

Digital Industries Factory Automation

Unrestricted © Siemens

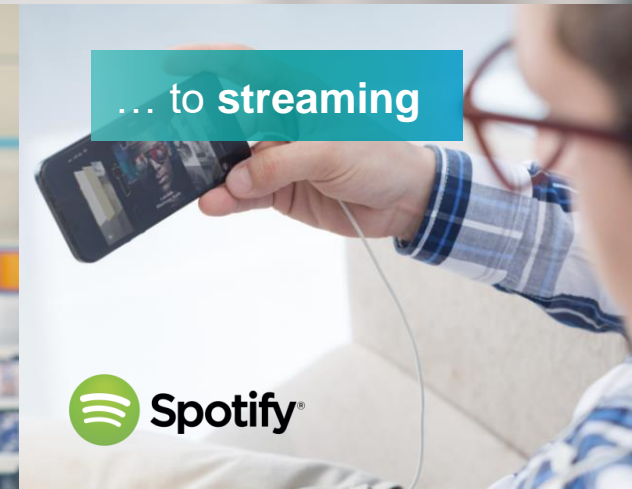
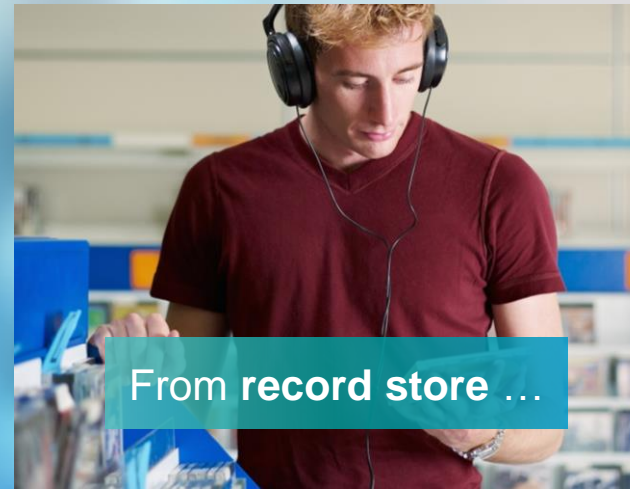
[siemens.com/tia](https://www.siemens.com/tia)



Digitalization changes everything

New business models in the internet age are disrupting complete markets

SIEMENS
Ingenuity for life



IOT

Generation Z

Artificial Intelligence

Agility

Edge

Cloud Services

Dynamic Working environment

New Competitors

New Business Models

Shorter Time2Market

Growing productivity and quality pressure



Our customers have essential requirements –
throughout the manufacturing industry

Speed



Flexibility



Quality



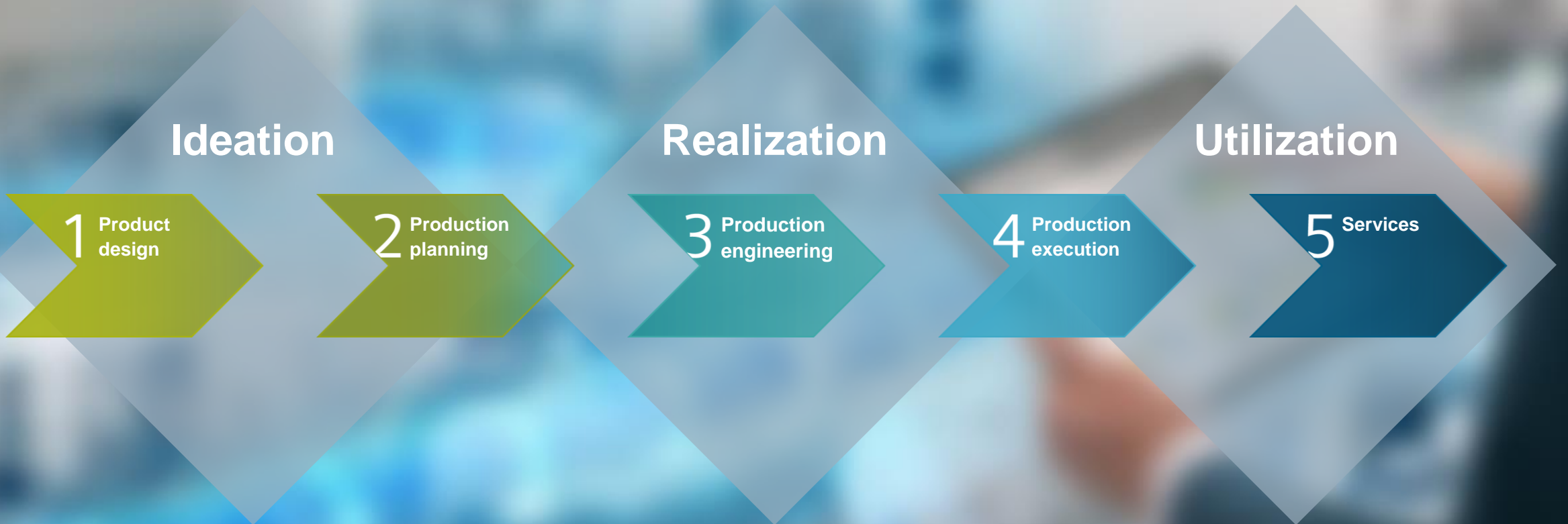
Efficiency



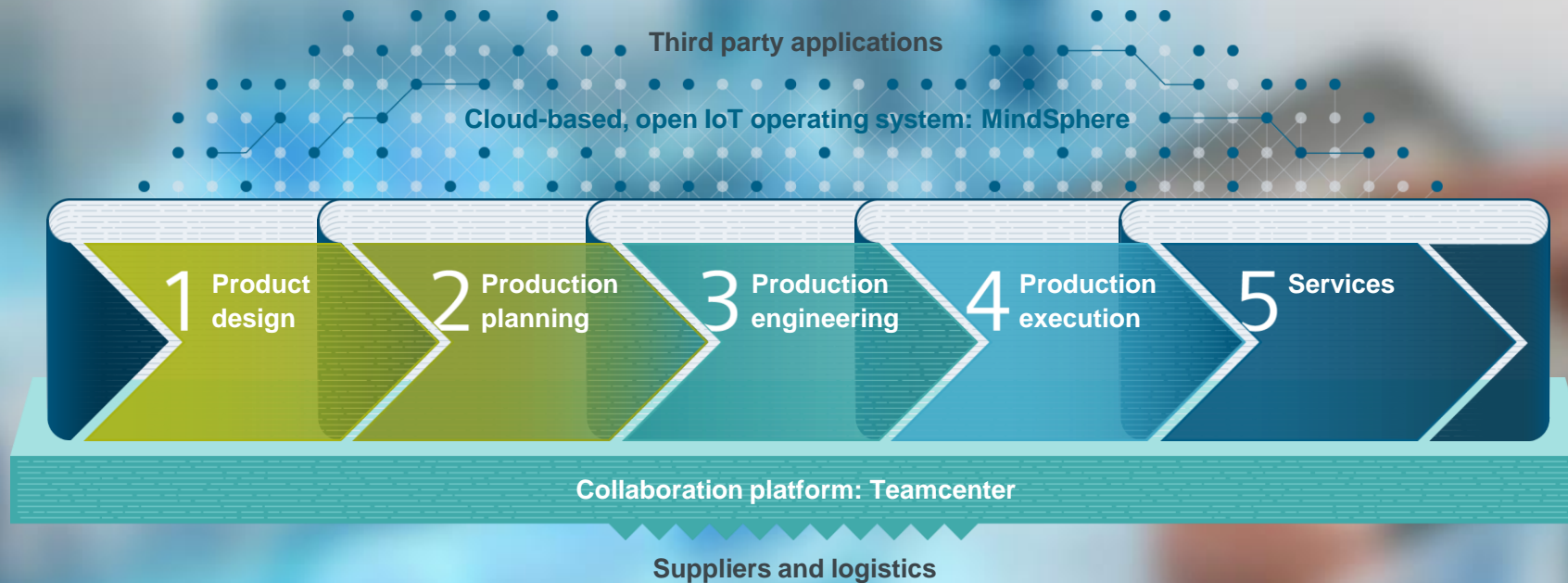
Security



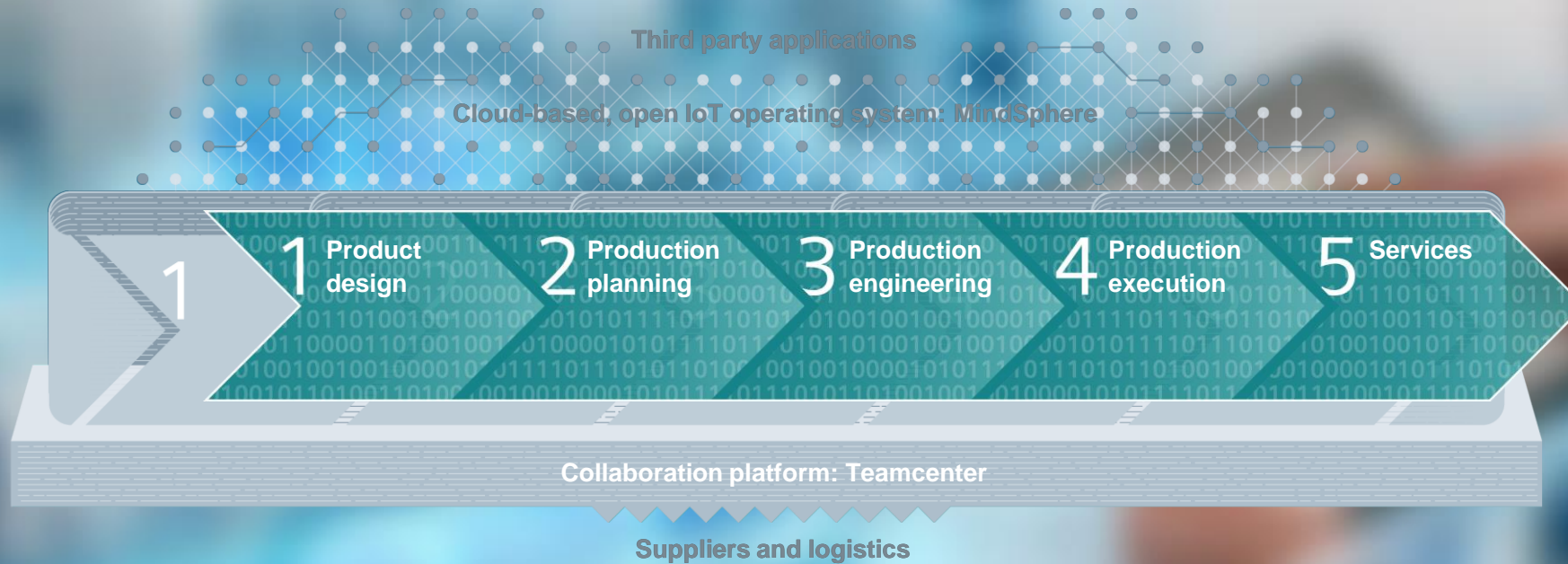
Applied across the entire value chain



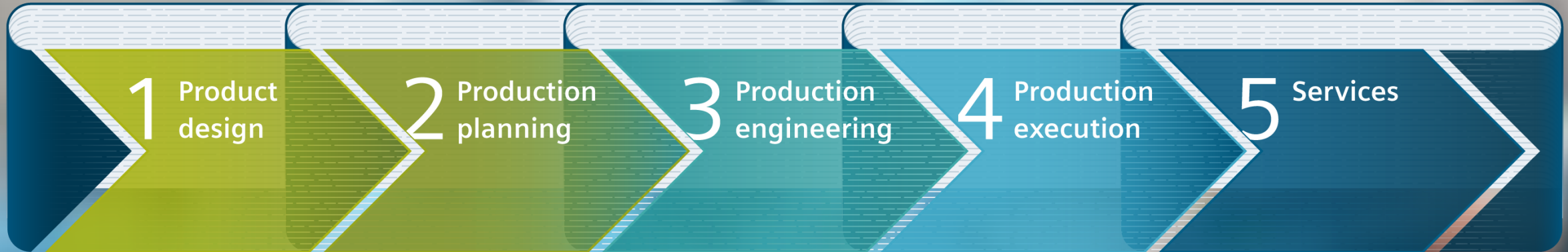
Analyze assets as they perform with MindSphere and feed back insights to continuously optimize the value chain



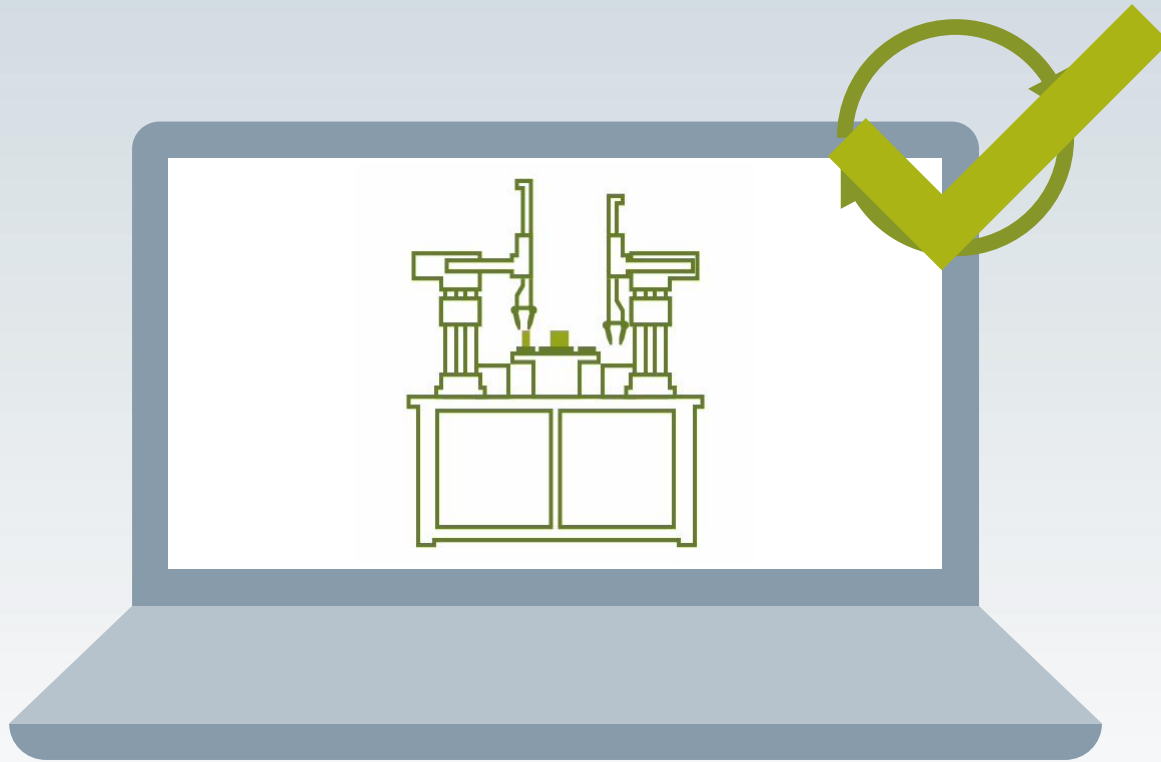
Create a powerful Digital Twin of the entire value chain



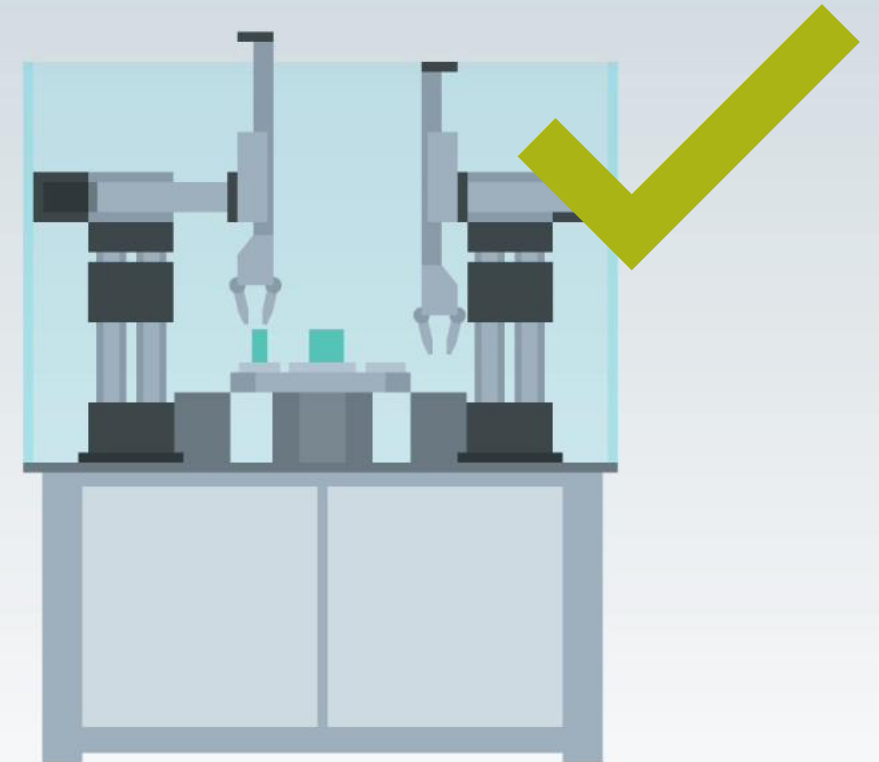
Our holistic approach Specific for end customers and machine builders



Digital twin of the machine for simulation, testing and virtual commissioning



Virtual



Real



Our Organization



Our Products and Solutions

We shape the Future of Automation

Our Mission
Our pace setting in digitalized automation inspires our customers

Our Vision
With our innovation power and our passion to embrace change we shape the future of automation for our customers

Customer Applications



Customer References

Siemens Amberg Plant is known as the Industry 4.0 factory

Benefits

- Fast!**
~1 million monthly production of SIMATIC products
- Flexible!**
1200+ Teamcenter managed products shipped to 60,000+ customers worldwide each year
24 hour lead time for new orders
- Efficient!**
76% OEE plus 20% buffer for overcapacity
- Quality!**
~11 ppm means near perfect quality – every time

Vision 2020+

New company organization as of April 1, 2019



Operating Companies

Gas and Power



Smart Infrastructure



Digital Industries



Strategic Companies

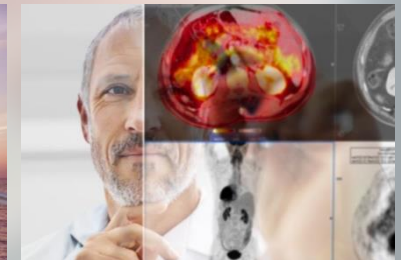
Mobility



SIEMENS Gamesa
RENEWABLE ENERGY



SIEMENS Healthineers



Service Companies

Financial Services

Global Business Services

Real Estate Services

Digital Industries focus on customer needs with software, automation and services



Key figures FY18: €16.3bn Orders | €15.6bn Revenue | ~75,000 employees



Software



Factory Automation



Motion Control



Process Automation



Customer Services

Vertical solutions

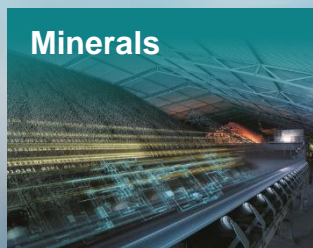
End-to-end domain know-how results in unique customer benefits



Process Industries

Hybrid Industries

Discrete Industries



Business Unit Factory Automation

The Portfolio



Automation, Products and Systems



Full scope of industry-leading automation HW/ SW products

Production Machines



Complete applications for OEM industries

Automation Products & Customizing Solutions



Add-on products, customization and systems

Solutions



End-to-end offerings for Automotive and Aerospace

Customer Services



Customer support through classic and digital services

We shape the Future of Automation

Our Mission

Our pace setting in digitalized automation
inspires our customers

Our Vision

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Business Unit Factory Automation Our Portfolio



Automation, Products and Systems

Automation Products and Systems
Leading portfolio for highest customer value based on TIA*

SIEMENS Ingenuity for life

SIMATIC PLC SIMATIC HMI SIMATIC IPC SIMATIC DP

Totally Integrated Automation

TIA Portal PROFINET Safety & Security Energy Management

Efficient Engineering Open Communication Integrated Functionality Holistic Solution

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Full scope of industry-leading automation HW/ SW products

Production Machines

Production Machines
Complete applications for production machines based on TIA

SIEMENS Ingenuity for life

SINOTION/SINATIC SINAMICS & SINOTICS Full product range Robotics Automation Industry Knowledge Application Network

Packaging Printing Textile Plastic Metal forming Wood Glass Renew. Energy Converting Handling

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Complete applications for OEM industries

Automation Products & Customizing Solutions

Automation Products & Customizing Solutions
Portfolio completion with add-on offering

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SIMATIC Add-on Products Customized Automation Security and Information Products

Innovative Products Manufacturing Services Development & Engineering Serv.

Complement portfolio and expand addressable market with products for customer specific requirements

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Add-on products, customization and systems

Solutions

Solutions
Lead the Digitalization in Automotive and Aerospace

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Product business Hardware standardization System Business Automotive Engineering Microscale solutions/Systems Turnkey solutions

Standard products business e.g. PLC, HMI, Drives, Motors, etc. Hardware standardization with optional cabinet building Application specific standardization, e.g. System package ACV Sub-supplier for Automation Engineering Mechatronic sub-supplier, e.g. for EMS target General contractor, e.g. for Final Assembly

Services (e.g., Maintenance contracts, training, spare parts)

Other Security CyberSecurity Virtual Commissioning Analytics

Digital Offering

Ensure competitiveness and investment security for our customers

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End-to-end solutions for Automotive and Aerospace

Customer Services

Customer Service
Services for the Digital Enterprise
- where your digital transformation start

SIEMENS Ingenuity for life

Consulting Implementation Optimization

Our experts work with you to establish your company's level of digitalization, and then develop a digitalization strategy specially tailored to your needs.

Installing the necessary hardware and software generates digital twins of your machines, plant, production and products, creating the foundation for ongoing data analysis.

Advanced algorithms and artificial intelligence turn data into valuable insights that helps you continuously improve your overall equipment effectiveness (OEE).

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Customer support through classic and digital services

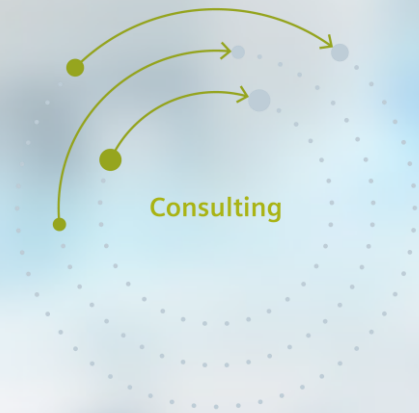
Customer Service

Services for the Digital Enterprise

- where your digital transformation start



Consulting



Our experts work with you to establish your company's level of digitalization, and then develop a digitalization strategy specially tailored to your needs.

Implementation



Installing the necessary hardware and software generates digital twins of your machines, plant, production and products, creating the foundation for ongoing data analysis.

Optimization



Advanced algorithms and artificial intelligence turn data into valuable insights that helps you continuously improve your overall equipment effectiveness (OEE).

Start the digital transformation based on future proven offering



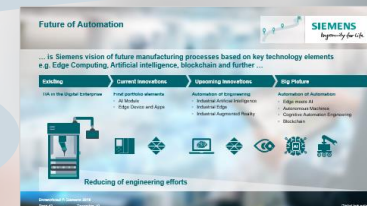
integrating of virtual and real worlds



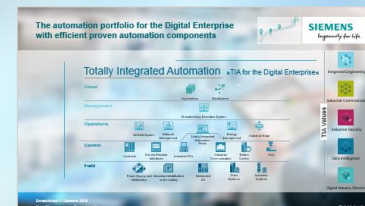
TIA Use Cases



Future of Automation



TIA for the Digital Enterprise



Your partner for Digitalization (Video)



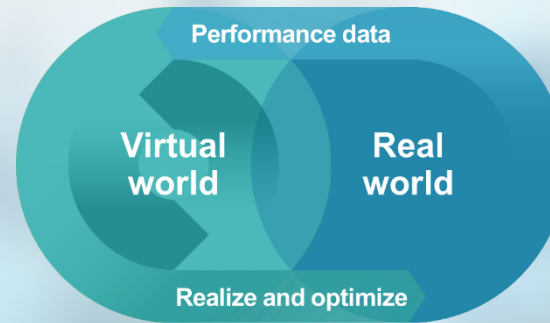
Digital Enterprise offering integrates virtual and real worlds for unique competitive advantage of our customers



SIEMENS
Ingenuity for life

Digital Enterprise

Digital end-to-end solutions for industry



MindSphere

Automation and industrial software for process and discrete industries



Industrial communication

Industrial security

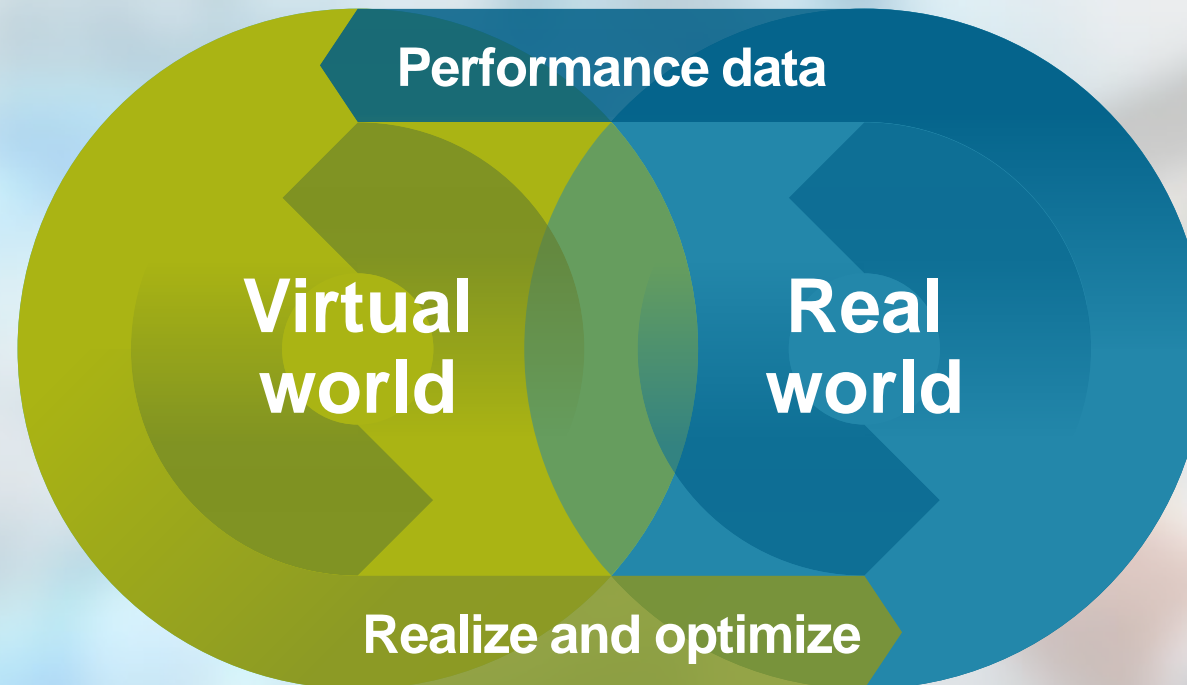
Industrial services



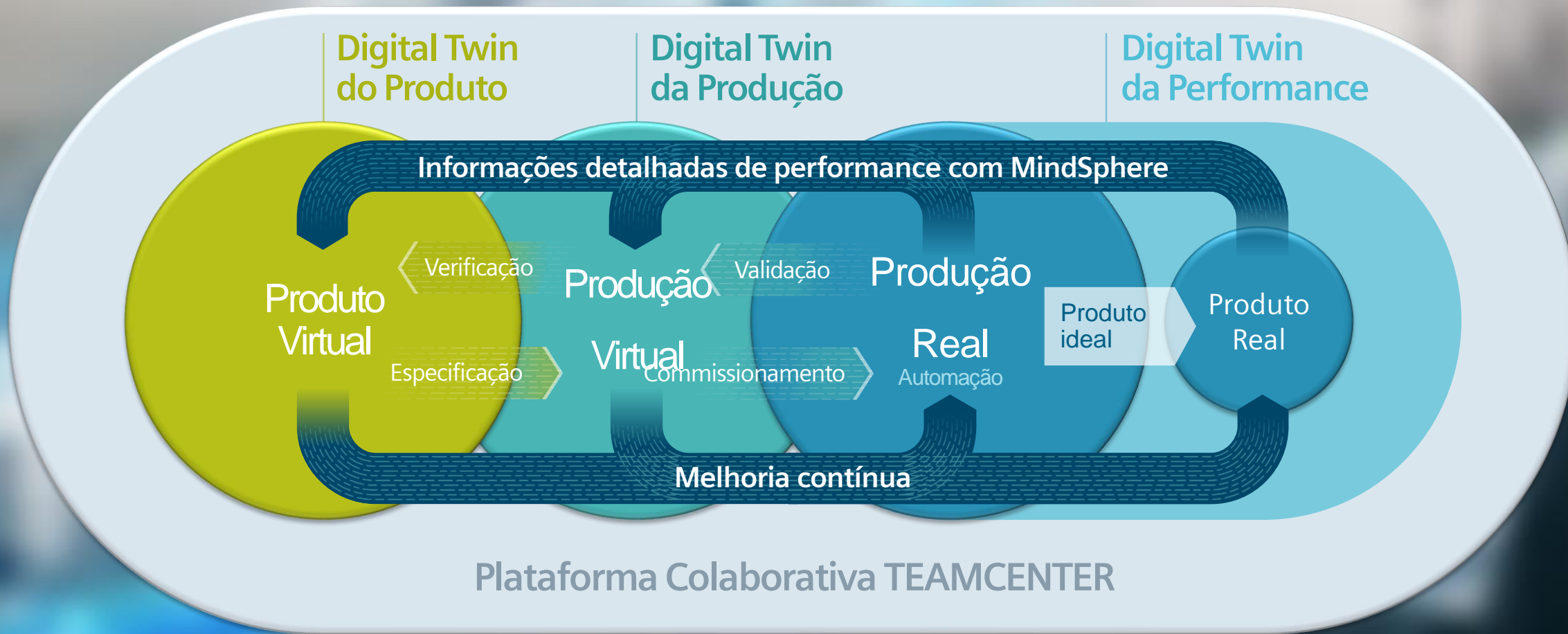
Expertise of integrating virtual and real worlds provides unique competitive advantage to customers



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Ingenuity for life



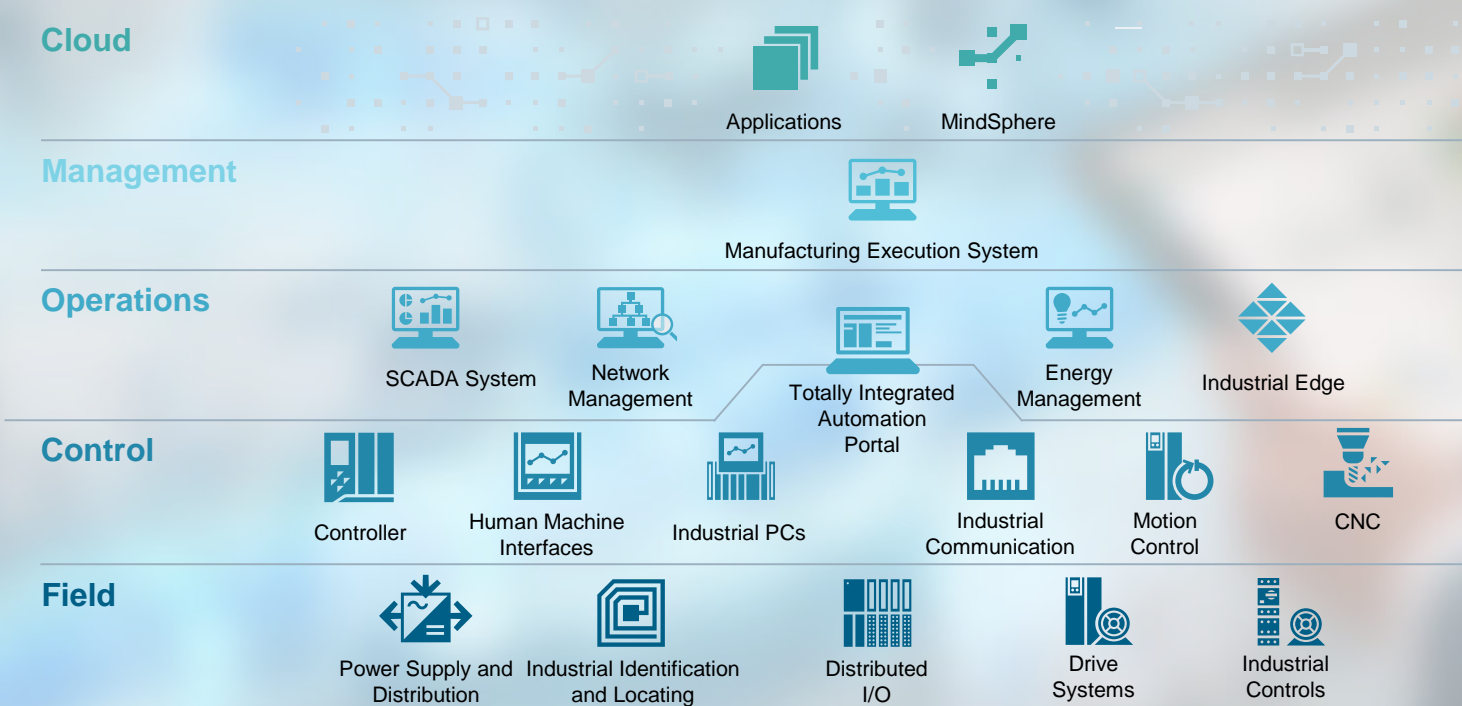
Atualização online dos dados de performance para uma otimização contínua do Digital Twin e respectivo processo real



The automation portfolio for the Digital Enterprise with efficient proven automation components



Totally Integrated Automation »TIA for the Digital Enterprise«



TIA Values



Integrated Engineering



Industrial Communication



Industrial Security



Data Intelligence

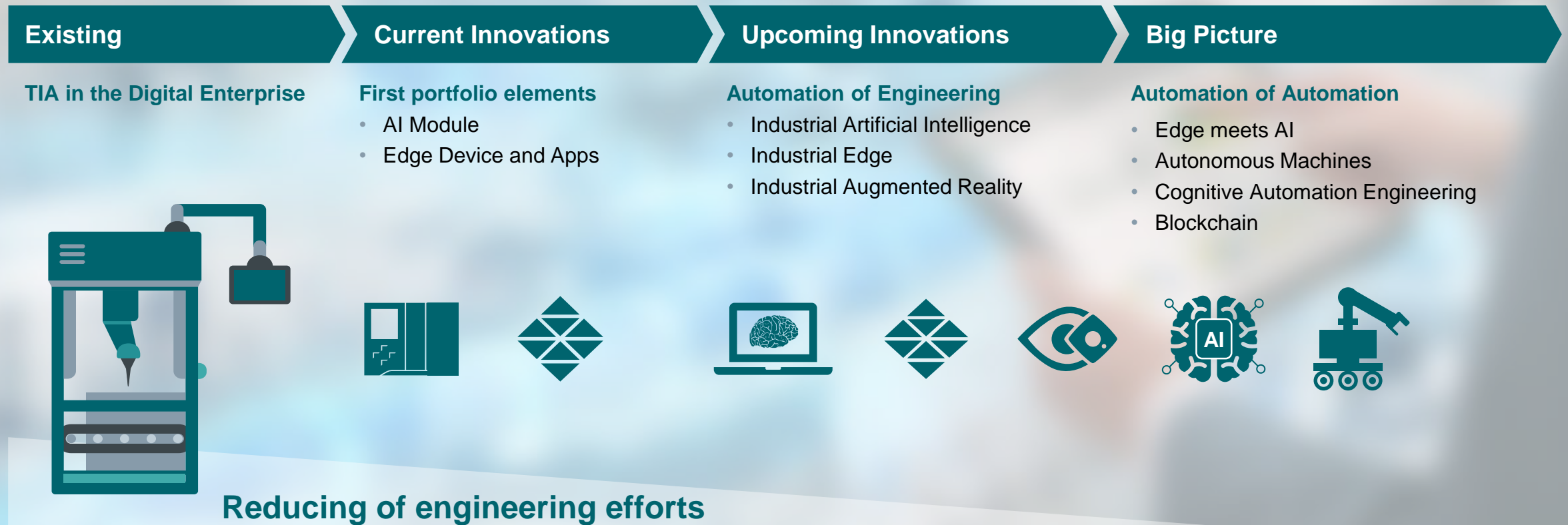


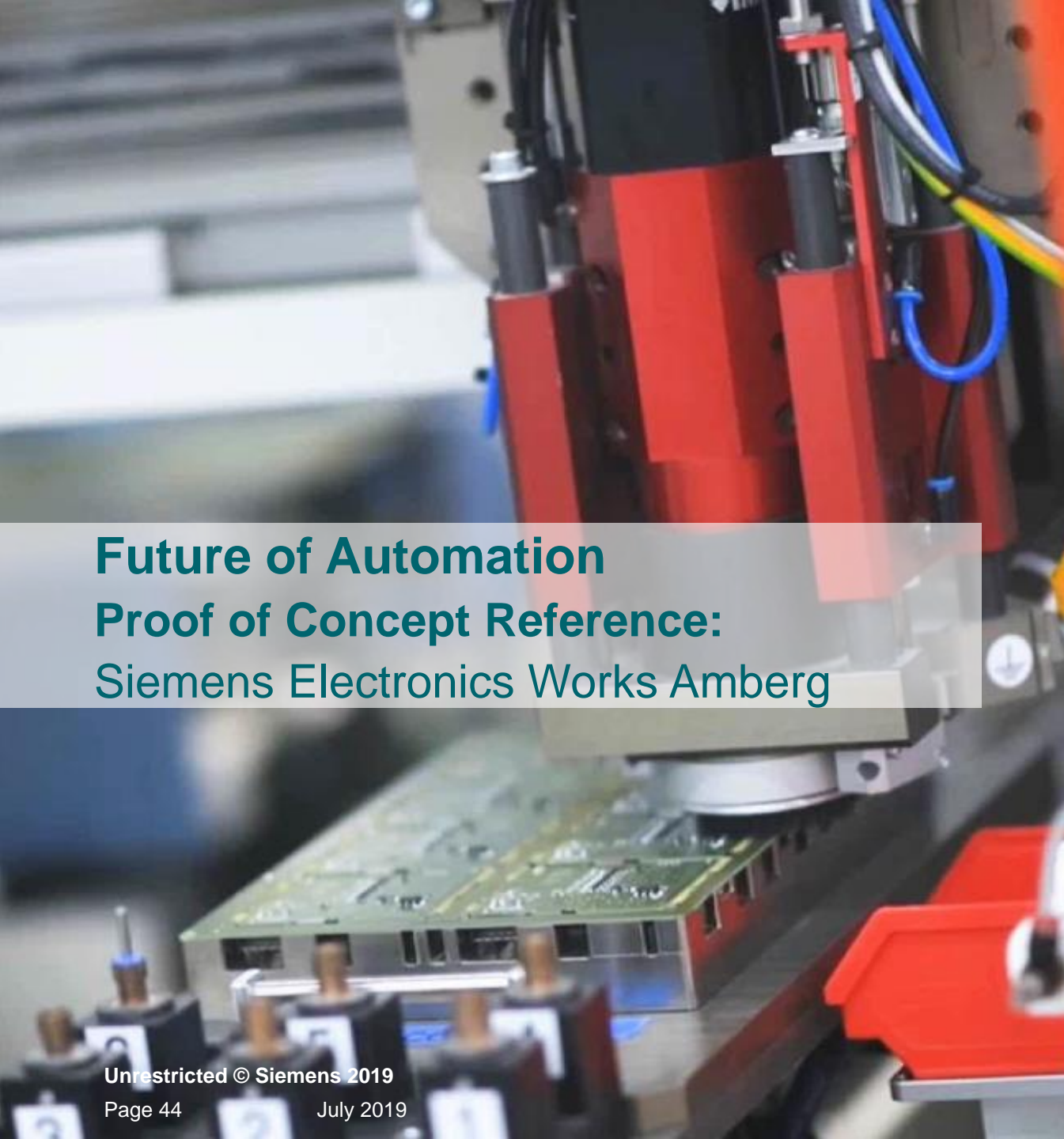
Digital Industry Services

Future of Automation



... is Siemens vision of future manufacturing processes based on key technology elements e.g. Edge Computing, Artificial intelligence, blockchain and further ...

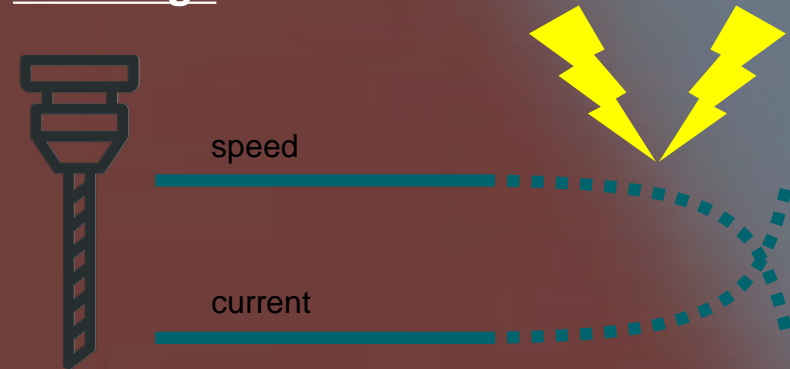




Future of Automation Proof of Concept Reference: Siemens Electronics Works Amberg

PCB cutting machine

Challenge



- Aggressive milling dust causes drive bearing to get stuck

Benefits

- Artificial Intelligence predicts spindle maintenance for PCB cutting machine **2 days** in advance
- Reducing preliminary spindle failures by **100%**
- Total savings for 18 machines **€ 200.000 p.a.**

X-ray-based PCB quality assurance

Challenges

- Production output of SMT line limited by time consuming X-ray Quality tests

Benefits

- Minimization of necessary X-ray tests by up to **30%**
- Quality rate of **100%**
- Reduced capital invest for further X-ray machines of **€ 500.000**

Future of Automation
Proof of Concept Reference:
Siemens Electronics Works Amberg

Siemens Amberg Plant
is known as the Industry 4.0 factory

Benefits



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Flexible!

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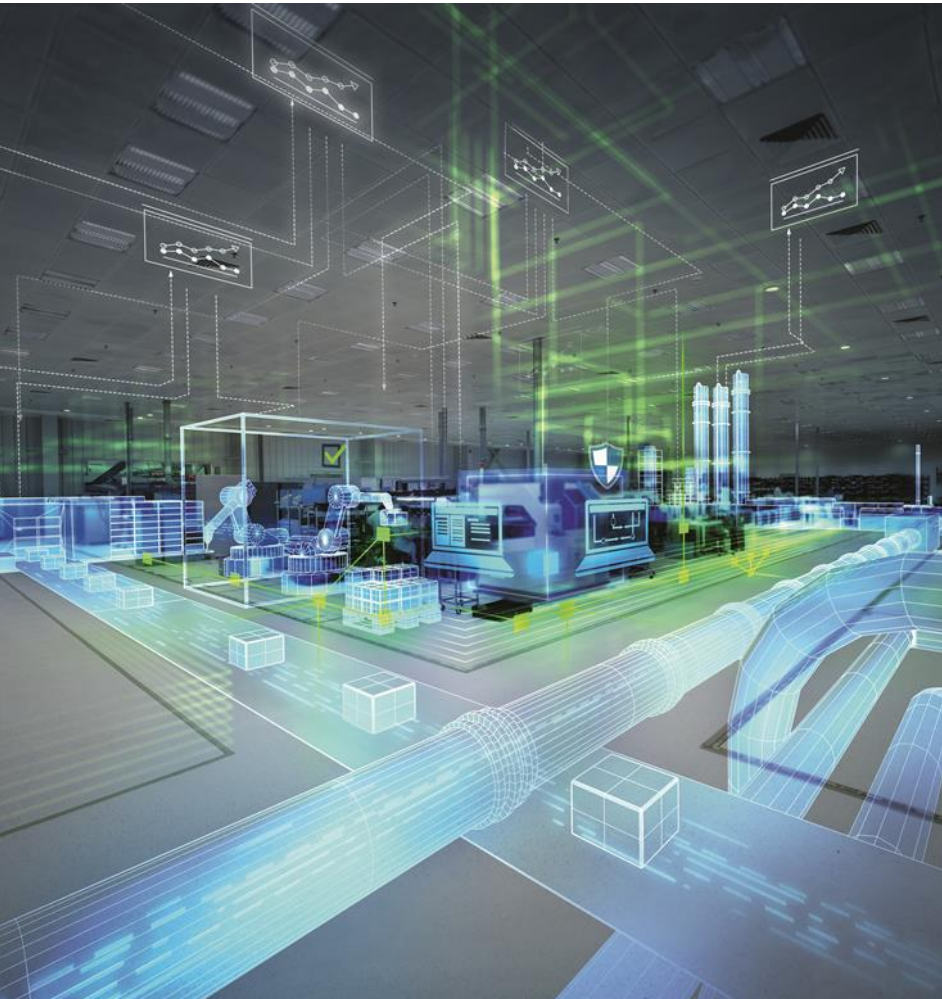
Efficient!

75% OEE plus 20% **buffer** for overcapacity



Quality!

~11 dpm means near perfect quality – every time



Published by Siemens SA

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#automation

#totallyintegratedautomation

#digitalization

#futureofautomation