Industrial Edge and AI in Industry

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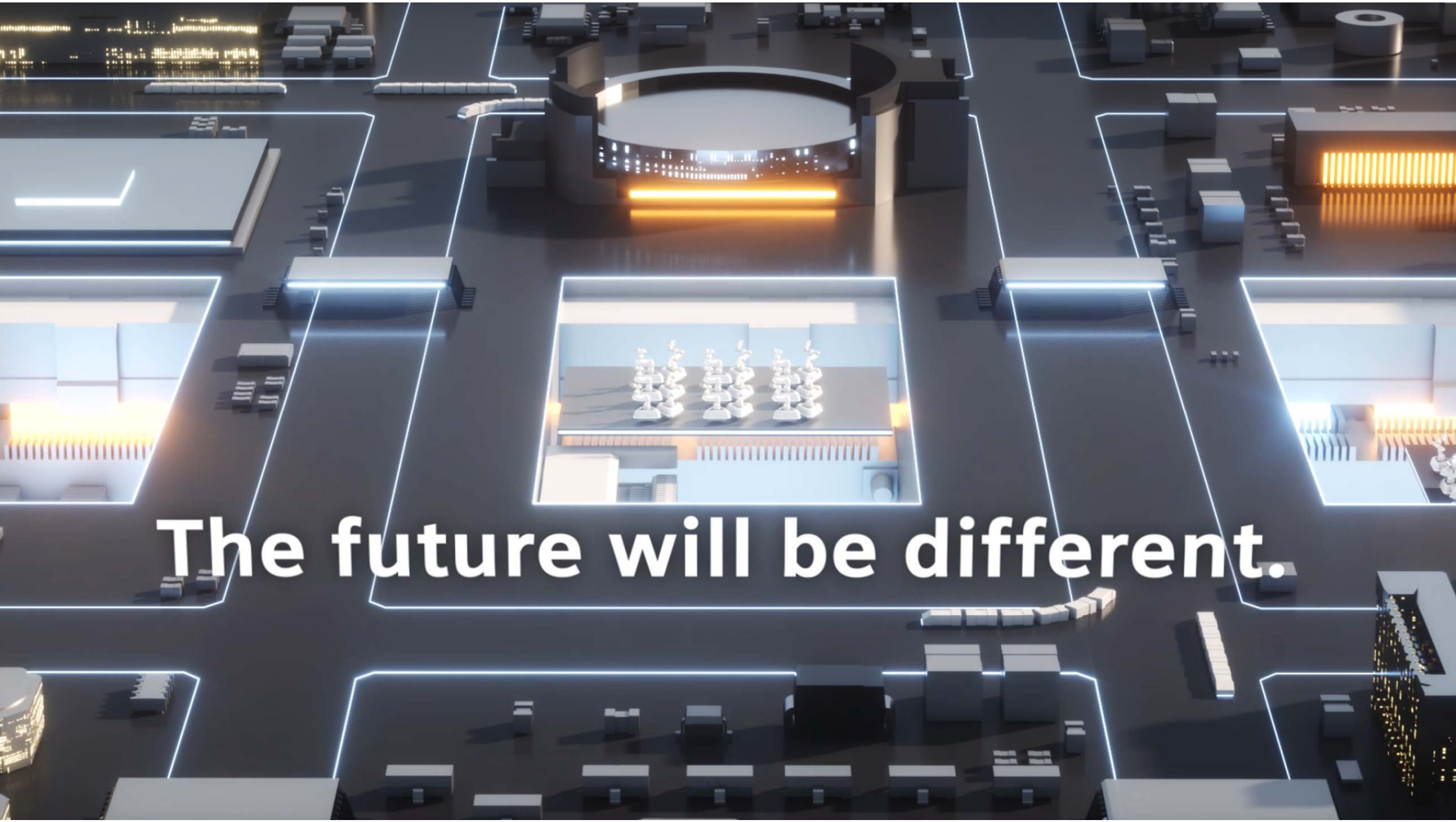
www.siemens.com/futureofautomation


The future will be different.

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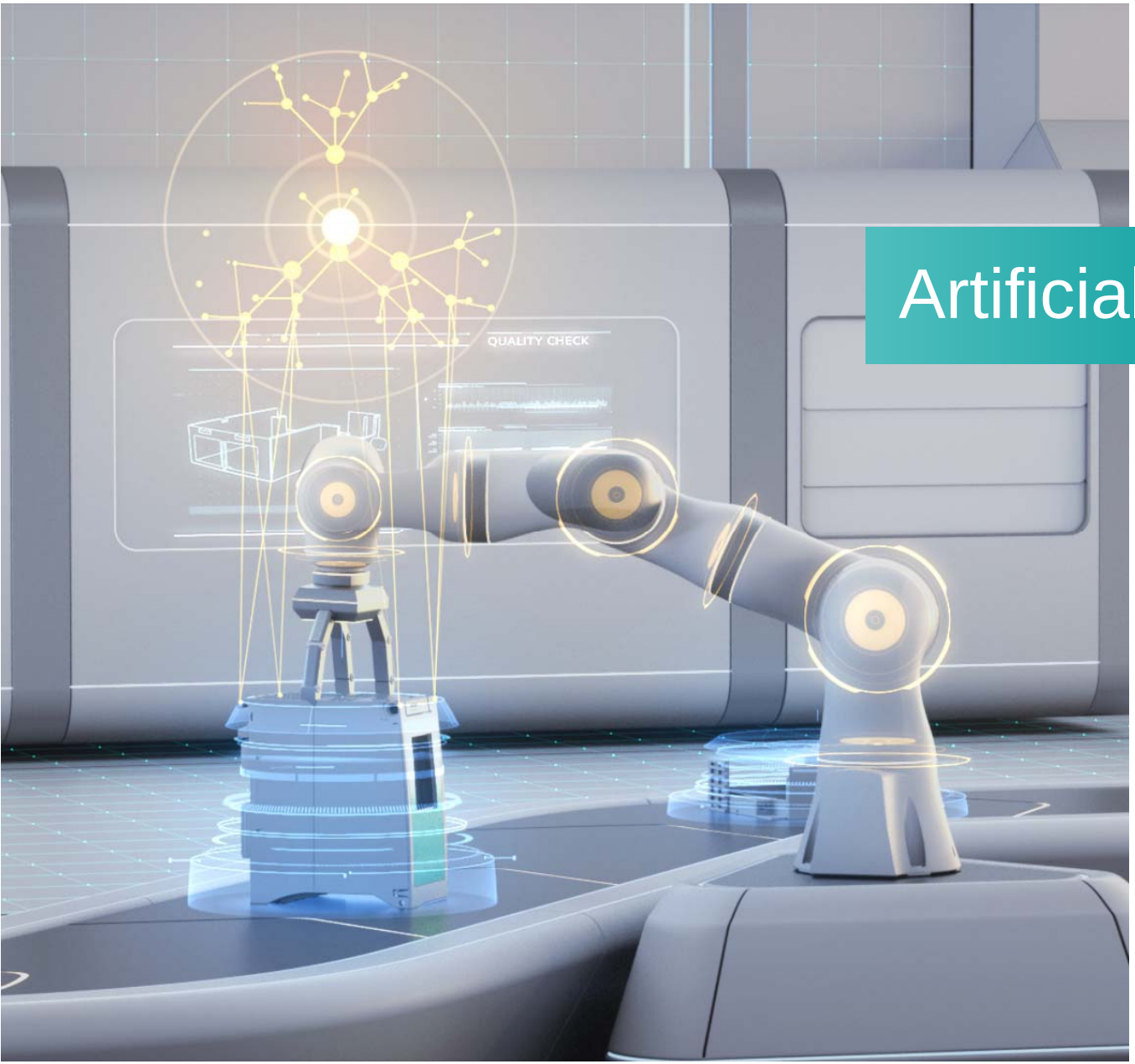
Artificial Intelligence

Can you imagine automating the unpredictable?



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Artificial Intelligence

Artificial Intelligence (AI) can use new data to **learn continuously**.

This vision that is driving us is that of an autonomation which is capable **optimizing itself** and even **automating itself**

Why AI?

Artificial Intelligence with all its different facets will **reduce** **programming and engineering efforts**, make **control logic** more **agile** and **flexible** towards changes in the environment and **production processes** more **flexible** and **precise**.

AI
IA

Flexible grasping using Artificial Intelligence

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Flexible grasping using artificial intelligence

Artificial intelligence makes it possible to grasp arbitrarily shaped and positioned objects.

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AI

Artificial Intelligence module for Simatic S7-1500

Highlights

- Neural Compute Engine with on-device deep neural networks
- Powerful vision / imaging processing onboard

Potential use-cases

- Robotics learning
- Visual quality inspection
- Anomaly detection / Condition monitoring
- Additive manufacturing

Benefits

- Use AI to optimize the PLC process
- No separate IPC needed
- Direct communication to PLC reduces engineering effort

Collaborative robots working with Artificial Intelligence

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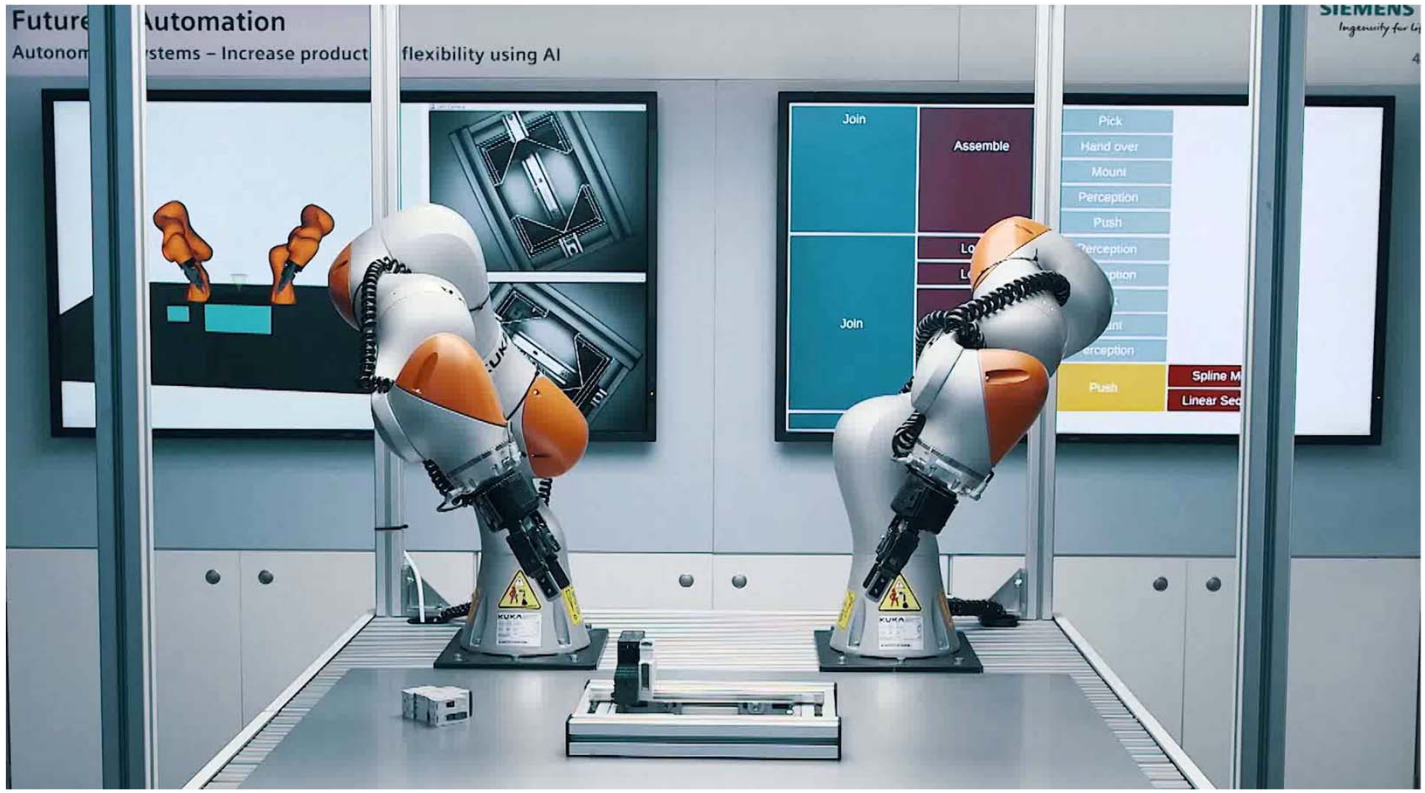
These robots independently perform part of the control panel assembly



SIMATIC Automation

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Digital Twin

+

Artificial Intelligence

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Collaborative robots working with Artificial Intelligence

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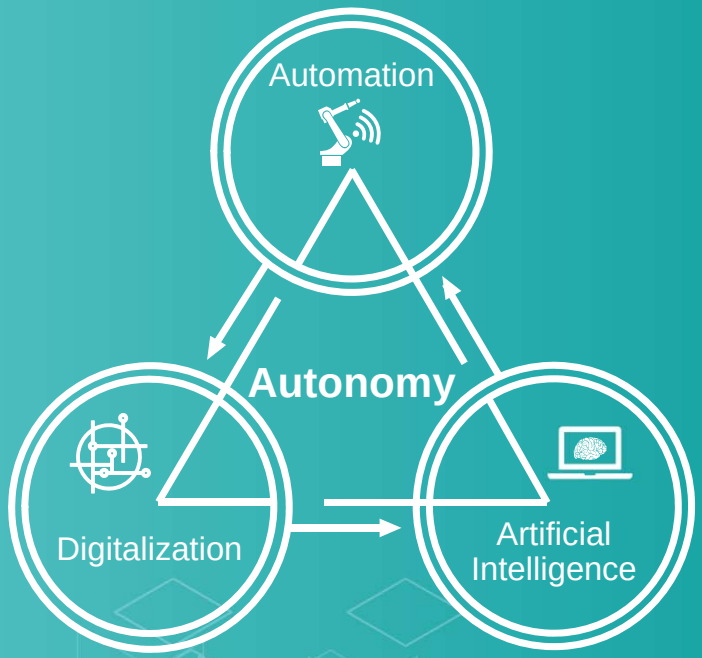

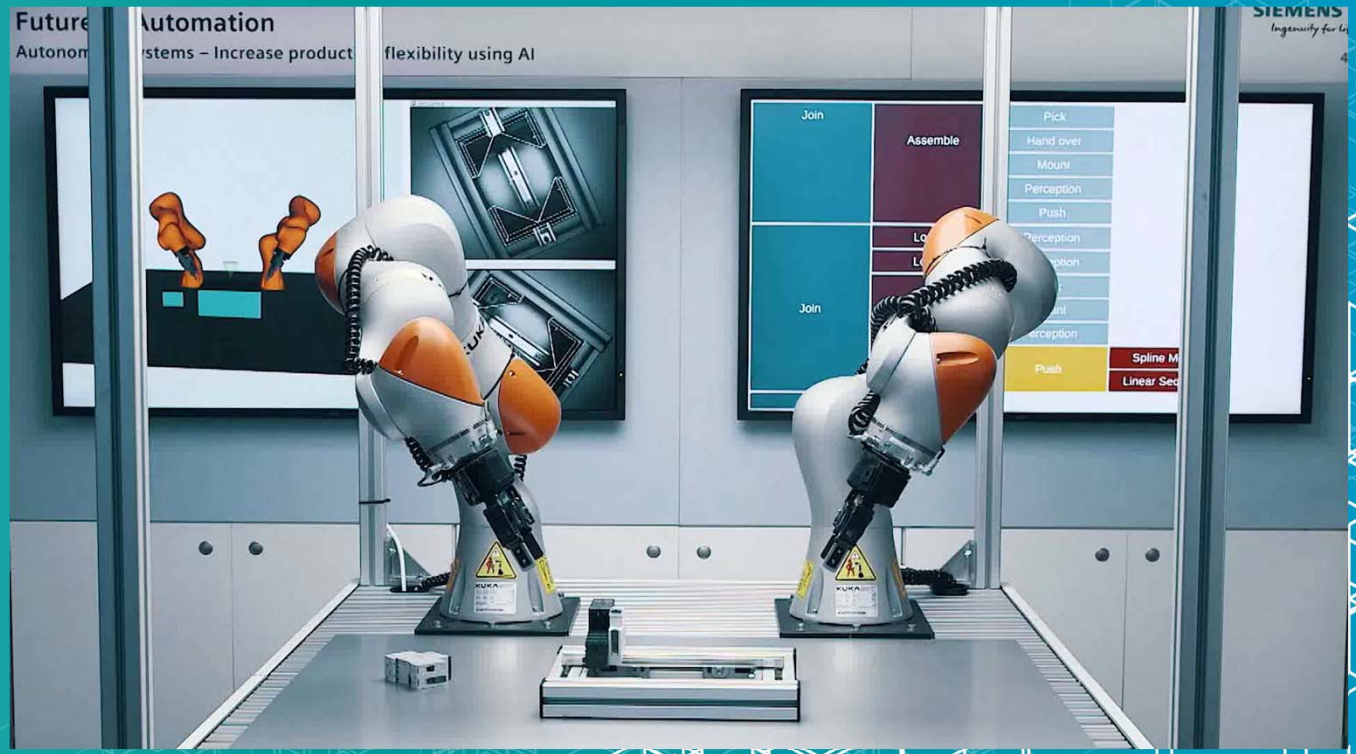

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Siemens Industrial Edge for automation

What Edge Computing is about – Edge combines benefits of local and cloud computing

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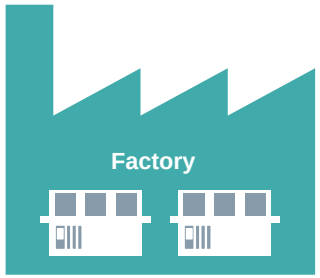
Local computing



Devices installed once – never or few updates

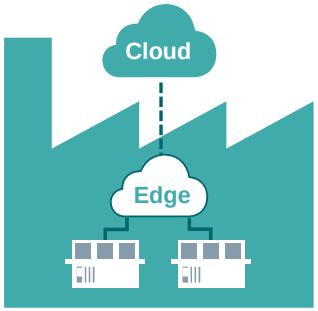
Updates transferred via USB stick or local network

Cloud computing

App installation and deployment on-demand

- Central data and global intelligence
- Quick updates in the cloud
- Low frequency data/high latency of decisions
- Cloud dependency

Edge computing



App installation and deployment on-demand

- Local data and global data (if wanted)
- Shift from global to local intelligence
- Quick software update cycles for edge HW
- Analysis of high volume data and low latency decisions

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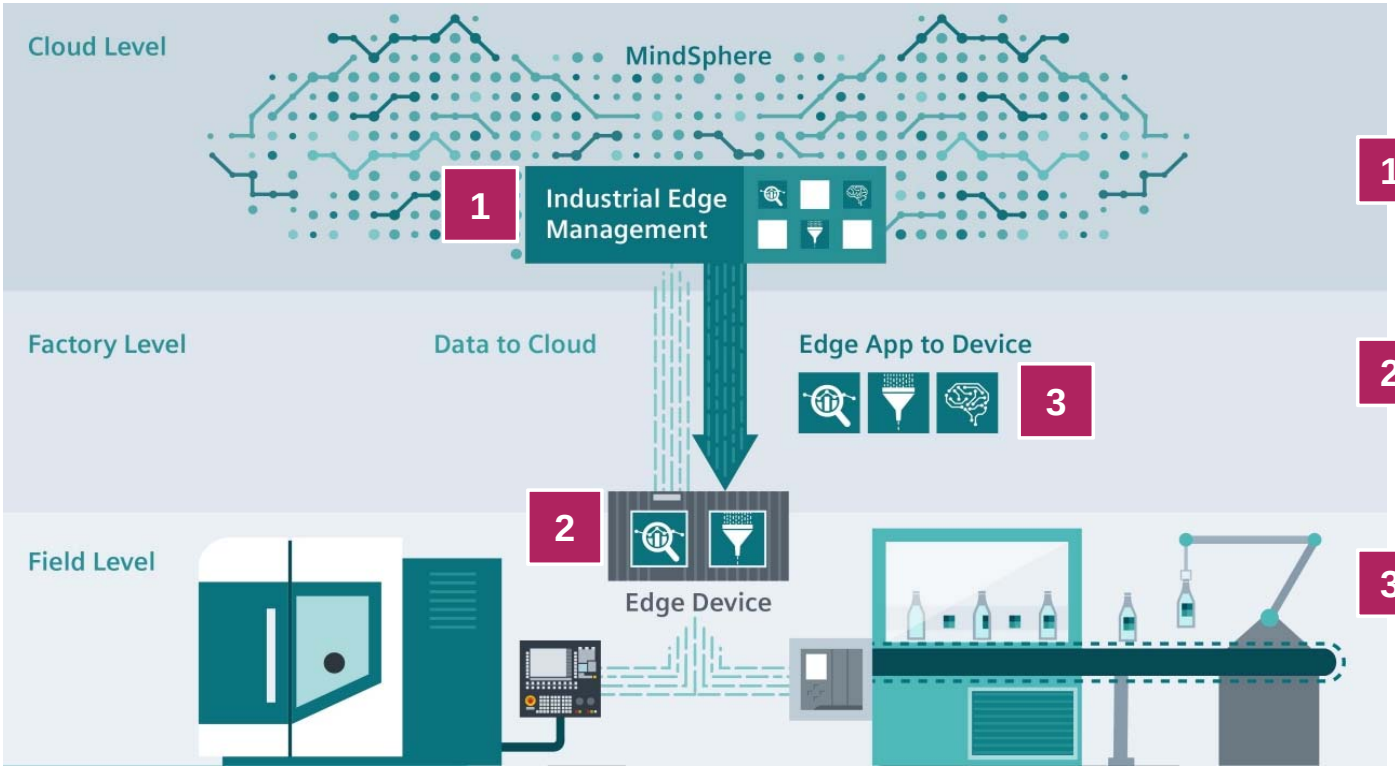
Siemens Industrial Edge for automation – Concept Overview



1 Edge Management
Central infrastructure to manage Edge devices

2 Edge Devices
Secure, future-proof basis for running Industrial Edge applications

3 Edge Apps
Applications for intelligent data use

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Industrial Edge

Edge & AI Use Cases

Edge Computing and Artificial Intelligence
Savings of 200.000€ p.a. in Siemens Manufacturing Amberg

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Edge and Artificial Intelligence

Enabling Predictive maintenance for PCB cutting machine

Reducing preliminary spindle failures by

100%

Total savings for 18 machines

200k€ p.a.

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Closed loop analytics for 30% less XRAY testing effort in manufacturing with Edge/Cloud computing and AI

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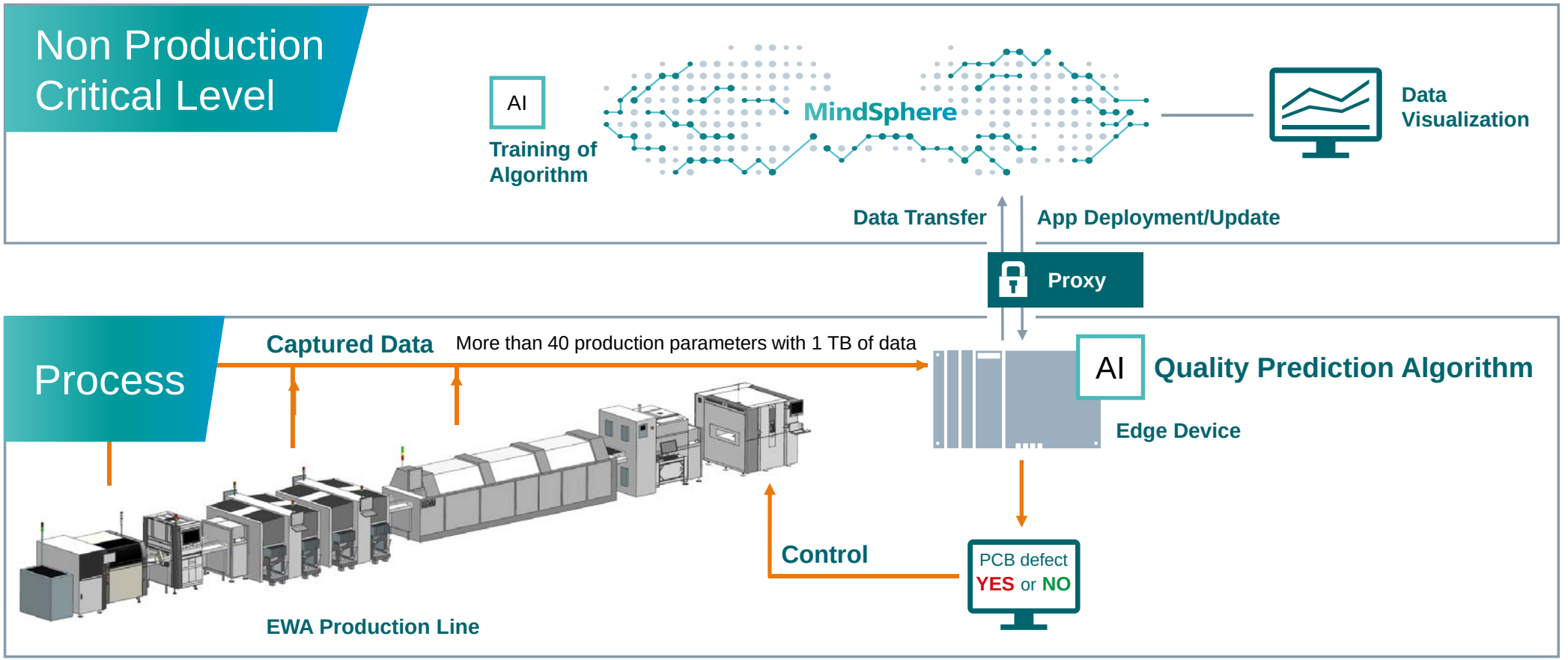

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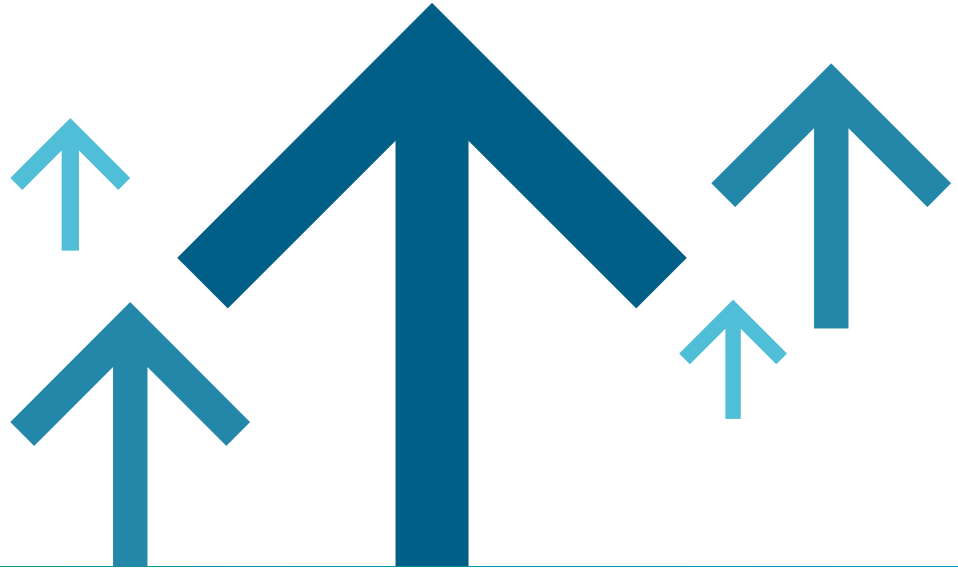
Investing in SIMATIC ...

... is investing in the future.



Thanks you very much !

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Kenichi Fujita

President & CEO

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