

# UMSETZUNG VON INDUSTRIE 4.0 IN DER LOGISTIK UND WIE KÜNSTLICHE INTELLIGENZ DIE ZUKUNFT VERÄNDERN KANN

Medienkonferenz HANNOVER MESSE 2018 & CeMAT 2018

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01 März 2018

Who we are  
Automation Powerhouse

**KUKA**

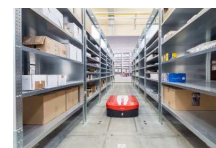
**swisslog**



Product



Cell

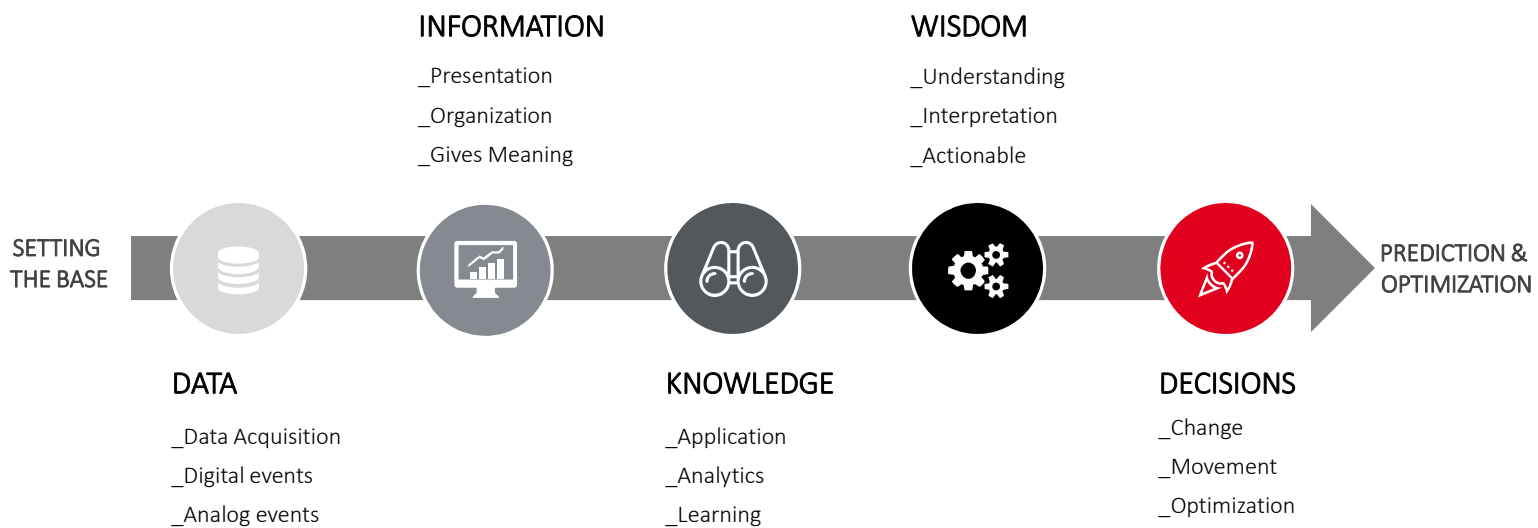


Solutions

Shared platform

## How big data becomes smart

How we develop our solutions in the Industry 4.0 world



## AutoPiQ

Human robot collaboration

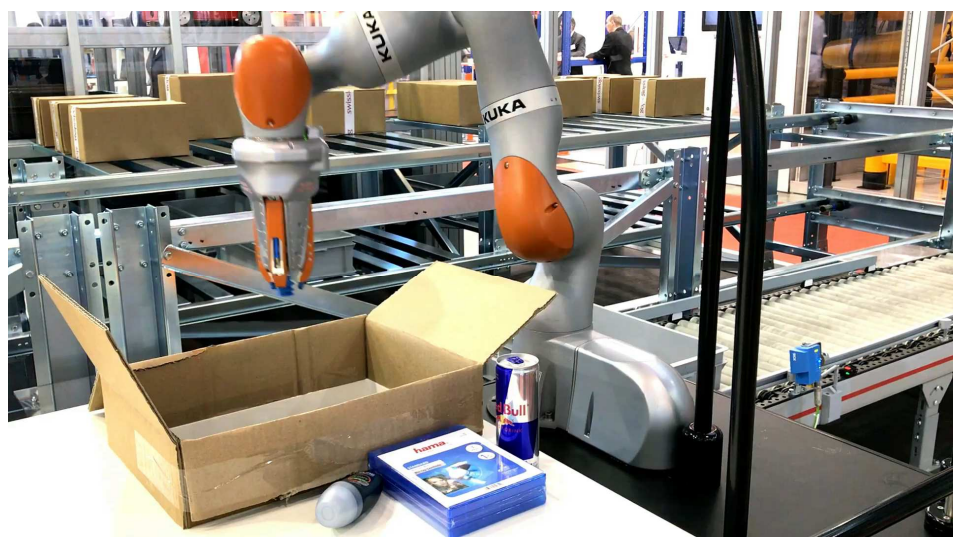
Human-robot-collaboration  
compatible robot

Vision system

Combined suction /  
3-fingers gripper

No teach in of products

Adjusts gripping strategy



## Artificial intelligence for item picking Knowledge in the cloud



Source: [Google Research](#)

## ACPaq Decentralized controls strategy

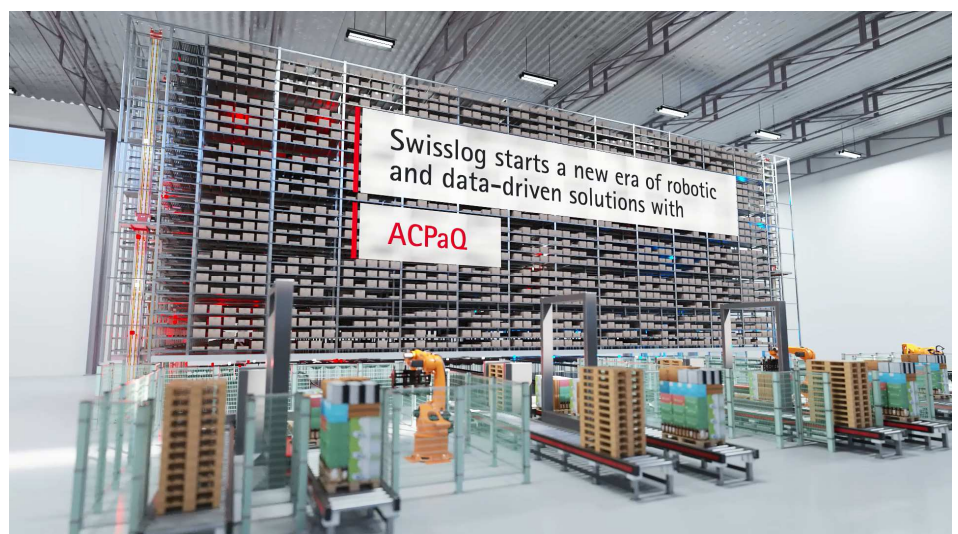
Light goods buffer (shuttle)

Sequencer

4 units gripper

Palletizing algorithm

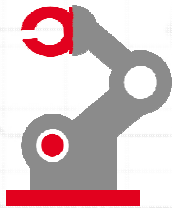
Decentral M2M communication



## Artificial intelligence for building mixed case pallets Robots also learning from humans?

Today...

Future could be...



80% done by a robot



20% by a human



robot learns from human



improving palletizing algorithm

## Software as a Service Making Big Data Smart



### Analyzing your Data

- A variety of tools for better optimization and forecasting
- Collect, Analyze, Decide and Intervene!



### Integrated in your IT

- Flexible IT integration scenarios
- Use the IT Infrastructure that supports your Digital Strategy!

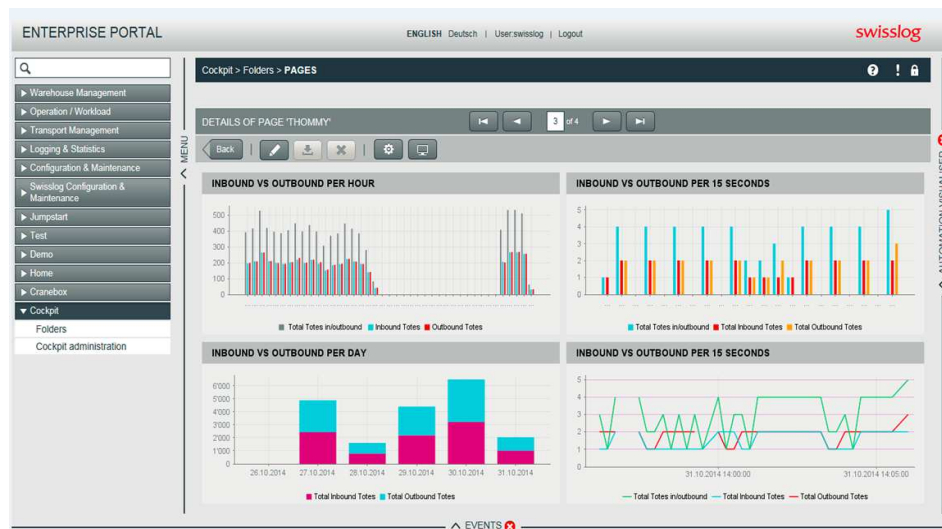


### Covering your Processes

- Proven standard core processes for your business needs
- Choose the logistic processes you need!

## Data must become information

### Where we are today – SPOC and Condition Monitoring



#### SPOC

- Runs mobile and is universally accessible
- Visualizes big data and complex layouts
- Improved user interface / look and feel by external industrial design team
- Swisslog branded – all projects have the same look and feel

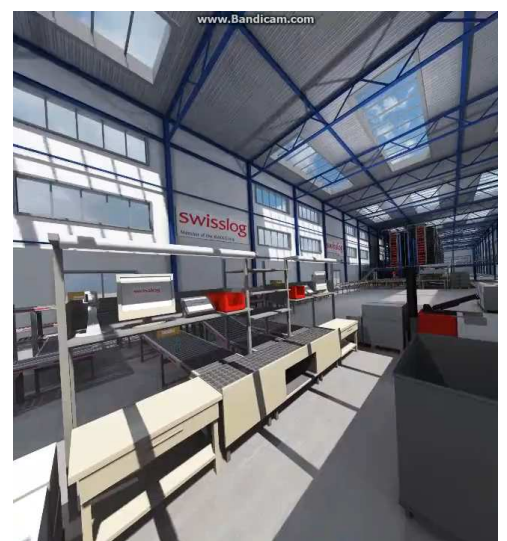
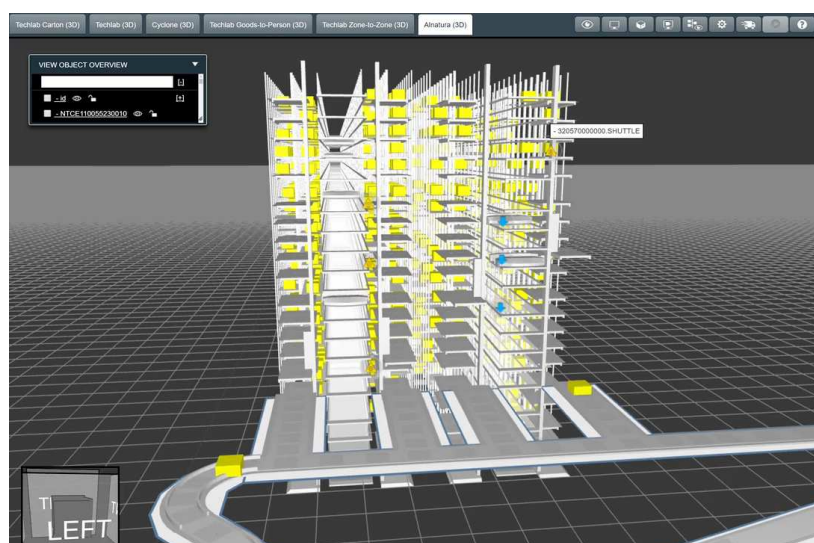
#### Condition Monitoring

- Real-time information
- Transport status
- Element status
- 7 KPIs<sup>1)</sup> available, more in development<sup>2)</sup>

<sup>1)</sup> Top 10 Errors, Errors per Equipment, Movements between Failure, Meantime to Repair, Downtime of Warehouse, Total Downtime per Equipment, Transports per Equipment <sup>2)</sup> Motor, Controls & Energy related KPIs

## Visualize the big data

### “See” the digital shadow – “live” in the digital shadow



## Availability Manager

### Turning information into knowledge and wisdom

- Aims to quantify the system's availability of different levels
- Integrated CMMS to optimize element maintenance to sustain desired availability
- Element performance model base for CrystalBall
- Visualized in 3D
- Realtime availability
- Pilot planned



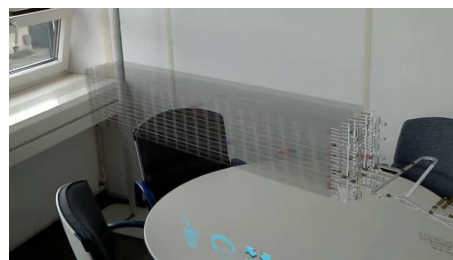
## Augmented Reality to facilitate warehouse operations and service

### Overview on current and future developments



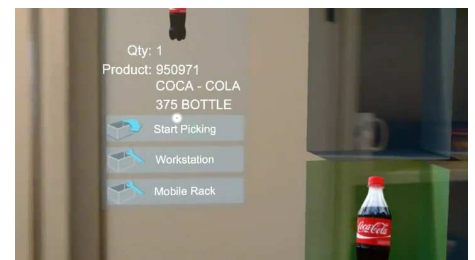
#### Augmented service support (first pilots in 2017)

- Use AR to support service technicians remotely
- Video and voice support
- Especially for locations with lack of skilled people



#### Augmented visualization (not productized)

- Digital shadow of your (future) warehouse
- You can see how the warehouse operates in real-time, incl. material flow
- You can walk around the warehouse and check the overall layout
- New way of visualizing KPIs, e.g. by just focusing on an element



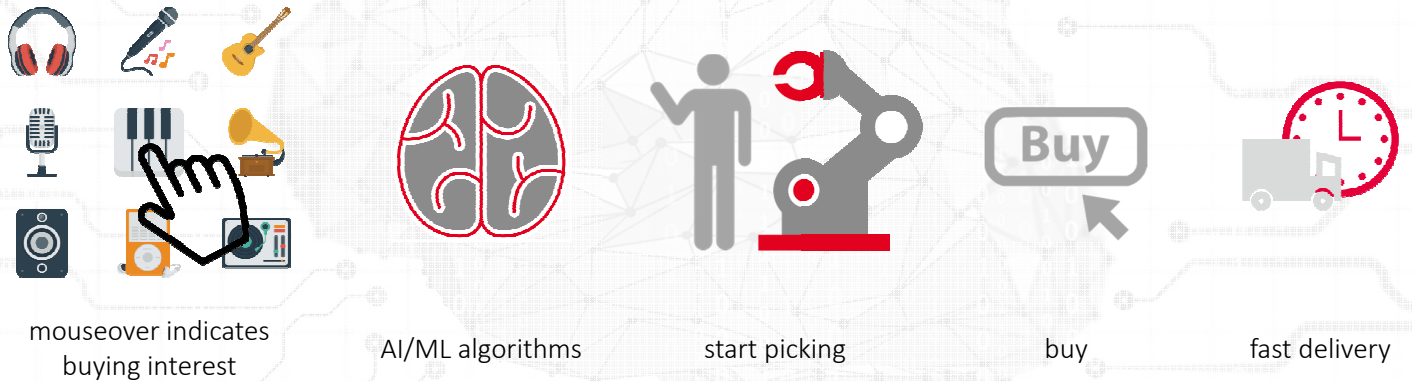
#### Augmented picking (not productized)

- Replaces pick solution like pick by light
- Reduction of hardware investment costs
- Hardware device (HoloLens) not mature enough for a 8h picking shift, but technology will develop fast
- Swisslog is prepared for the future

There will be many more use cases. We want to find out together with our customers.

## Optimizing the supply chain

### Big data analytics and learning in the supply chain



"If you don't  
cannibalize yourself,  
Someone else will."

## Meet us at Hannover fair and CeMAT 2018!

Visit us at our booth at Hannover fair/CeMAT to find out more about about Industry 4.0 and artificial intelligence in intralogistics.

### When?

23rd – 27th April 2018

### Where?

Hannover fair & CeMAT 2018

Hall 17 / Booth G04

We hope to see you there!

