

**Christian Doppler
Laboratory**

Contact Us

+43-732-2468-4241
cdl-mint@se.jku.at

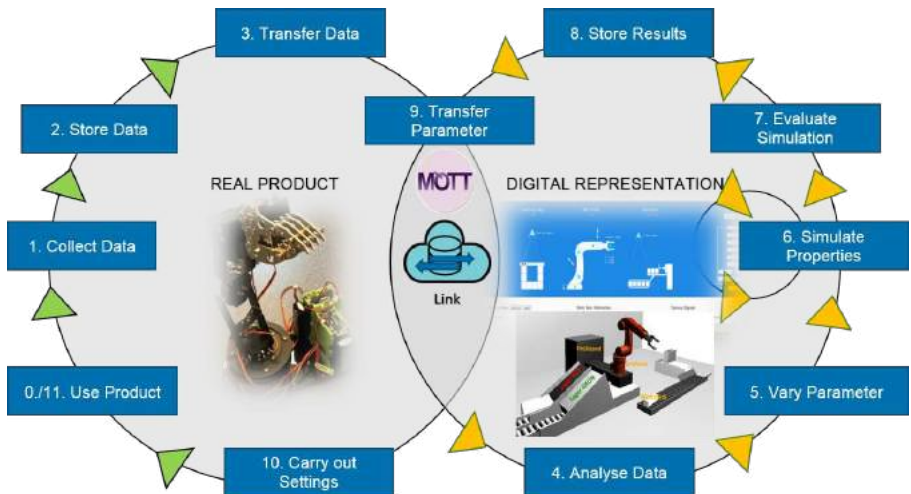
Model-Integrated Smart Production

*Digital Twin
Engineering*

CDL-MINT

- Real Product vs. Digital Representation
- Linking of Hardware and Software
- Synchronous Workflow
- Behavior Analysis

Digital Twin Dual-Loop

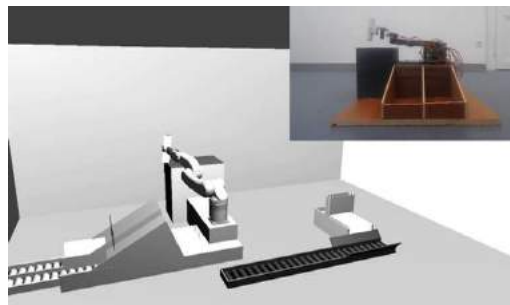


Showcase

Production unit as an autonomous system:

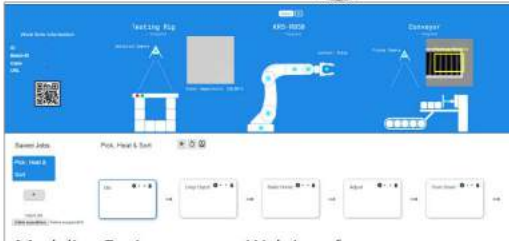
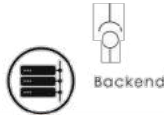
- 6-axis Gripper
- Conveyor
- Test Rig
- Work Items

Each component communicates via MQTT with a central server. Hardware and software are controlled synchronously.



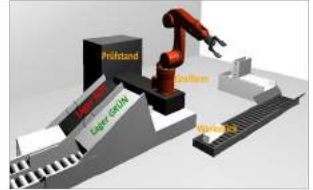
Demonstrator Setup

Time-Series Database

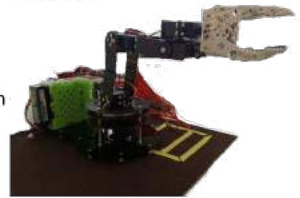


Modeling Environment as Web Interface

Simulation



Hardware



Communication

Storage and Analysis

- Gripper movements are recorded in a time-series database
- Comparison of measured behavior to modeled behavior

First step towards a platform for Digital Twin Engineering. Hardware, software, runtime, and simulation are bound together through interlocked execution loops.



Contact

DI Mag. Dr. Alexandra Mazak
alexandra.mazak@jku.at

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<https://cdl-mint.se.jku.at>



JKU Linz

Institute of Business Informatics – Software Engineering

CDL-MINT

Altenberger Straße 69, Science Park 3

4040 Linz

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