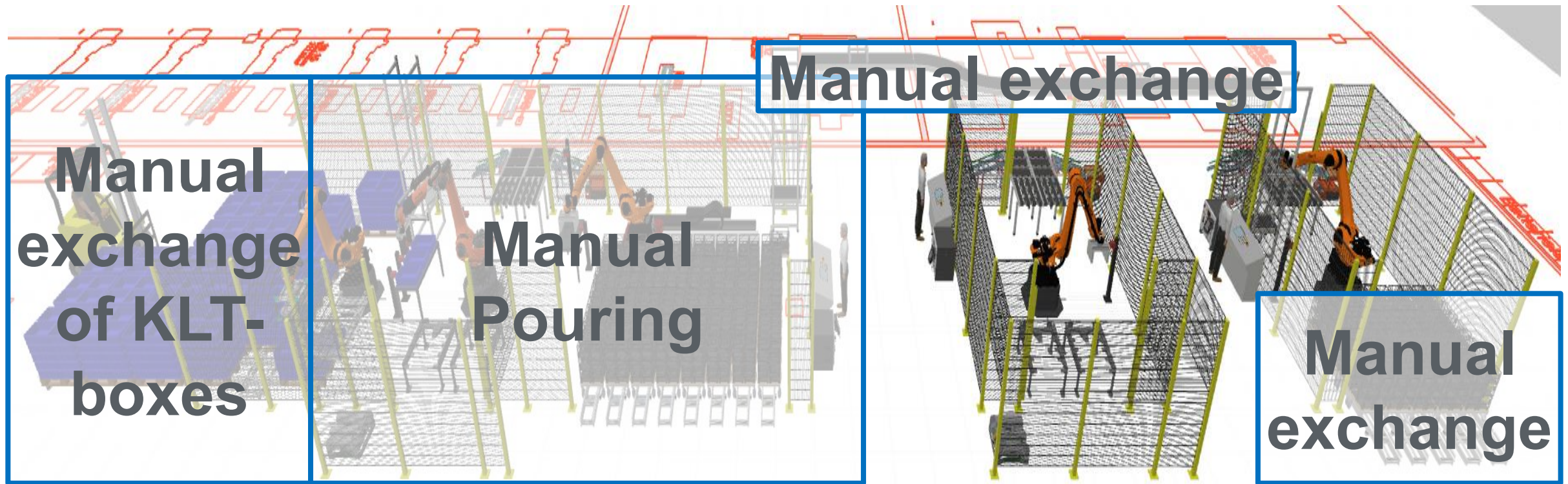
inos
KLT-HANDLING
Your Logistic Solution Partner



Visit us at Booth
H1 –M18

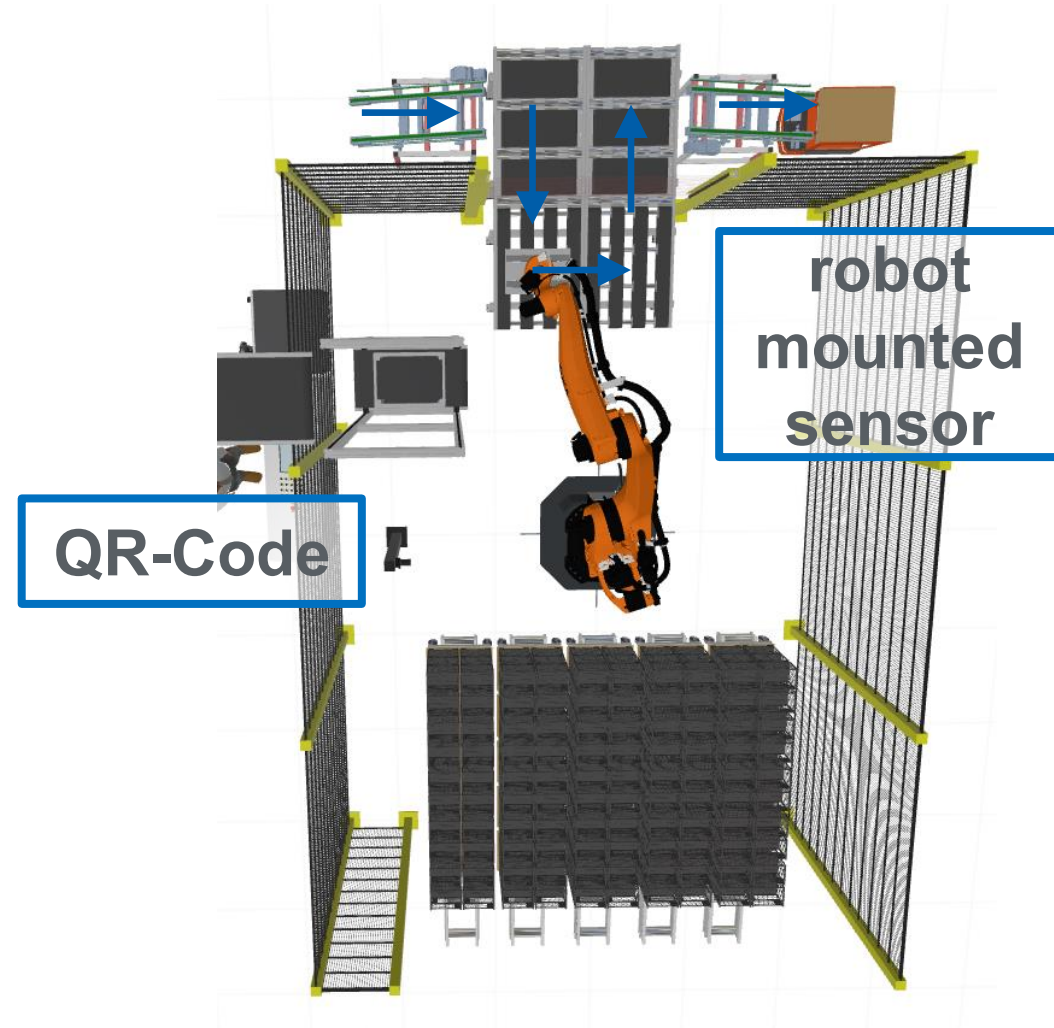
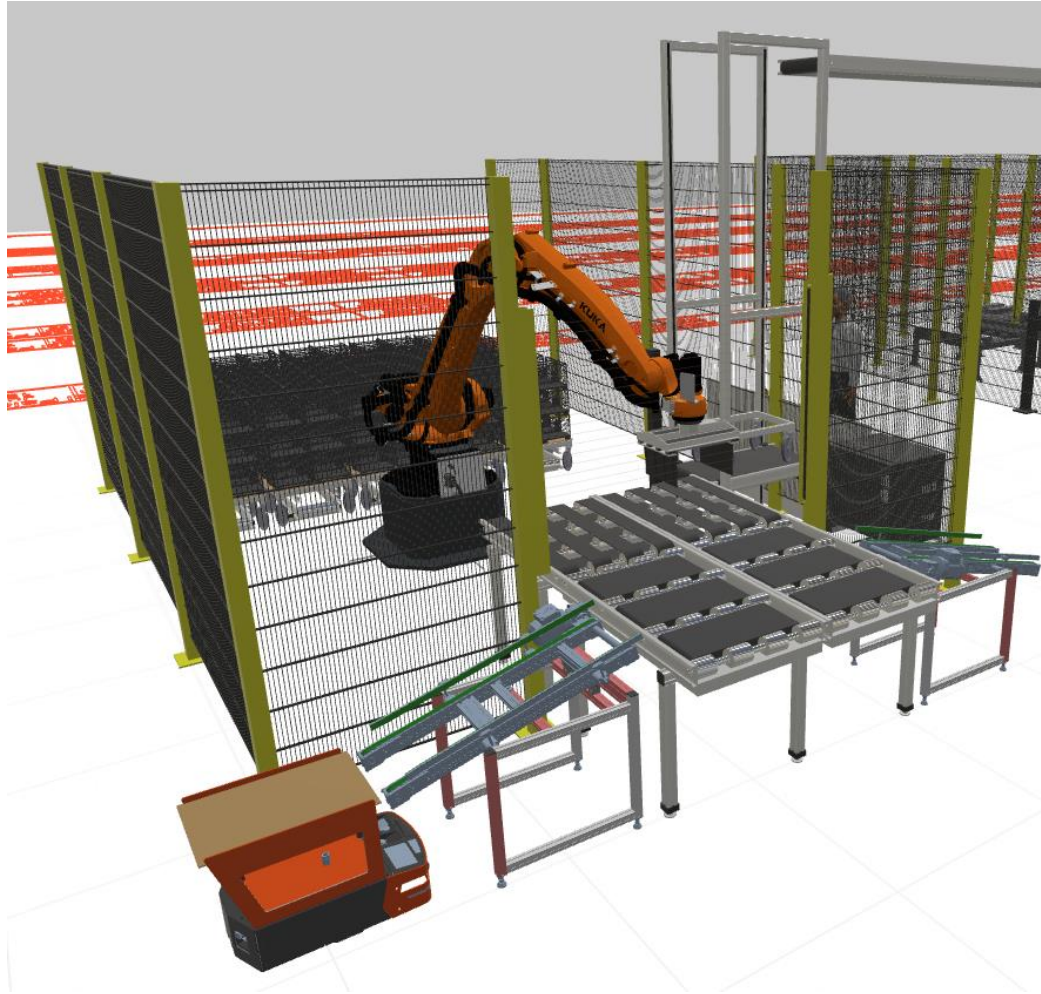


Combined system of material handling, palletizing & de-palletizing for supply of special production areas

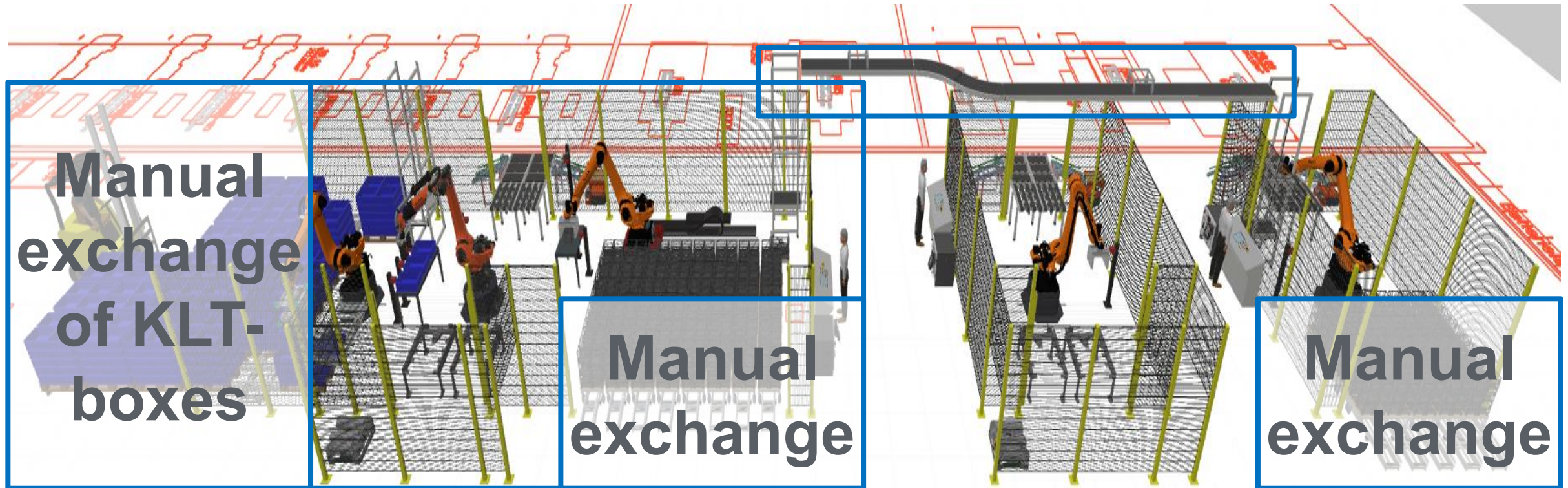


Combined system of material handling, palletizing & de-palletizing

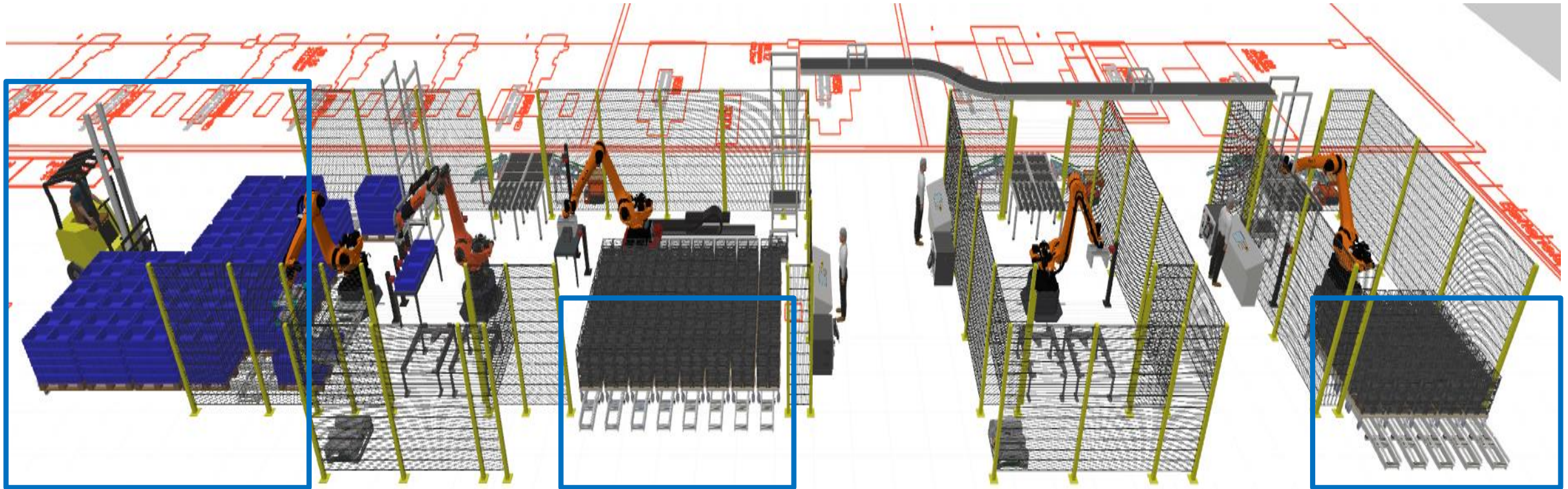
STEP 1 --- Full automatic handling of mash box and AGV transportation to special production areas



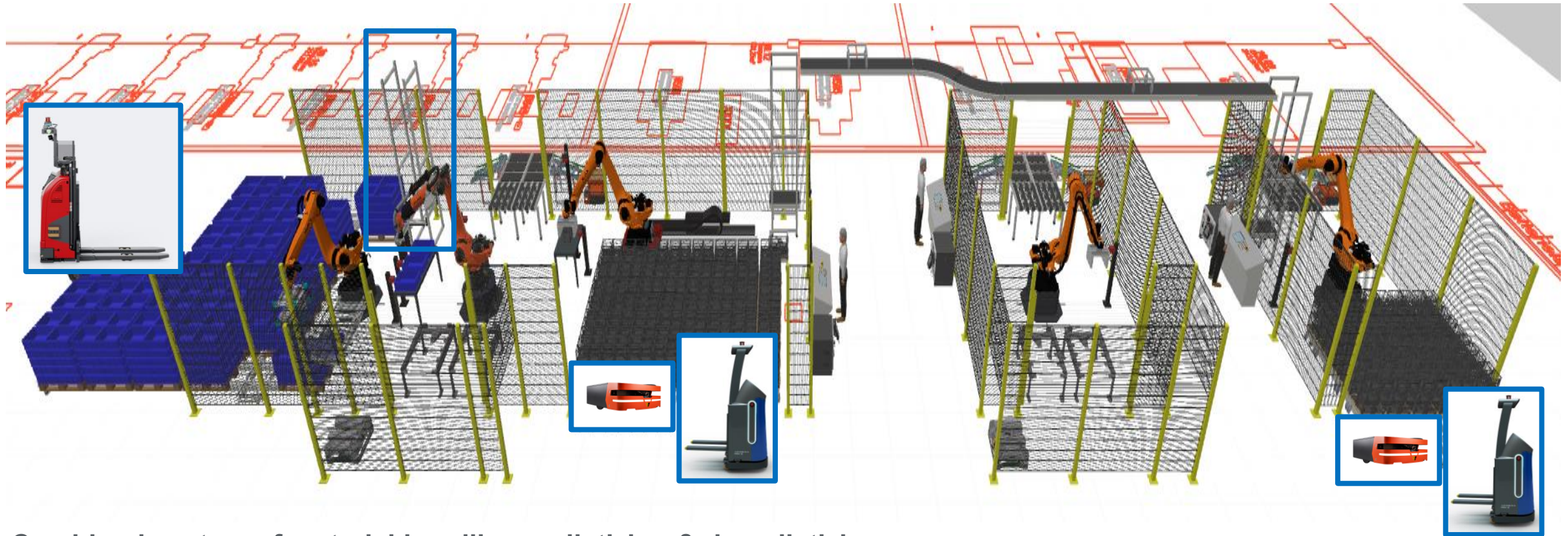
Combined system of material handling, palletizing & de-palletizing – **STEP 1** --- Material handling with interface to AGV



Combined system of material handling, palletizing & de-palletizing
STEP 2 --- Full automatic pouring area



Combined system of material handling, palletizing & de-palletizing
STEP 3 --- Full automatic Logistic area



Combined system of material handling, palletizing & de-palletizing

STEP 4 --- Full automatic connection to production via AGV system and to AKL via Lifter and conveyor system

inos | AUTOMATION SOLUTIONS



inos cell – Depalletizing from dolly to palett



Three different AGV System manufacturers supplying inos De-Palletizing / handling cell

Vision solutions for logistic automation

Showcases at Mobile Robotics Summit 2025

» We show 4 independent Showcases in one turnkey cell (reduced cycletime)
with inos software, sensor know-how, intelligent grippers, automation and interface to AGVs

■ Showcase 1 „De-Palettizing with delivery of material via AGVs“

- Depalletizing of 3 box sizes from two pallets (1 x on deposit, 1 x on floor)
- Interface to Fleet manager from SYNAOS via MQTT
- Positioning of Robot: rough positioning (2 x stationary sensor above center of pallet)
fine positioning (integrated cameras in inos gripper)

■ Showcase 2 „Autostore“

- Picking box out of Autostore box, dropping box into Autostore-box
- Positioning of Robot: fix position + fine positioning (integrated cameras in gripper)

■ Showcase 3 „Different box sizes“

- Picking “blue” boxes from floor, adaption of gripper size
- Positioning of Robot: fix position + fine positioning (integrated cameras in inos gripper)

■ Showcase 4 „Toolchange“

- Tool change to „parallel gripper“ and back to „inos KLT Flex gripper“
- Picking „red“ E2-box (meet-box /Fleischkiste) from floor (clamping from outer side)
- Positioning of Robot: fix position + robot guided sensor (rough positioning)

inos

KLT-HANDLING

Your Logistic Solution Partner



**Visit us at Booth
H1 –M18**



Thank you !

Visit us at Both H1-M18

Discuss your request



Check for Test in our Labour or Robot-Cell

Q & A



V I E L E N D A N K & T H A N K Y O U

stephan.mengele@inos-automation.com

juergen.schenk-deisenhofer@inos-automation.com