The road to innovation

Accelerate your business with the help of data and AI

Rick Schneiders
Head of Future Food

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Five Megatrends that have an impact on our food system

Environmental drivers and regulations are forcing companies to **optimize energy consumption, decarbonize, and seek new or renewable energy sources**.

Urbanization boosts the F&B industry's customer base and fuels demand for **personalized, sustainable, locally sourced food products** as urban consumers prioritize their food choices' impact.

Demographic change

Digitalization

Glocalization
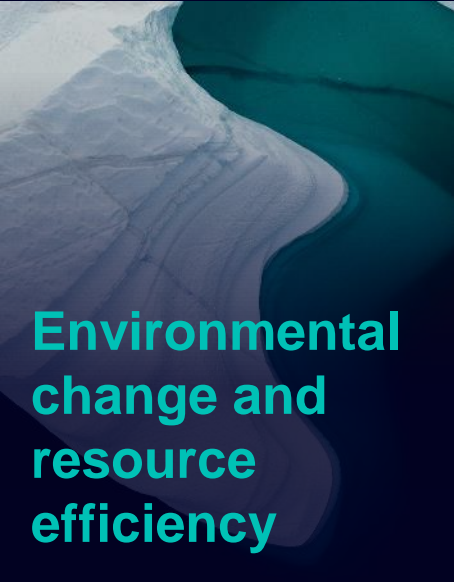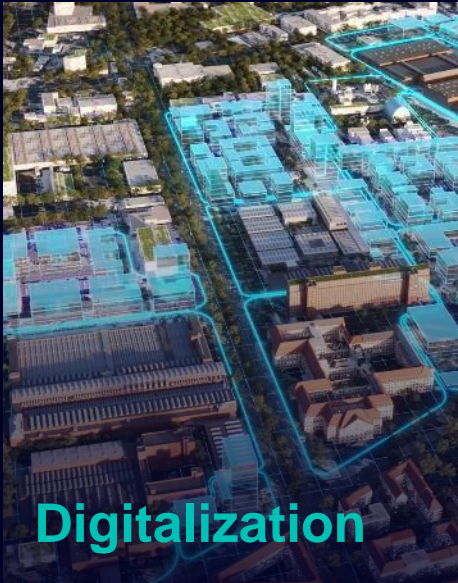
A growing population in combination with limited resources and climate change lead to **food insecurity and hunger** in some parts of the world.

Digital transformation and AI revolutionizing the industry's value chain from food production to recycling. **Decision drivers** for investors will be sustainability, cost optimization, flexibility and digitalization.

This demands **innovative supply chains and circular business models** to meet diverse local needs while minimizing environmental impact.
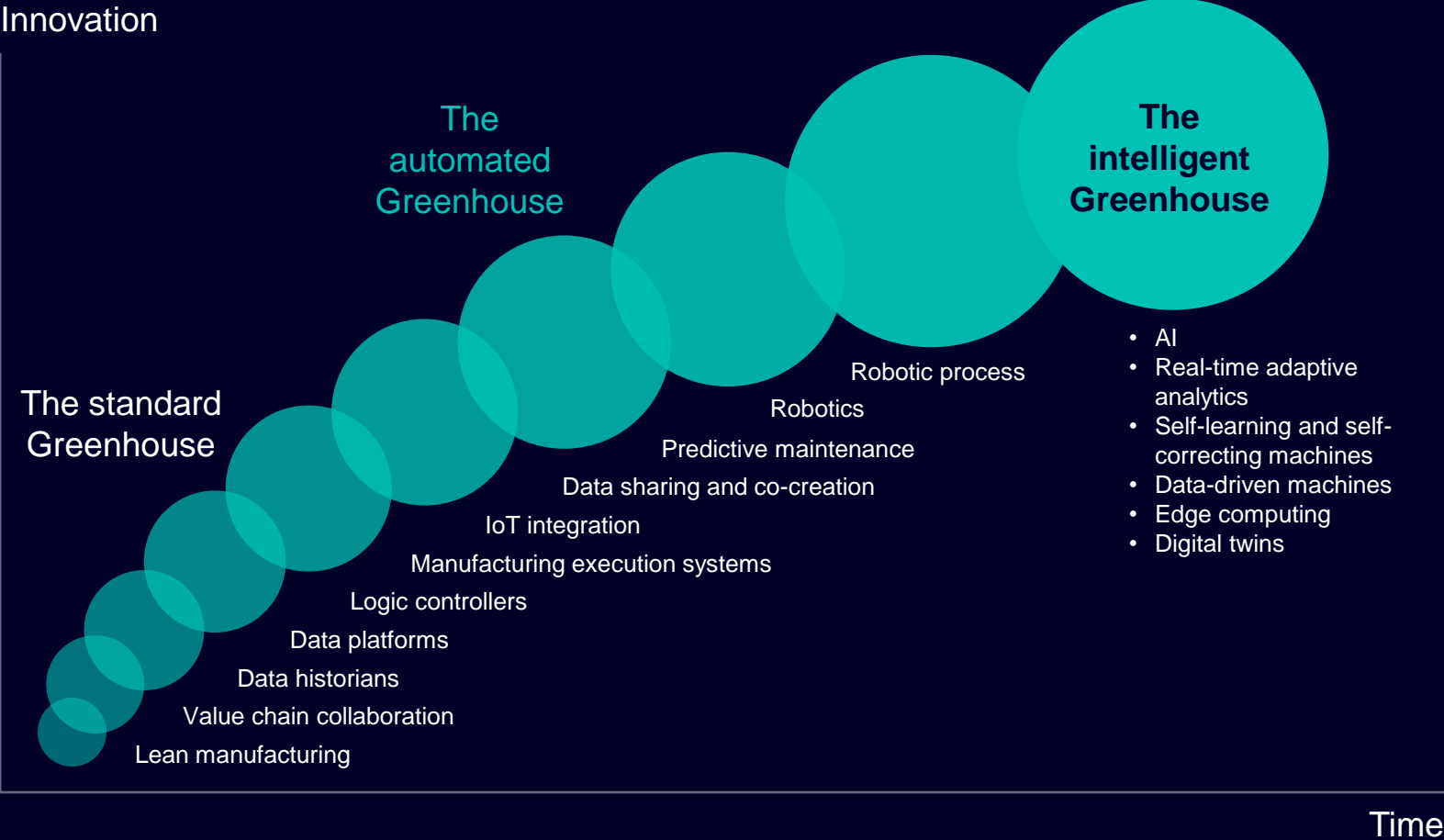
Environmental change and resource efficiency

Urbanization

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Supply disruptions and the constant need for product innovation result in decreased margin in F&B

Consumer Behavior

Growing demand for sustainable, healthy, and plant-based products increase pressure on innovation and marketing. Taxation of unhealthy foods & drinks and advertising restrictions gain relevance.

Price pressure

Increasing demands from customers and retailers to cut product costs without compromising quality standards.

Unreliable Supply Chains

Volatility in supply chains due to climate-induced ingredient changes. Rising demand for innovation and new recipes to address supply chain shifts and uphold quality.

MARGIN

Workforce Shortage

Workforce gap and changes in skill requirements leading to high need for upskilling and reskilling e.g., to meet need for OT and digitalization specialists.

Sustainability

Increased pressure to comply with global and regional regulations on decarbonization and circularity.

Cost of Cybersecurity

Increasing vulnerability to cyber threats and necessity to ensure integrity of supply chain and compliance with regulatory requirements.

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Why should you

take a new approach to industrial manufacturing operations?

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Create personalized, connected, adaptable applications

Innovation

The
automated
Greenhouse

**The
intelligent
Greenhouse**

- AI
- Real-time adaptive analytics
- Self-learning and self-correcting machines
- Data-driven machines
- Edge computing
- Digital twins

Robotic process

Robotics

Predictive maintenance

Data sharing and co-creation

The standard
Greenhouse

IoT integration

Manufacturing execution systems

Logic controllers

Data platforms

Data historians

Value chain collaboration

Lean manufacturing

Time

Source: IBM Institute for Business Value

70%

of companies are already benefiting from Smart Manufacturing solutions.

Source: McKinsey

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AI increases efficiency

If you continue your production with the same methods as many years before until today, the effectiveness of the production will steadily decrease due to e.g. increased energy and raw material prices or constantly high work effort. Therefore, production must be constantly modernized in order to maintain or even increase the effectiveness of the facilities.

Efficiency = Result / Effort

1975

202X

IoT and AI

11010

01101 Digitization

Other factors e.g., higher automation level

Production efficiency through Lean Production
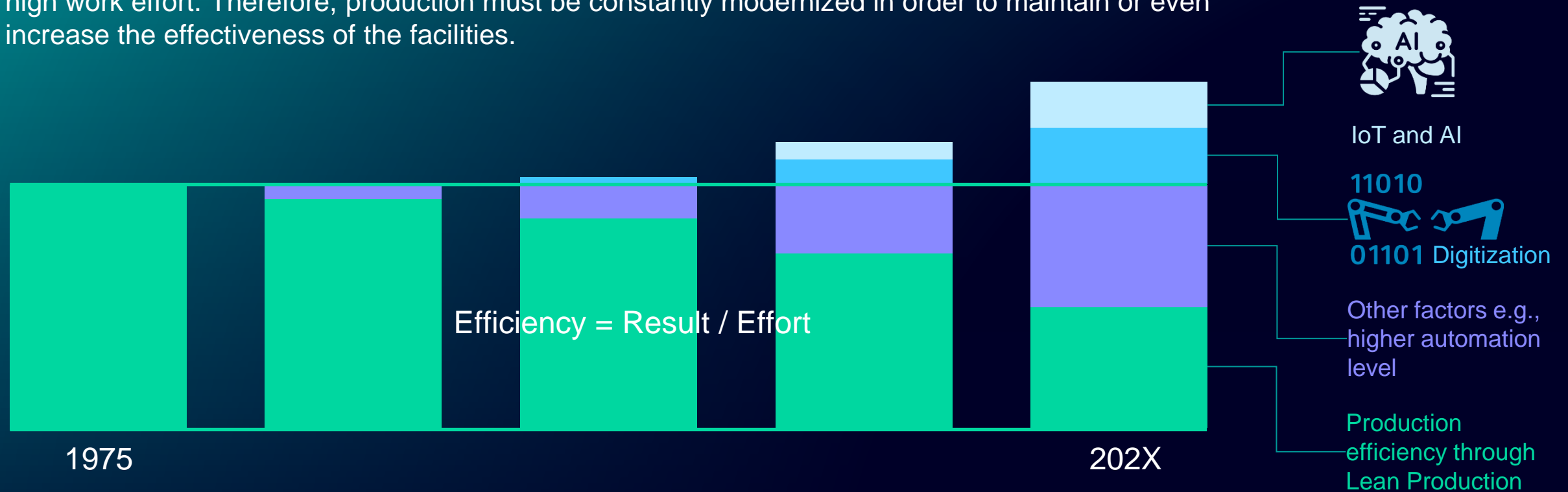
AI increases your plant efficiency and this despite increasingly complex production processes.

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AI can support
F&B companies along the industrial value chain

Design

Break new ground
in creativity

Planning

Plan more efficiently
than ever before

Engineering

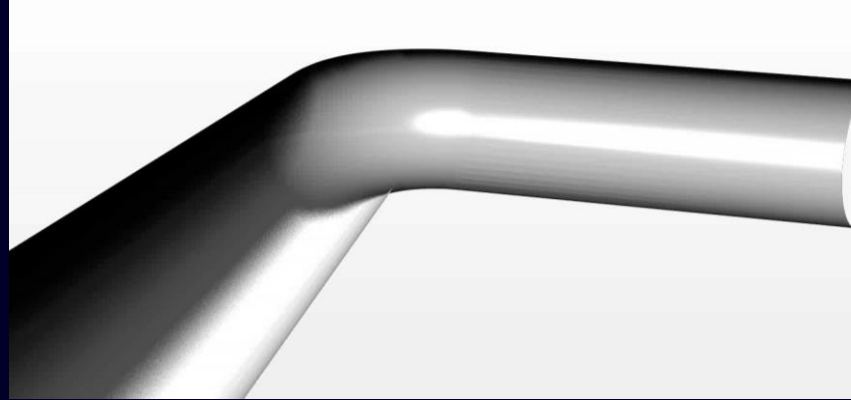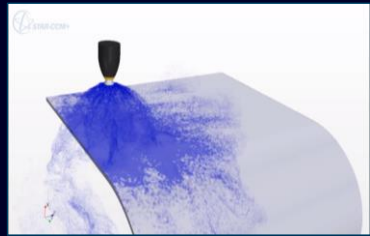Engineering without
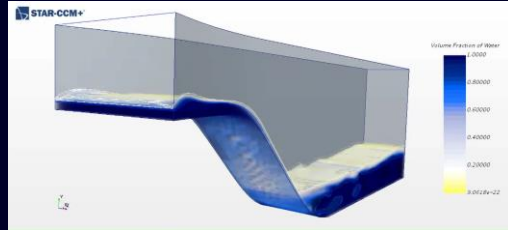repetitive tasks

Operations

Transparency at
your fingertips

Services

Know it all –
before it happens

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Production design & optimization
AI can boost the efficiency of simulation of design for optimal result

Design
Break new ground in creativity

Planning
Plan more efficiently than ever before

Engineering
Engineering without repetitive tasks

Operations
Transparency at your fingertips

Services
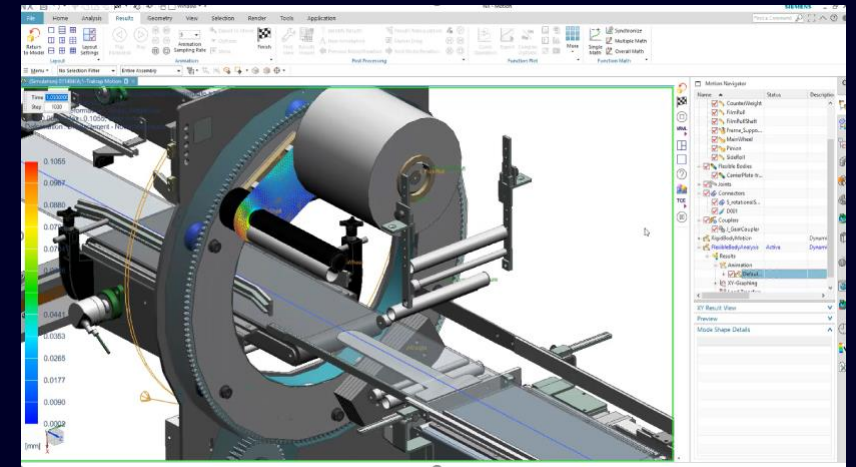Know it all – before it happens
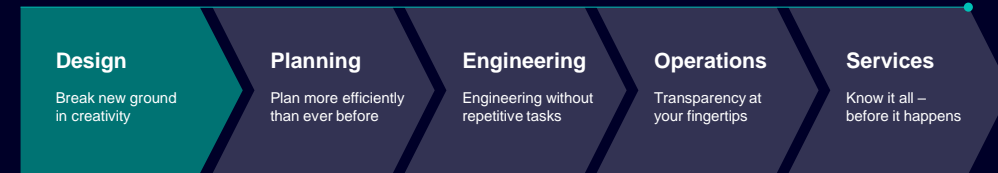
Fluid simulation
to identify dead area, gaps and crevices during the construction phase
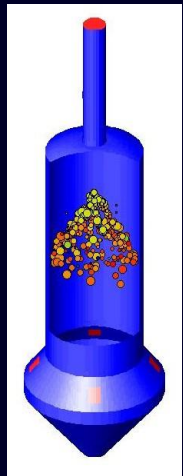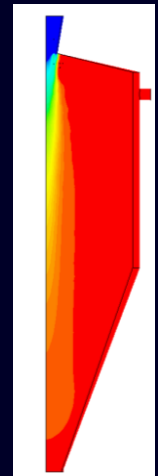
- **Thermal simulation**
  - Avoid over heating heat-sensitive materials

- **Simulation of equipment**
  - Select the optimal hygienic complied material under certain stress

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Factory storage planning with AI

Design
Break new ground
in creativity

Planning
Plan more efficiently
than ever before

Engineering
Engineering without
repetitive tasks

Operations
Transparency at
your fingertips

Services
Know it all –
before it happens

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Utilize AI to monitor and harvest in a strawberry plant

Design	Planning	Engineering	Operations	Services
Break new ground in creativity	Plan more efficiently than ever before	Engineering without repetitive tasks	Transparency at your fingertips	Know it all – before it happens

1) Train the AI on Digital Twin

2) Utilize AI to control the robot

Digital Twin of strawberry plant

Features

Rewards

Setpoints

Apply Reinforcement Learning to find optimized solutions for complex control tasks
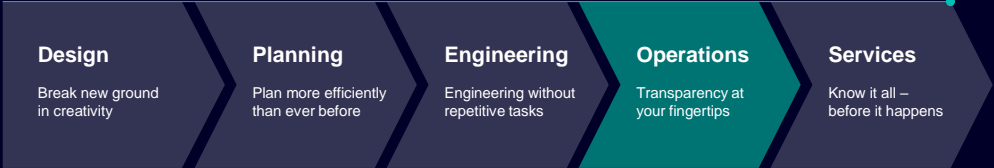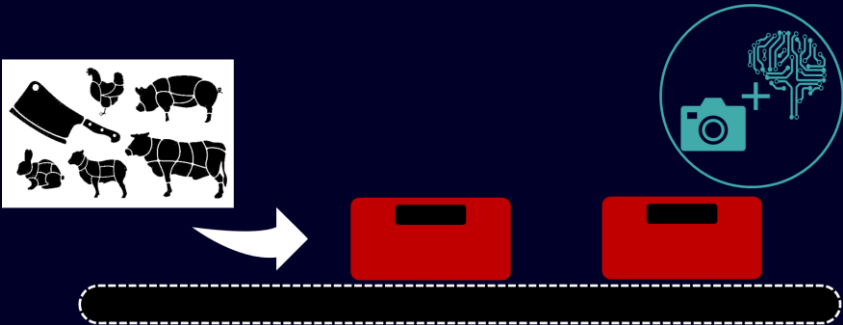
Neural Network

Robot's neural networks can be trained in advance for the operation jobs

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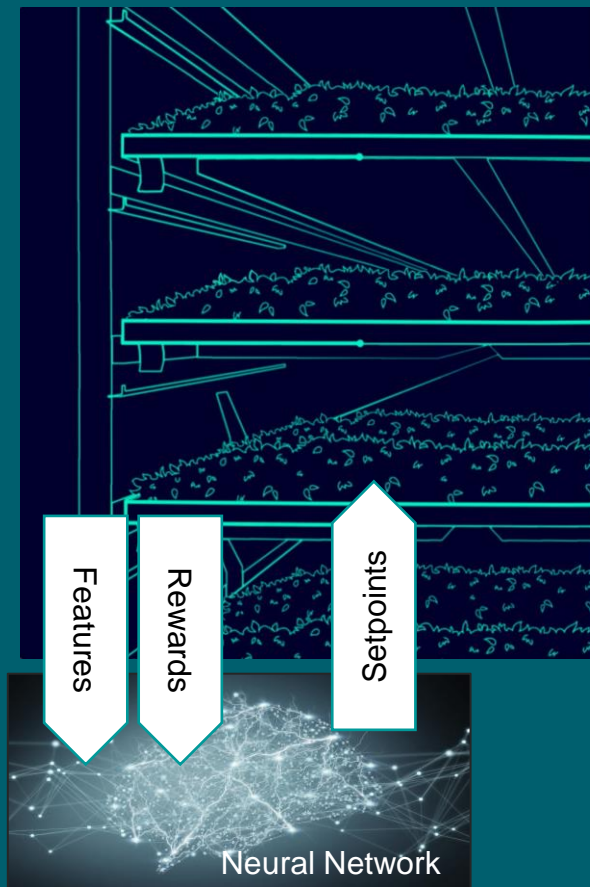
Using Image recognition & AI for food classification and quality control
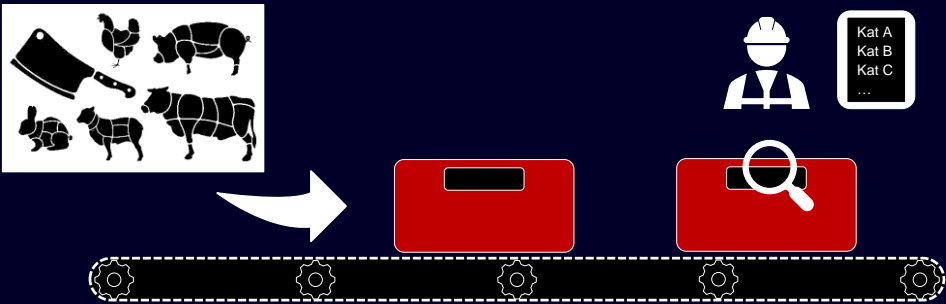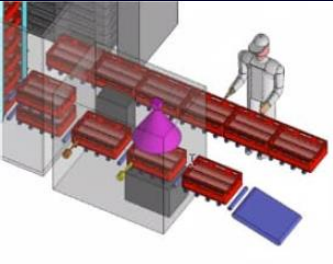
Classical food classification & quality control

AI supported classification & quality control

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AI enabled shop floor

Coca-Cola Hellenic Bottling Company, AUSTRIA
Reduce energy usage and prevent potential downtimes

Customer challenge

- Detect imminent equipment failures to prevent potential plant downtimes in bottling production line at an early stage
- improve maintenance planning and stock inventory for spare parts

Solution

- Implement an end-to-end smart condition monitoring solution: SITRANS SCM IQ
- Cloud app for predictive maintenance
- Connect machines from sensors to edge to cloud
- In-depth data analysis

Customer benefit

- > 4% reduction in equipment performance loss
- Eliminated 4 emergency downtimes in first 6 months due to AI-based anomaly detection
- 13% energy use reduction; 110,000 EUR savings in first year
- Increased transparency of asset condition through intelligent data analysis and monitoring
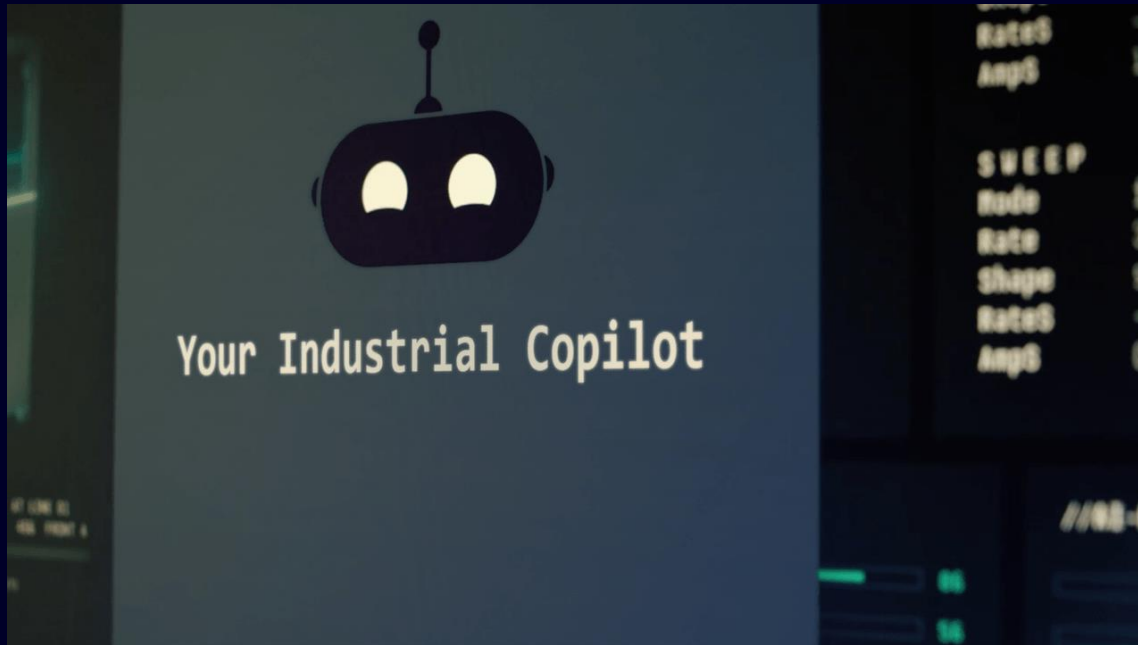
Reference Center

Coca-Cola HBC Austria

4
Emergency downtimes eliminated

13%
Reduction of energy usage

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Industrial CoPilot for Engineering – Product Released

Industrial Copilot for Engineering

- AI driven troubleshooting and getting-started
- SCL code generation
- HMI generation

Industrial Copilot for Engineering: A generative AI-powered assistant

Challenge
- Lack of skilled automation software developers & maintenance staff
- Creating automation code, finding and fixing errors is a time consuming task
- Identifying and solving issues in automation equipment is resource-intensive
- Very competitive market environment

Solution
A generative AI-powered assistant, designed to enhance human-machine collaboration and boost productivity. The Copilot interacts with automation engineers via natural language to support them in multiple tasks during automation development..

Customer value
- Intuitive control for solution in automation by natural language
- Faster troubleshooting and getting started during development by instant access to documentations
- Increased flexibility & productivity thanks to easy generation of SCL code for industrial automation
- Increased productivity by generation of Human Machine Interfaces (HMI)

Products & Services
- First product release at HM24 for the Industrial Copilot for Engineering (TIA Portal) enabling faster and more efficient automation engineering

For more information: link

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Digitalization starts within your organization

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Siemens learned valuable lessons in its own digital transformation

Obvious challenges

Develop new services & products	Digitalize internal processes, implement tools

Hidden challenges

Develop holistic digitalization strategy & north star	Ensure top leadership commitment
Obtain external capabilities via M&A and partnerships	Change employee mindset and way of working
Keep ownership of digitalization at business	Develop implementable transformation program

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We see that digital transformation touches every part of a company and requires rigorous program implementation

Holistic digital transformation

Drivers

Changing markets & competitors

Technology & business disruptions

Continuous need for productivity

Program & change management

Business management	Strategy & portfolio	Biz. models & innovation	Go-to-market	Transformation & productivity	Partnering/ M&A
People & organization	Organizational development	Talent management	Decentralized setups	Agile transition	Corporate culture
Operations & processes	PLM / R&D	Production & logistics	Procurement	Solutions business	Service
Digital technologies	Business / Ops IT	Cybersecurity	Data management	IoT architecture	OT
Physical assets					

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Data strategy as integral part of business strategy is required to get clarity on your data and leverage your full potential

Example: Data strategy

Key questions

- How can **data** support my overall strategy and **generate** additional **value**?
- Is the **right data available**?
- How can we **ensure** (legal and technical) **access** to required **data**?

Our approach to data strategy

Data-driven business

Strategic target picture	Data-driven offerings	G2M strategy	Data eco-system

Data management (handling of data)

Availability & accessibility	Data quality
Infrastructure & technology	People & skills

Data governance (formal and informal rules)

Resp. & accountability	Legal & compliance
Security & privacy	Culture & mindset

Impact

Strengthen **customer-centric** orientation of your business	Seize opportunities from new **data driven business models**

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