

DIGITAL ENTERPRISE

Adapting to lead the future

START >



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Adapting to lead the future

siemens.com/digital-enterprise

DIGITAL ENTERPRISE



KEY TECHNOLOGIES



DIGITAL THREADS



SIEMENS XCELERATOR



WHY SIEMENS?

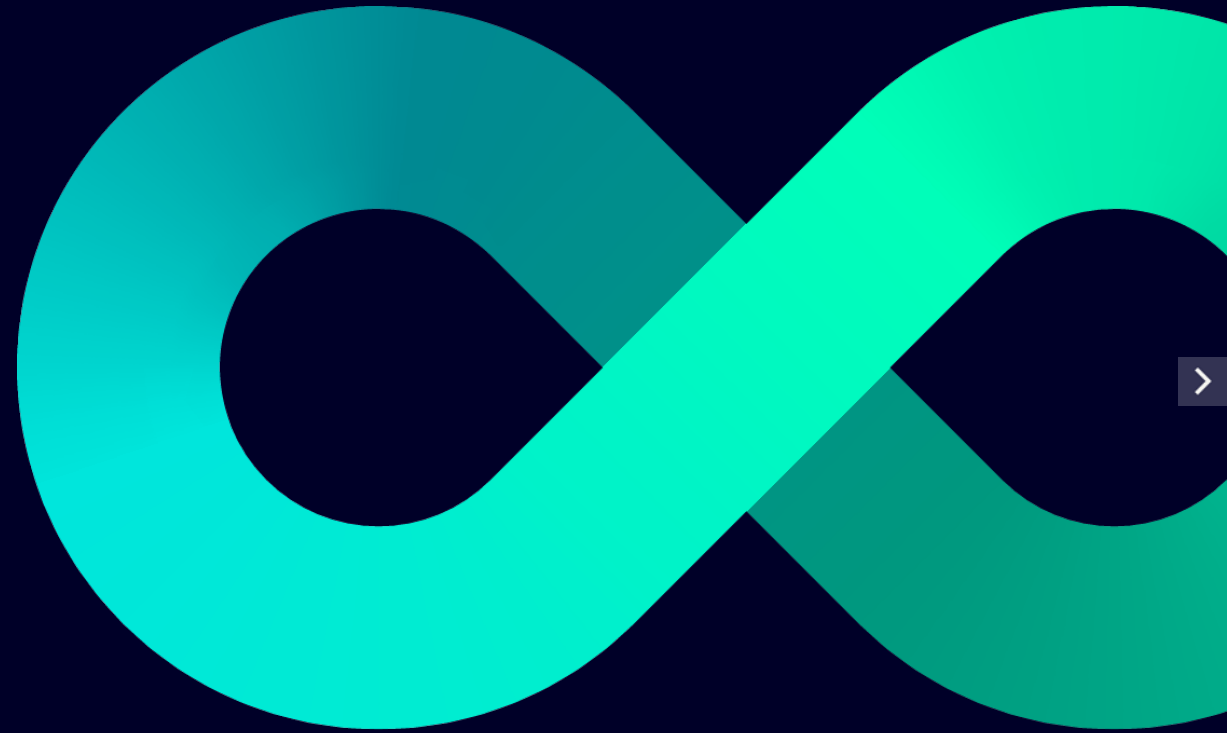


REFERENCES



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Digital Enterprise



Becoming a Digital Enterprise enables great results

In this e-book, you will learn how our customers have transformed into Digital Enterprises and gained a competitive edge.



10%

increased capacity

13%

less waste

UP
TO **30%**

higher productivity

UP
TO **50%**

faster time to market



50%

less energy per product

25%

less total energy
consumption



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Challenges for the industry grow at an extreme rate

Industrial companies face increasing complexity from global trends such as scarce resources, disruptive technologies, changing business models, shifts in global markets, skills shortages, and most importantly, the climate crisis.

In addition, product complexity is compounding across technical boundaries due to massive scale, such as chips with 100 billion transistors and cars with 500 million lines of code. This complexity is further heightened by external pressures like increasing product variants, stricter safety regulations, dynamic market demands, and the orchestration of humans, technology, and data.

NEWS

Industries Tighten Budgets as Cost Pressures Intensify

NEWS

Productivity Push Becomes Top Priority for Industrial Leaders

NEWS

Skilled Labor Shortages Threaten Production Capacity

NEWS

Market Volatility Disrupts Demand and Supply Planning

NEWS

Manufacturers Double Down on Quality Amid Rising Customer Expectations

NEWS

Sustainability Mandates Drive Major Transformations in Industry

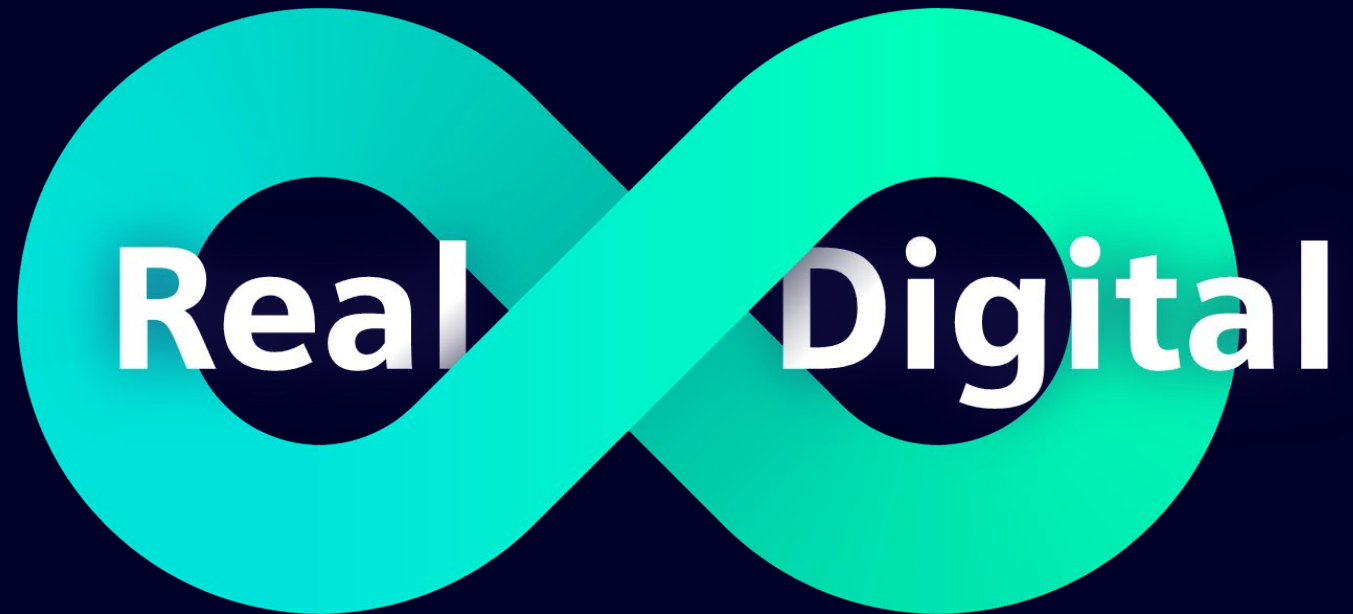


THE GAME CHANGER

Combining the real and digital worlds

As the complexity of global trends, challenges, and products and production continues to grow, industrial companies face immense pressure to become more adaptive, faster, more profitable, and more sustainable.

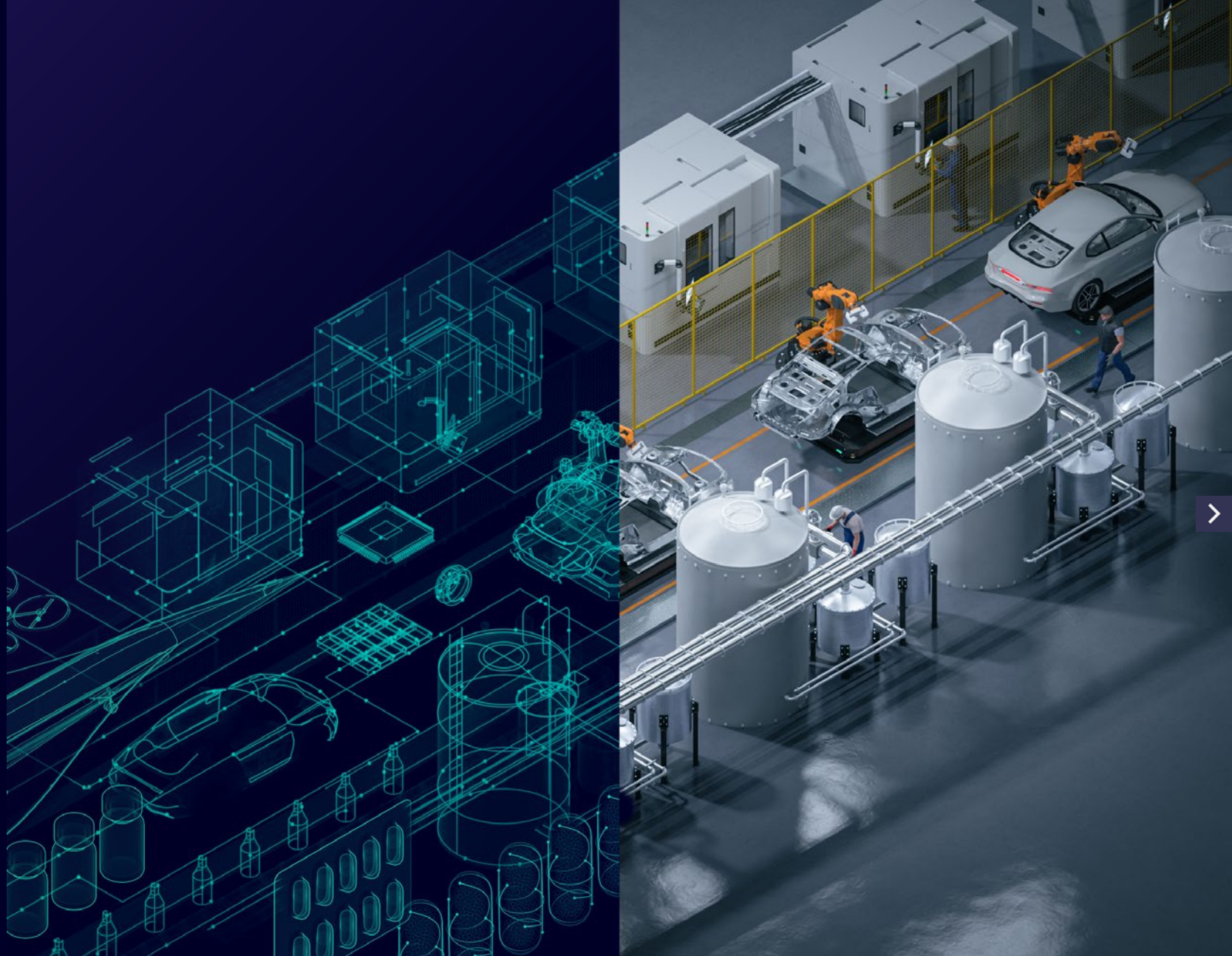
The answer is using the power of data. It turns raw, scattered information into industrial intelligence, driving faster and more informed decisions across product development, production, and operations.



Become a Digital Enterprise

To manage the increasing complexity, companies must embrace a digital-first approach and need to become Digital Enterprises where everything is connected and digitalized. This paves the way to an AI-powered industry.

We enable industrial companies to transform and evolve their businesses into a Digital Enterprise by seamlessly combining the real and digital worlds with our integrated software and automation offerings.

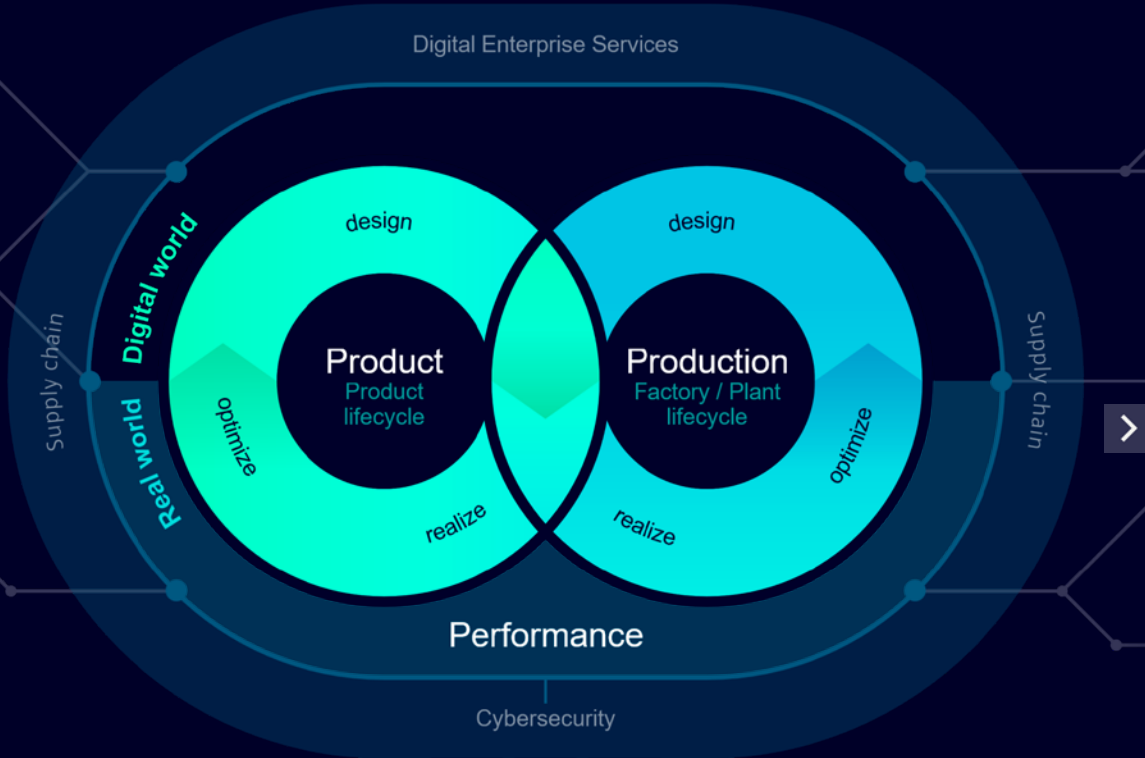
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THE GAME CHANGER

Seamlessly integrating the lifecycles of product and production, including supply chains

Our unique end-to-end approach enables a horizontal data flow along the entire value chain – from design to realization to optimization – bridging the gaps between former information silos. This allows everyone to work in parallel and speed up processes.

A consistent data flow within and beyond company borders, based on a single data backbone, is the foundation for accessible, trustworthy, and seamlessly connected data across product design, engineering, manufacturing, and ultimately the supply chains. This forms the basis for seamless Digital Threads.



#1

in industrial software

With our leading industrial software portfolio and the comprehensive Digital Twin, you can achieve accelerated, more accurate and sustainable product development.



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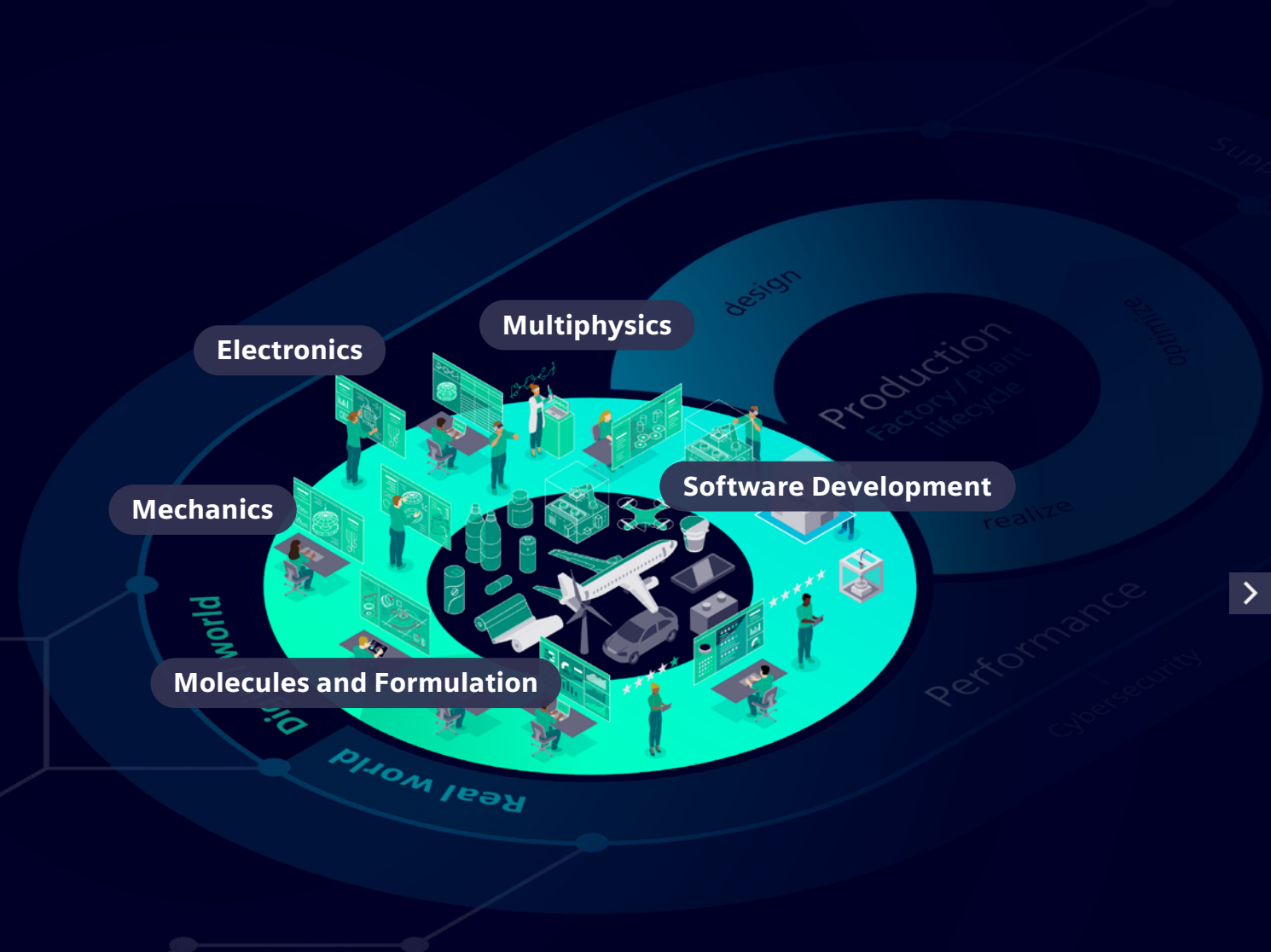
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Speed up and improve product development with the comprehensive Digital Twin

The leading industrial software portfolio allows companies to:

- design, simulate, test, optimize, and validate products using a physics-based Digital Twin
- connect multiple domains, enabling interdisciplinary collaboration
- run faster simulations with AI and high-performance computing power



#1

in industrial automation

With our world-leading industrial automation portfolio, you can make production faster, more adaptive, and more efficient.



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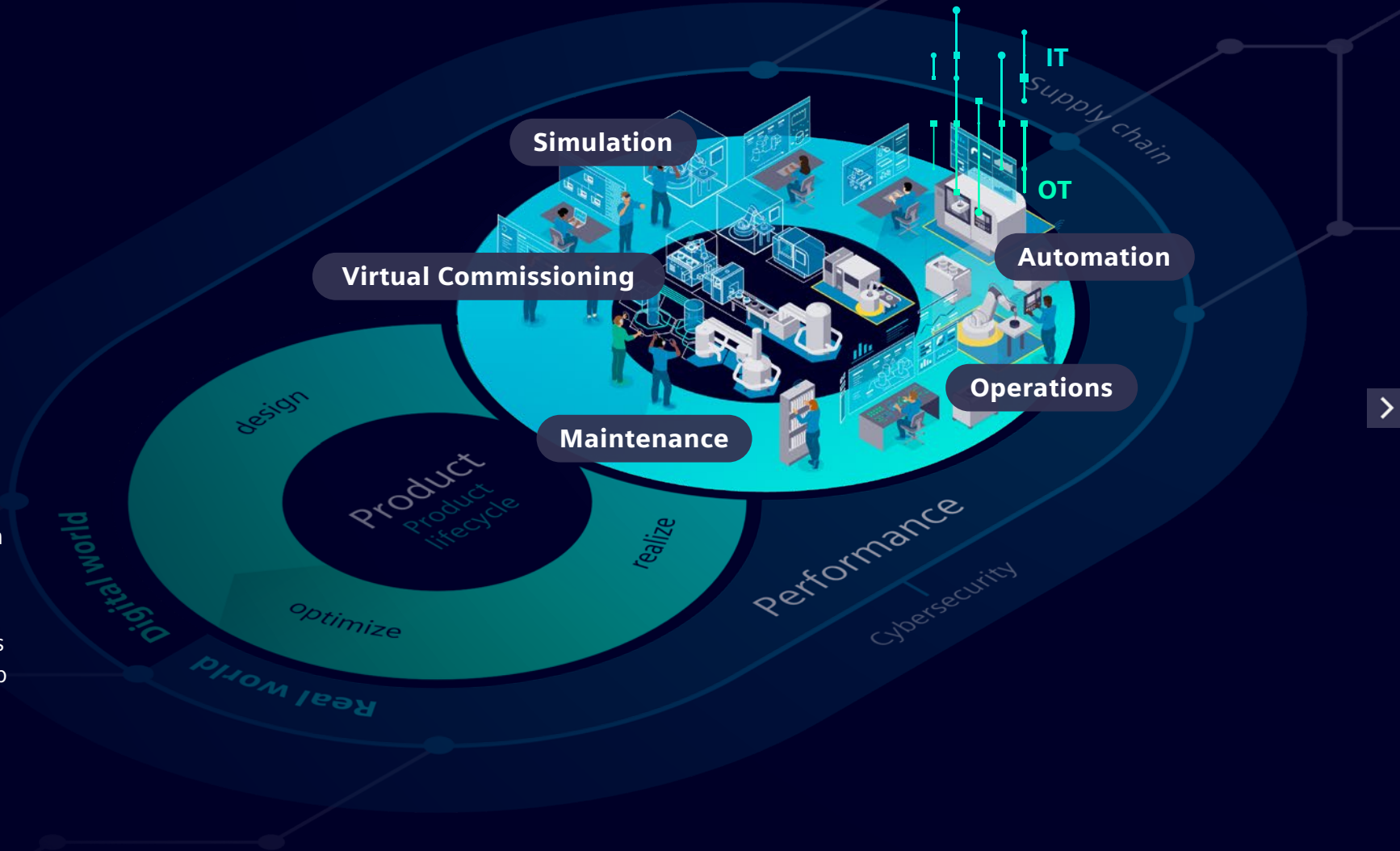
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Make production faster, adaptive, and more efficient

The leading industrial automation portfolio allows companies to:

- increase productivity through well-automated production by using data and IT connectivity
- transform automated into adaptive production with IT/OT integration and bring IT capabilities to the shop floor
- integrate software and automation capabilities for digital production planning and closed-loop optimization of operations



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Connecting everything with a consistent data flow to unleash the full power of data

Siemens' unique approach:

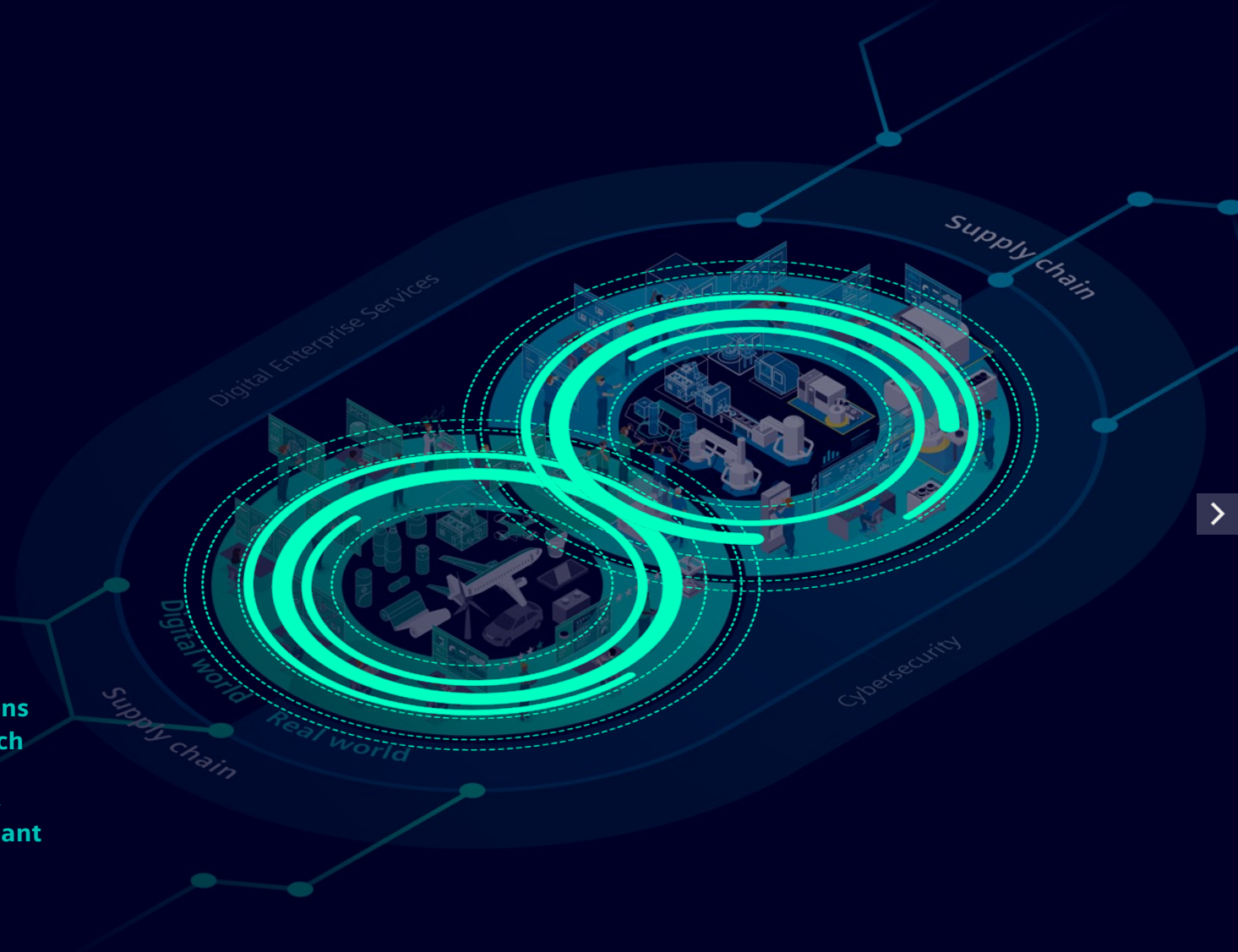
- seamlessly integrates the product and production lifecycles, and supply chains in a fully digital way – based on open, interoperable interfaces
- enables to capture and feed back performance data from the real-world helps to continuously optimize product, production and operations

Based on one single data backbone

Consistent data from design to manufacturing

Fast and confident decisions with a digital-first approach

Holistic view on all assets, equipment, production, plant



Artificial Intelligence

The game changer to unlock the full power of data



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Industrial AI demands far more than consumer AI

AI fundamentally transforms how industry works: It generates design variations faster and more accurate. It creates PLC code in no-time also for non-experts and lets you speak with machines in real time to solve issues. Unlike consumer AI, Industrial AI must operate with absolute safety and reliability, understand far more complex processes and dependencies and speak the language of industry.

Our unique end-to-end approach enables a horizontal data flow along the entire value chain – from design to realization to optimization – bridging the gaps between former information silos. This allows everyone to work in parallel and speed up processes.



Industrial AI enables maximum data intelligence

Unlock the full potential by transforming
raw information into actionable insights



**Make data-driven
decisions**



**Unleash new
opportunities**



**Prepare autonomous
operations**



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DATA INTELLIGENCE

Turn data into valuable insights

This requires the right data fabric to ensure that data is accessible, reliable, and seamlessly connected across the entire enterprise. First, siloed data from various sources within an organization is collected. Then, the siloed data is connected to make it usable. Next, our knowledge graph software creates a data fabric woven from contextualized data, giving data meaning. Finally, this data is transformed into valuable insights and, ultimately, informed and confident decisions.



Act with
confidence

Contextualize

Connect

Collect



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Only a Digital Enterprise unlocks the full potential of data and AI

ADAPTIVE

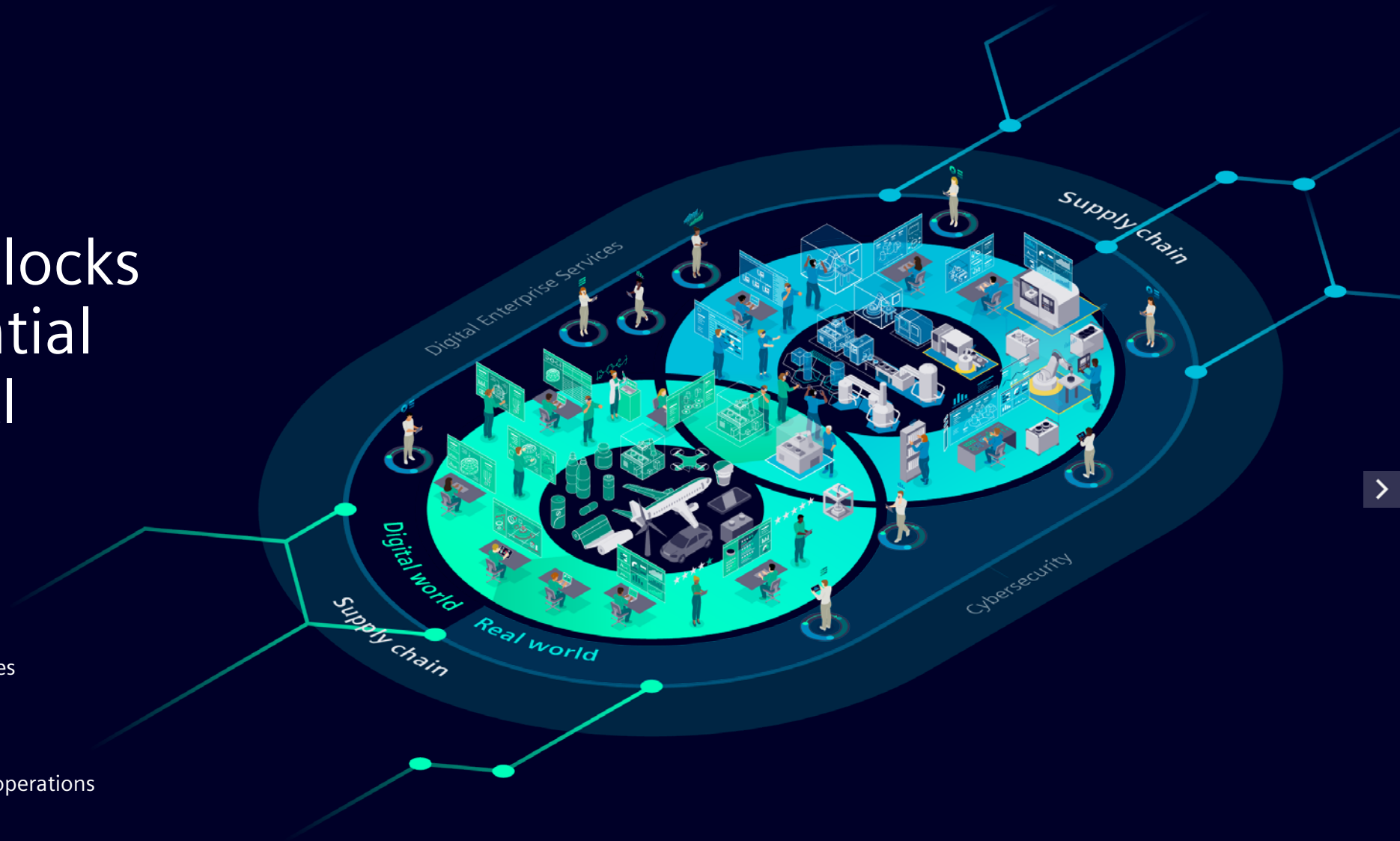
Quickly adapt to any change

FAST

Accelerate processes along the lifecycles

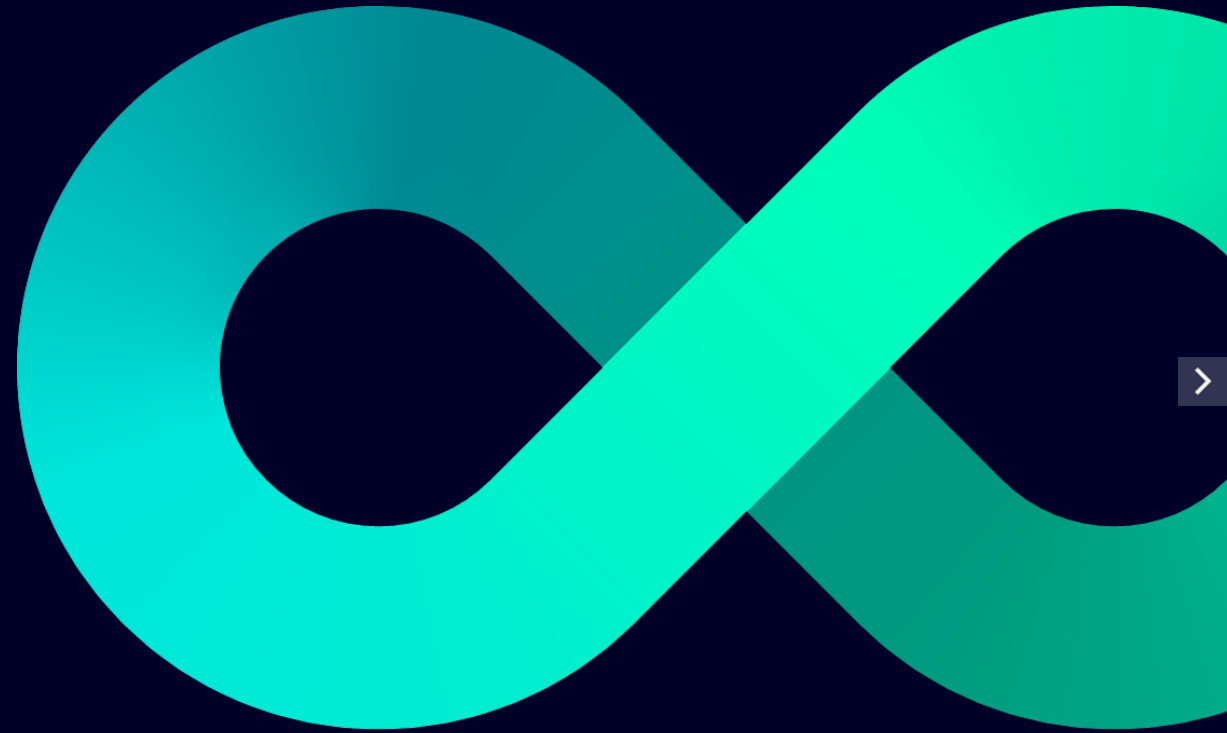
SUSTAINABLE

Strengthen resilience and sustainable operations



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Fully
leverage key
technologies
to lead
the future



Industrial AI

Allows to perform tasks that were once considered impossible, driving productivity, efficiency, and sustainability.



Comprehensive Digital Twin

Digitally plan, simulate, predict and optimize products, production processes, machines and entire factories



Software-Defined Systems

Shifting from rigid hardware-based systems to software-defined capabilities for dynamic, data and AI-driven orchestration.



Connected Automation

Connecting digital intelligence with the physical world, enabling data, insights and decisions to be reliably translated into action.

Cybersecurity and ecosystems

Cybersecurity is embedded into everything we do and strengthen it through open collaboration in powerful ecosystems.



KEY TECHNOLOGIES

The comprehensive Digital Twin



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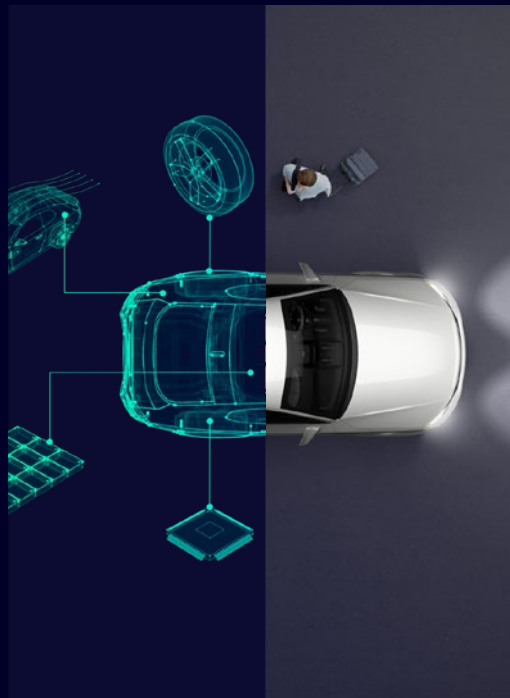
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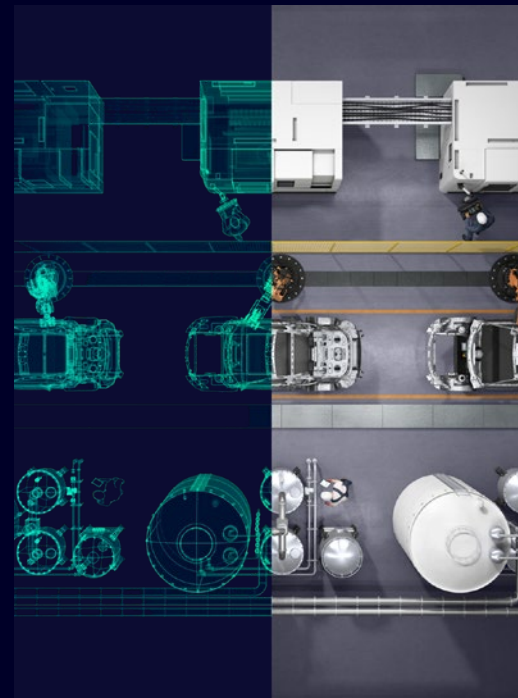
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Continuous optimization with the comprehensive Digital Twin



Digital Twin for Products

The Digital Twin assists in designing, simulating, and verifying a physical product and its manufacturing process from the development's early stages.



Digital Twin for Production

The Digital Twin enables planning, simulation, and optimization of production processes, machines, and entire factories throughout their lifecycle.



Digital Twin of Performance

During the operational phase, the physical asset and Digital Twin coexist, enabling continuous performance data analysis and optimization.



THE COMPREHENSIVE DIGITAL TWIN

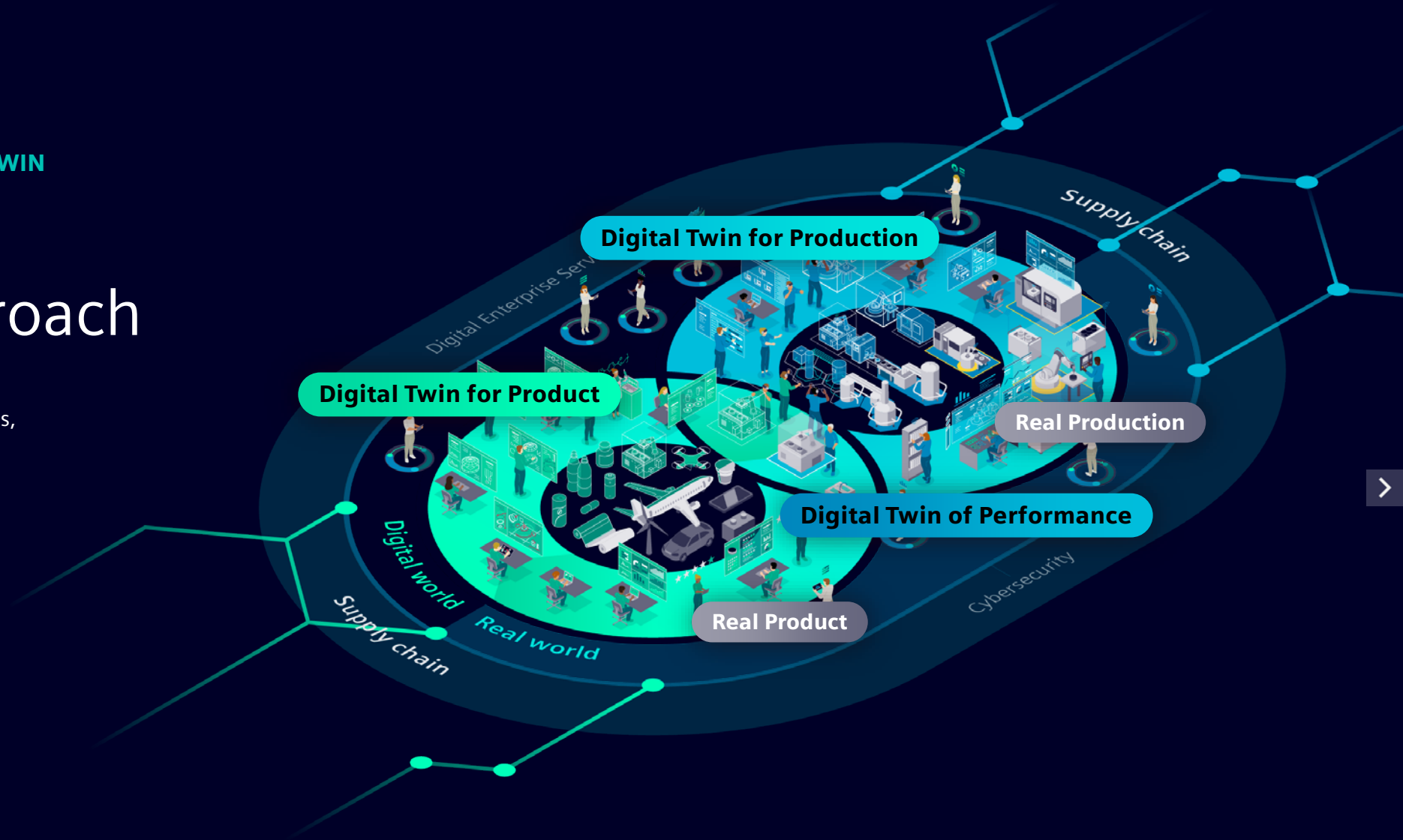
The unique Siemens approach

This enables the seamless integration of the product and production lifecycles, including software and automation.

Physics-based Digital Twin

Enhanced with real-world data to make it as precise as possible.

- Improves simulation results
- Digitally validates design ideas and change
- Tests and validates AI suggestions before implementation



Digital Twin it!

USE PRECISE SIMULATIONS

A physics-based Digital Twin combines Industrial AI with the laws of science to confidently predict future outcomes in the real world.



RUN "WHAT IF" SCENARIOS

The Digital Twin generates tremendous value by running "what if" scenarios to predict physical performance and behavior.



MAKE IT RIGHT THE FIRST TIME

The Digital Twin can replay and analyze the past, give insights into the present, and predict future states.



COMBINE WITH DATA ANALYTICS AND AI

Operational data and related data-driven algorithms help the Digital Twin to be as precise as possible.



[Learn more about Comprehensive Digital Twin](#)



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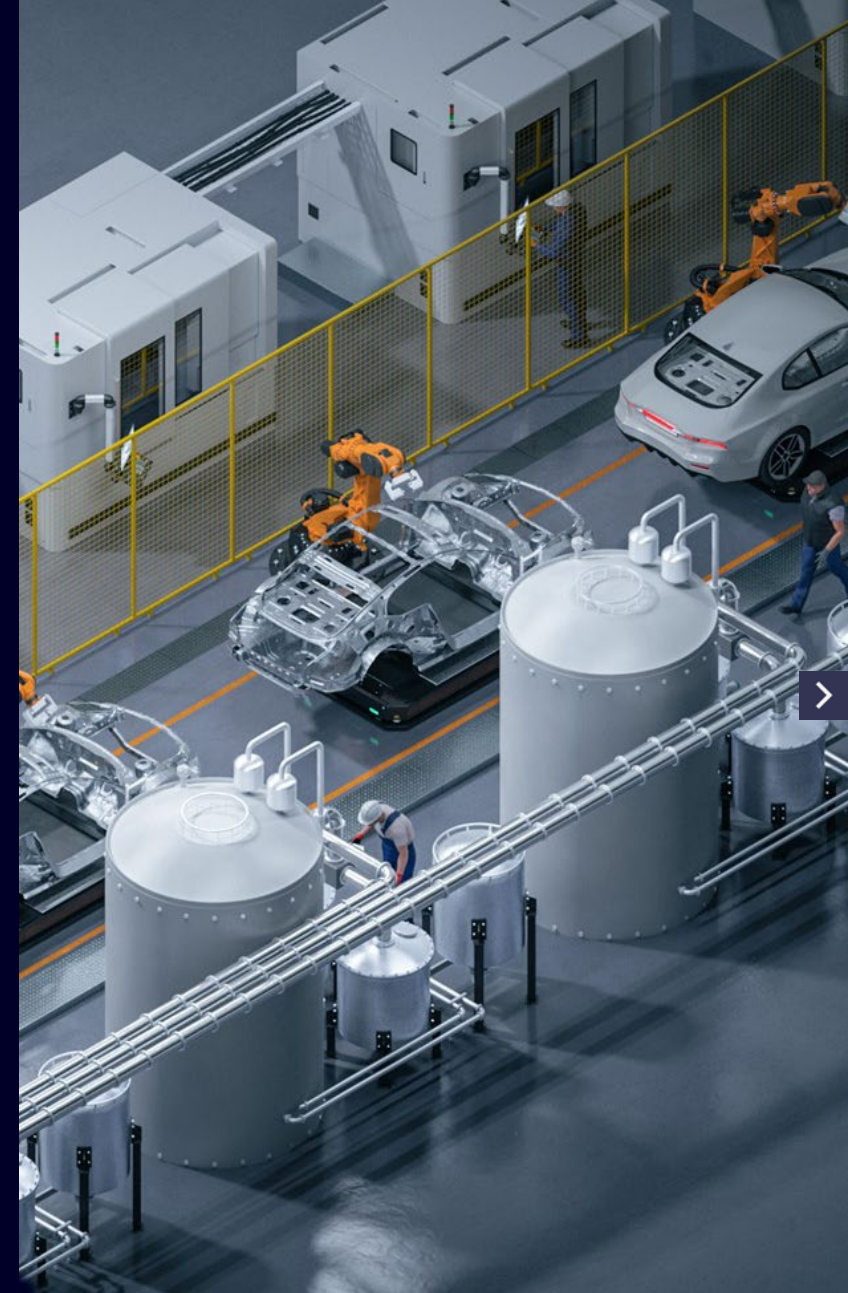
KEY TECHNOLOGIES

Software-Defined Systems



THE QUESTION IS:

How can you act efficiently
in a complex world with
fast innovation cycles,
changing requirements and
lack of skilled workforce?



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Orchestrate everything from products to production – wherever you are

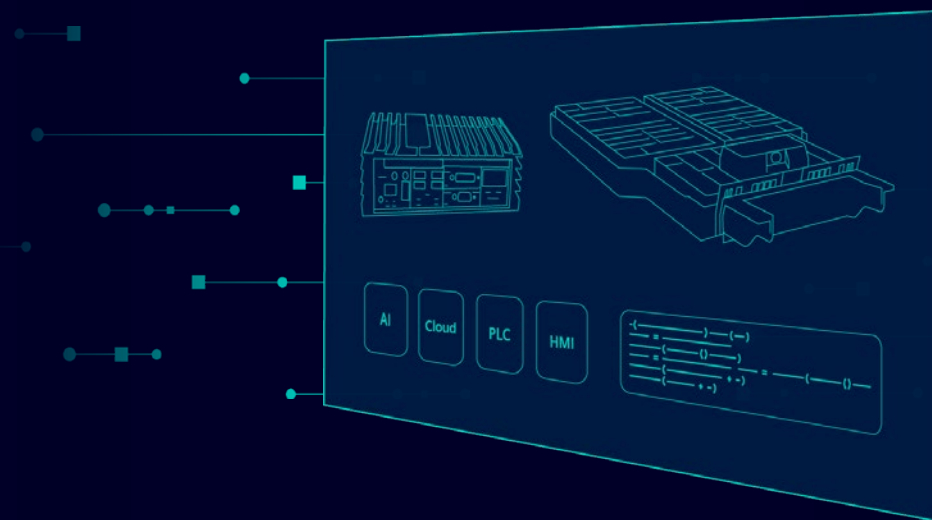
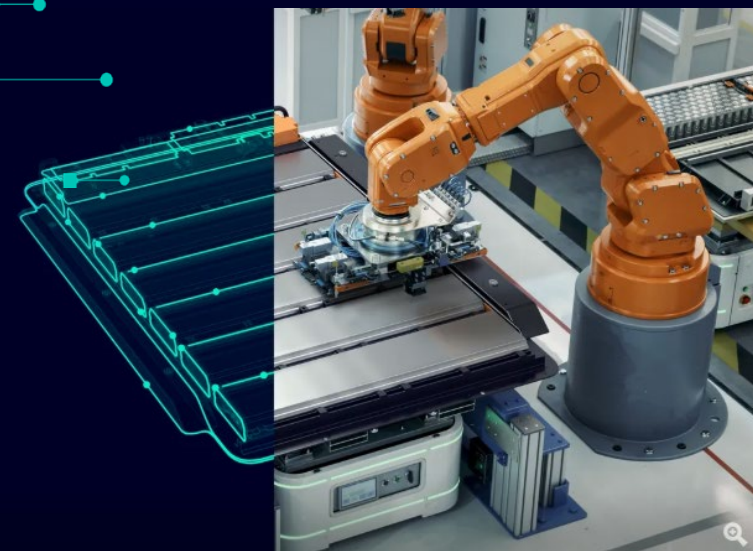
Software-Defined Systems mean that both current and future hardware can acquire new functions through software capabilities. This shift from hardware to software-driven product development and automation makes complex systems as intuitive to use as a smartphone. It enables companies to build smarter, more resilient and future-ready products and production systems.



FROM SOFTWARE-DEFINED
PRODUCTS TO PRODUCTION

Bring in the value of smartphones to industry

- Centralized management
- Capability-driven applications
- IT-like engineering
- On-demand updates



Software-define it!

DIGITAL ADAPTABILITY IN THE REAL WORLD

Build on combined software and automation capabilities.



DIGITAL ADAPTABILITY FOR PRODUCTS AND PRODUCTION

Leverage the potential of both IT (flexibility, scalability) and OT (real-time capability, robustness, security).

IT/OT

MAKE REAL-WORLD DATA AVAILABLE

Access large amounts of data and lay the foundation for Industrial AI and Digital Twin solutions.



START YOUR JOURNEY STEP BY STEP

Make use of a comprehensive portfolio with services, software, and IoT-enabled hardware through Siemens Xcelerator.



[Learn more about Software-Defined Systems](#)



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Industrial AI



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Industrial AI transforms all industries

Industrial AI is transforming every stage of the value chain – accelerating innovation, enabling faster product development, optimizing production processes, and driving data-driven improvements. It empowers smart, autonomous decision-making, paving the way for more sustainable and future-ready operations.



Contextualize data



Unleash potential



Reduce complexity

AI



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AT SIEMENS

We turn AI into Industrial AI

RELIABLE

Ensuring that AI is reliable, trustworthy, and secure – meeting even the most stringent industrial standards.



ACCESSIBLE

Making AI accessible and easy to use for everybody, anywhere, anytime in the industry.



SCALABLE

Enabling you to deploy and scale your own AI models with minimal effort.



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Experience today. Explore tomorrow.

We actively advance a range of AI technologies that are transforming the industrial landscape. Predictive AI anticipates failures and optimizes operations using real-time data. Generative AI adds creativity – customizing products, streamlining tasks, and enhancing user and employee experiences.

As systems grow smarter, Agentic AI will take over complex workflows within a defined scope autonomously, adapting to change with minimal human input. Tomorrow's AI agents will become increasingly autonomous, and with Physical AI, intelligence will enter the real world – enabling robots and machines to perceive, reason, and act with precision. Physics-informed AI enhances learning and prediction by embedding physical laws directly into AI models, enabling accurate reasoning even with limited data.

Underpinning all of these is the rise of Industrial Foundation Models – trained in the language of engineering, manufacturing, operations, and automation that will take Industrial AI to the next level.



Predictive AI



Generative AI



Agentic AI



Physical and Embodied AI



Physics-informed AI



Industrial Foundation Models

Ai



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The future of Industrial AI is agentic

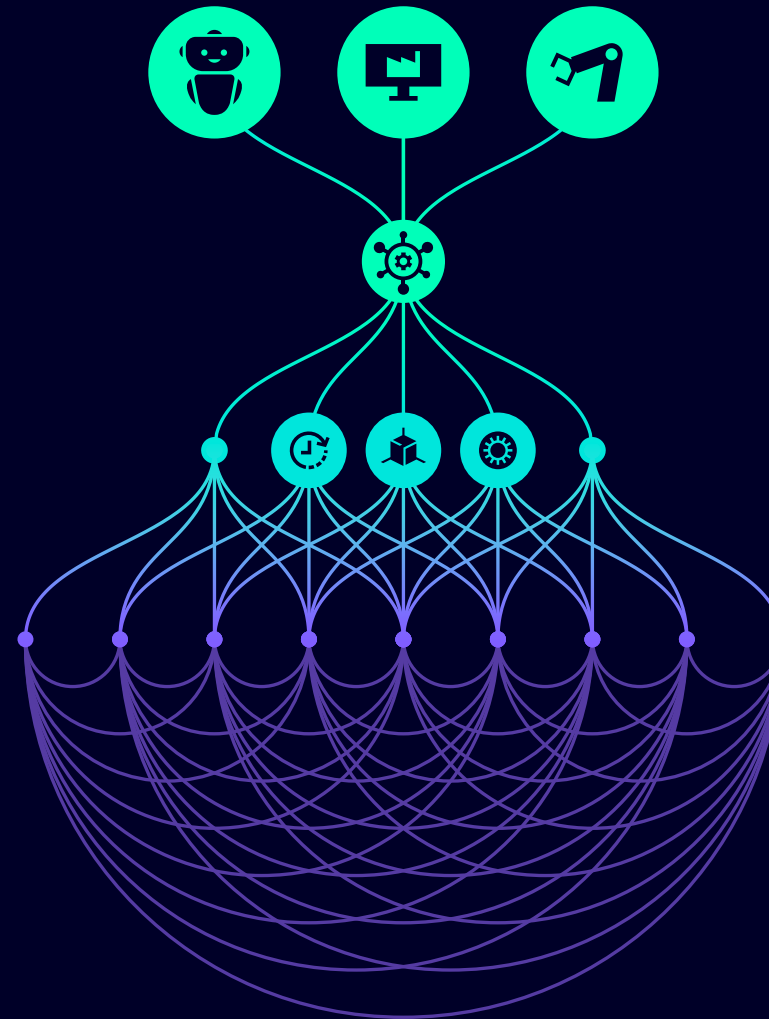
AUTONOMOUS AUTOMATION? GET READY FOR THE FUTURE!

As systems grow smarter, Agentic AI will start to take over complex workflows within a defined scope autonomously, adapting to change with minimal human input.

AGENTIC AI ALONG THE VALUE CHAIN

Siemens envisions a future where AI agents support complex decision-making across the entire industrial value chain. Just like copilot's support today's workflows, future AI agents may be able to act within defined boundaries, execute tasks, and collaborate with other systems.

We believe AI agents have the potential to make technology more intuitive and collaborative in industrial settings.



OUTPUT

Applications

Interfaces to the user like Industrial Copilots, Software applications, industrial machines

ACTION

Orchestration

Managed agent workflows

ACTION

Agents

Dedicated industrial capabilities

INPUT

Foundation Models

Trained with industrial data



AI it!

BUILT FOR INDUSTRY REQUIREMENTS

Industrial AI transforms every stage of the value chain.



OPERATE AT YOUR FULLEST POTENTIAL

It empowers companies to accelerate innovation and enables faster product development and efficient production.



TRANSFORMS DATA INTO ACTIONABLE INTELLIGENCE

Industrial AI fosters data-driven improvements and enables smart and autonomous decision-making.



LEVERAGE A UNIFIED DATA FABRIC

With Industrial AI, companies can achieve more sustainable, future-ready operations.



[Learn more about Industrial AI](#)



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Connected Automation



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CONNECTED AUTOMATION

Connecting your production to the future

Connected Automation is our approach to the future of industrial automation, building on the high-performance, reliable automation customers trust and connecting it to digital intelligence to enable adaptive, AI-powered production.



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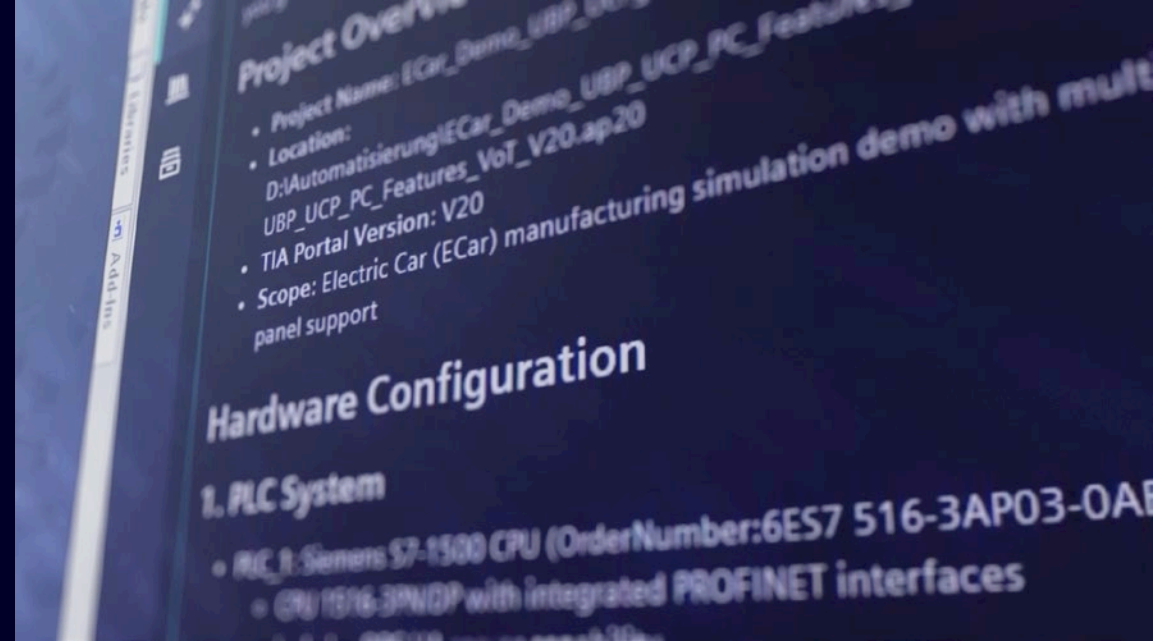
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Turn your production into an AI-powered production

Industrial AI only creates value when it drives physical action. Connected Automation provides the foundation, linking digital intelligence with shop-floor execution.

Our TIA foundation enables manufacturers to integrate AI, the Digital Twin, and IT capabilities step-

by-step – without replacing what already works. By connecting existing automation with real-time data, edge computing and intelligent software, TIA turns AI from an isolated capability into actionable intelligence embedded in production – protecting past investments while creating future-proof operations.



Connect it!

BRIDGING AI AND THE SHOP FLOOR

Extends the proven TIA foundation and is the real-world foundation of the AI-powered Digital Enterprise.



FUTURE-PROOFING SHOP FLOOR EXECUTION

Enables adaptive, high-performance industrial operations.



YOUR PATH TO RISK-FREE AI INTEGRATION

Builds on the automation you have and unlocks industrial intelligence of tomorrow.



FROM THE OT AND INDUSTRIAL AI LEADER

Built on our leadership in automation, software, and Industrial AI, Siemens helps shape the future of industrial operations.



CYBERSECURITY

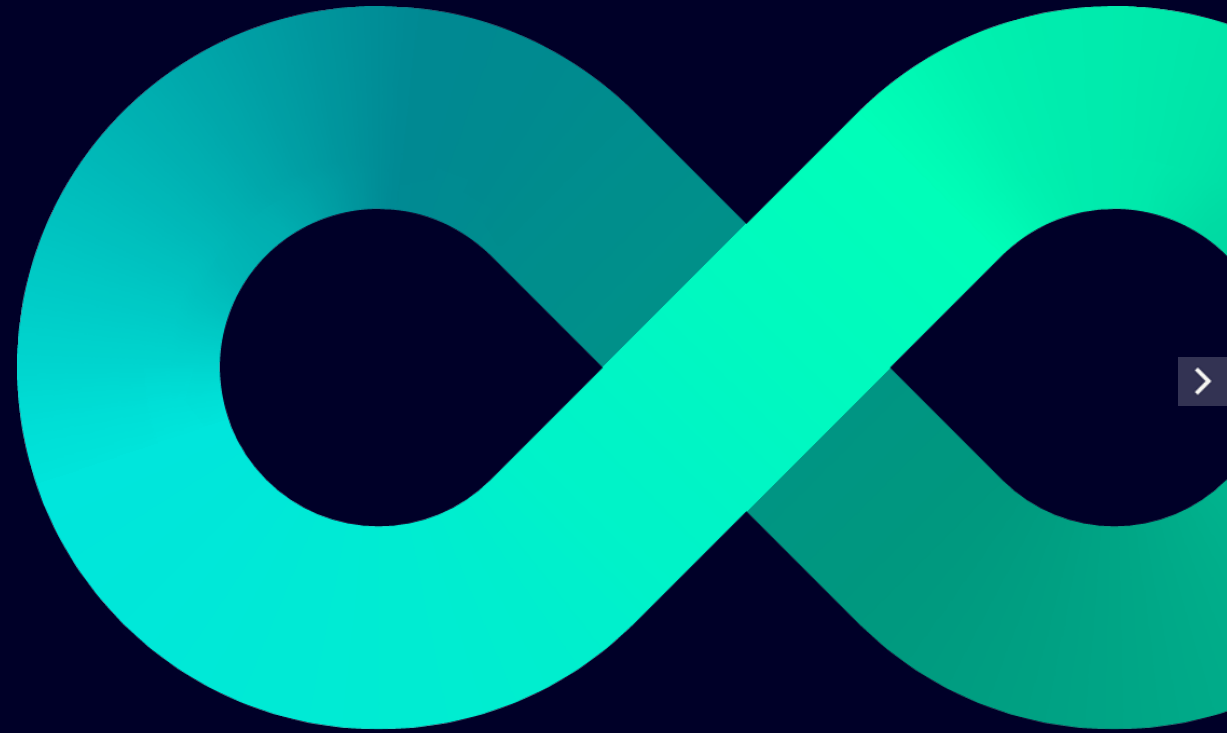
Protection on all levels – always up to date

We offer comprehensive protection by embedding cybersecurity into all products, systems, and operations, and by applying a multi-layered “Defense in Depth” strategy alongside “Zero Trust” principles.

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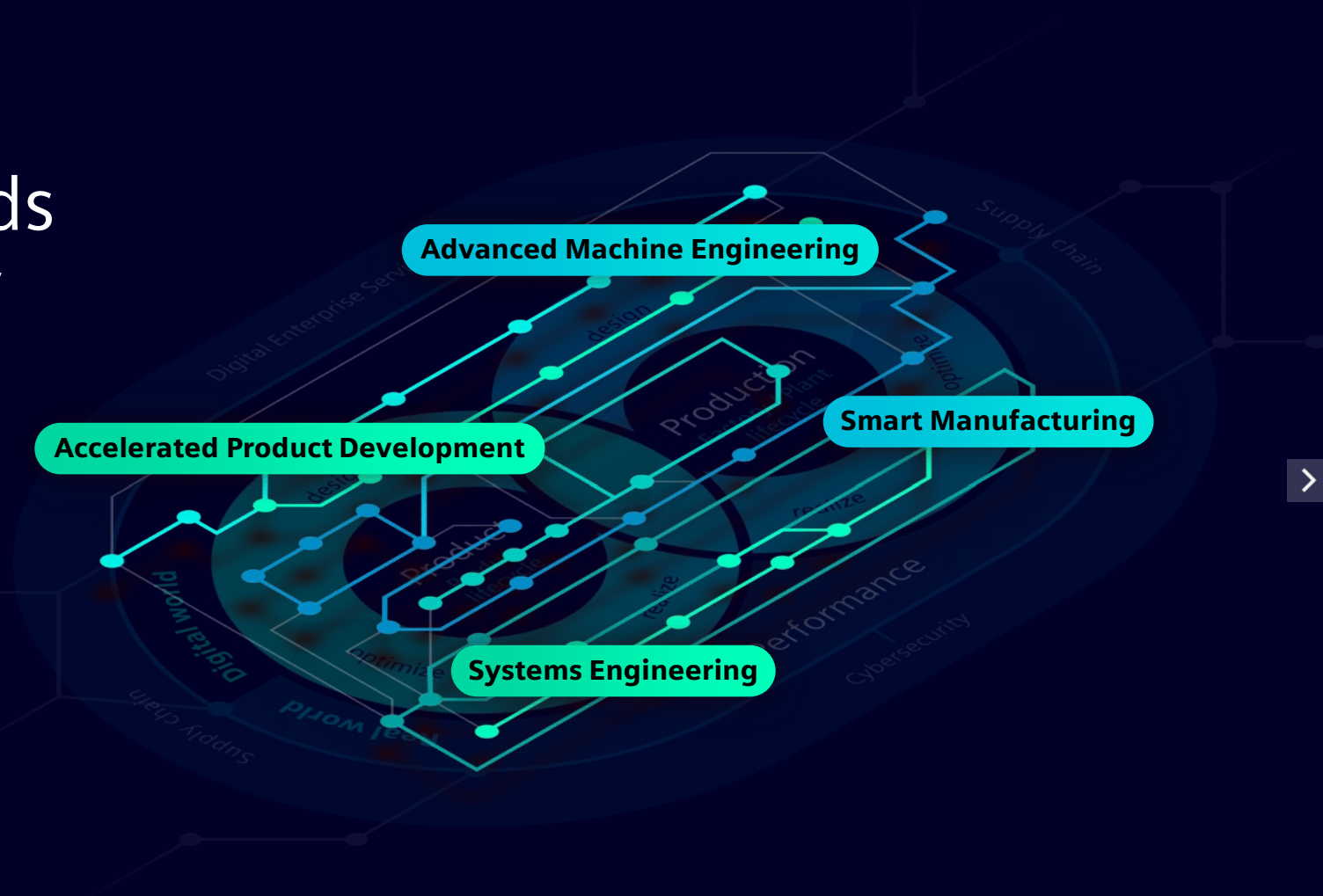
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**DIGITAL THREADS – MANAGE COMPLEXITY
WITH A HOLISTIC DIGITALIZATION APPROACH**

Leverage Digital Threads for next-level flexibility

By combining the real and digital worlds and streamlining industrial processes with Digital Threads, Siemens Xcelerator allows businesses to accelerate the digital transformation and therefore gain competitive advantages in a dynamic market. Digital Threads are linked and traceable sequences of specific digitalized business workflows.

In a Digital Enterprise, Digital Threads refer to the interconnected and integrated flow of data across the entire product and production lifecycle. With this holistic and end-to-end approach to digital transformation, we help our customers realize their Digital Enterprise faster and transform their everyday business.



DIGITAL THREADS

The game-changing approach to innovation, optimization, and operational excellence

ACCELERATED PRODUCT DEVELOPMENT

Bring products to market faster and smarter with digital models, AI simulation, and cross-discipline collaboration.



SYSTEMS ENGINEERING

Accelerate innovation and boost quality with a next-level connected and collaborative environment.



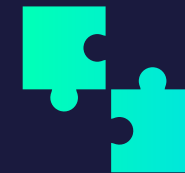
SMART MANUFACTURING

Run flexible, high-performance factories with virtual validation, data-driven ops, and adaptive automation for quality and scale.



ADVANCED MACHINE ENGINEERING

Deliver flexible modular machines faster through collaboration, modular design, and virtual validation to cut risk and cost.



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SIEMENS XCELERATOR

Become a true Digital Enterprise faster

Siemens Xcelerator is our easily accessible, flexible, and open digital business platform. It enables rapid progress across the product and production lifecycle and the supply chain. The ability to design, manufacture and deliver products faster translates directly into competitive advantage. It helps reduce time to market through accelerated product design, accelerated innovation cycles (first-mover advantage), efficient manufacturing, and on-time delivery.

Saving time also means saving energy and valuable resources. By deploying Siemens Xcelerator as a service (SaaS) and increasingly adopting a cloud-first approach, we are democratizing the technology and making it available to all companies – regardless of size. This new level of flexibility and speed means lower IT costs, personalized and modular solutions, easier and more secure access, and scalability.



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Building blocks

PORTFOLIO

A comprehensive, curated portfolio that includes digital and IoT-enabled offerings from Siemens, and certified partners.

ECOSYSTEM

A continuously growing, powerful ecosystem of partners.

MARKETPLACE

An evolving marketplace to explore, educate, exchange, and transact alongside a community of customers, partners, and experts.

Helps you in three ways

- 1 IDENTIFY YOUR SPECIFIC NEEDS**
to understand your business problems
- 2 DELIVER MODULAR SOLUTIONS**
to solve your business problems
- 3 LETS YOU TAKE CONTROL**
by opening our platform of capabilities



Managing growing complexity and drive sustainability with Siemens Xcelerator

<

With Siemens Xcelerator, we help our customers manage the growing complexity by enabling rapid advancements across the product and production lifecycles. The capability to design, manufacture, and deliver products faster translates directly into a competitive advantage and enables to do less with more:

- Time to Market: Speed in transformation enables faster product design, accelerated innovation cycles (first-mover advantage), effective manufacturing, and on-time delivery. Saving time also means saving energy and valuable resources.
 - Risk Mitigation: Faster testing and validation of ideas reduce the risk of investing in unsuitable products and production.
 - Flexibility and Speed: By driving Siemens Xcelerator as a service (SaaS) and increasingly driving a cloud-first approach, we are democratizing technology and making it available to all companies – regardless of their size. This means lower IT costs, personalized and modular solutions, easier and secure access and scalability.
 - Agility and Adaptability: Rapid digital transformation allows companies to quickly adapt to changes in customer preferences, market trends, technological advancements, and to meet compliance and sustainability requirements.
 - Resilience: Creating transparency and traceability along supply chains increases plannability and resilience while building trust between companies, suppliers, and end customers. This also means being able to adapt to gradual but significant change as well as sudden disruptions.
- >





Successfully mastering the digital transformation is a prerequisite for paving the way to the Industrial Metaverse, which will enable us to accelerate innovation and take collaboration along the entire value chain to a completely new level. Siemens Xcelerator offers everything companies need to become a Digital Enterprise and reach for the future of industry.”

Cedrik Neike
CEO Digital Industries



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INDUSTRIAL METAVERSE

Collaborate at new levels of efficiency

Transforming into a Digital Enterprise is the prerequisite for leveraging the full potential of the Industrial Metaverse, enabling accelerated innovation and enhanced collaboration along the entire value chain.

The Industrial Metaverse combines the real and digital worlds even more closely and fluently, so customers can immerse into a digital space that is connected to and accurately reflects the real world.

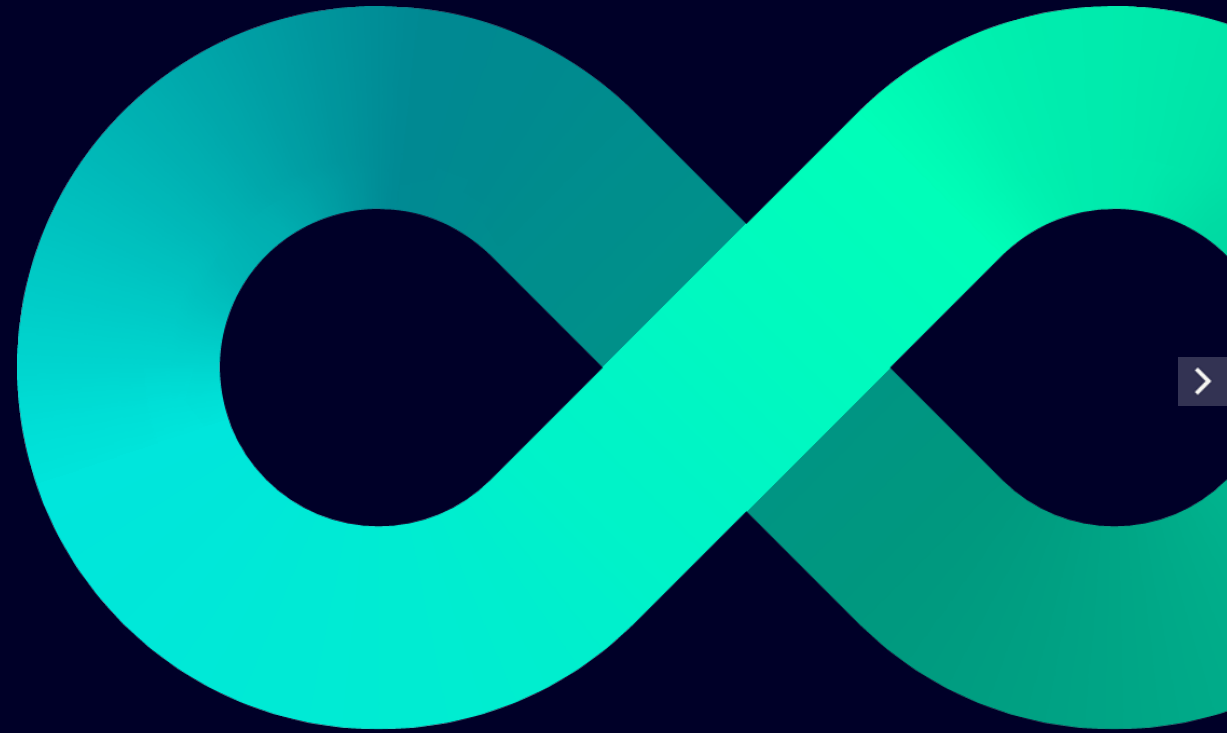
This enables users to access all relevant data through a “single pane of glass,” thus gaining insights to optimize their operations, predict performance, and address potential issues in real-time. Digital Twin, Software-Defined Systems, Industrial AI and Connected Automation are the building blocks to make this vision a reality. All of these building blocks are available through Siemens Xcelerator.

[Learn more about the Industrial Metaverse](#)



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Siemens enables its customers to become Digital Enterprises by combining the real and digital worlds in a way that no other company can.

Learn how we test our product portfolio in our own facilities before offering our solutions to customers in a variety of industries.

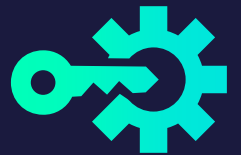
175

**Future-proof
by heritage**
for more than
175 years

Holistic software
and automation
offering



Continuous **integration
of key technologies**



Deep industry
**domain know-how
in all industries**



Customer Zero
Siemens is a
manufacturer
as well



A wide-angle photograph of a large industrial manufacturing facility. The floor is filled with rows of white and blue industrial machines. Several workers in blue uniforms are visible, some standing near the machines and others in the background. The ceiling is high with industrial lighting. The overall scene depicts a busy, modern manufacturing environment.

13x

productivity increase since
the start of production in 1990

>120

Variations are built per day
~1 product per second

~350

changeovers per day to handle
1,200 different products

99.9999%

perfect quality – every day

**Siemens Electronics Manufacturing
Plant Amberg, Germany**

A photograph of a manufacturing facility with rows of industrial equipment. In the foreground, there are large racks of electronic components or modules. Several workers in white uniforms are visible, some standing and others working at the equipment. The background shows more industrial structures and lighting.

~25%

Productivity increase through office
digitalization over the last 4 years

>22,000

Living products / variants

~99.9985%

Perfect quality for complex
products every day

>160

Product ramp-ups / year

**Siemens Manufacturing
Karlsruhe, Germany**



Digital Enterprise

Key technologies

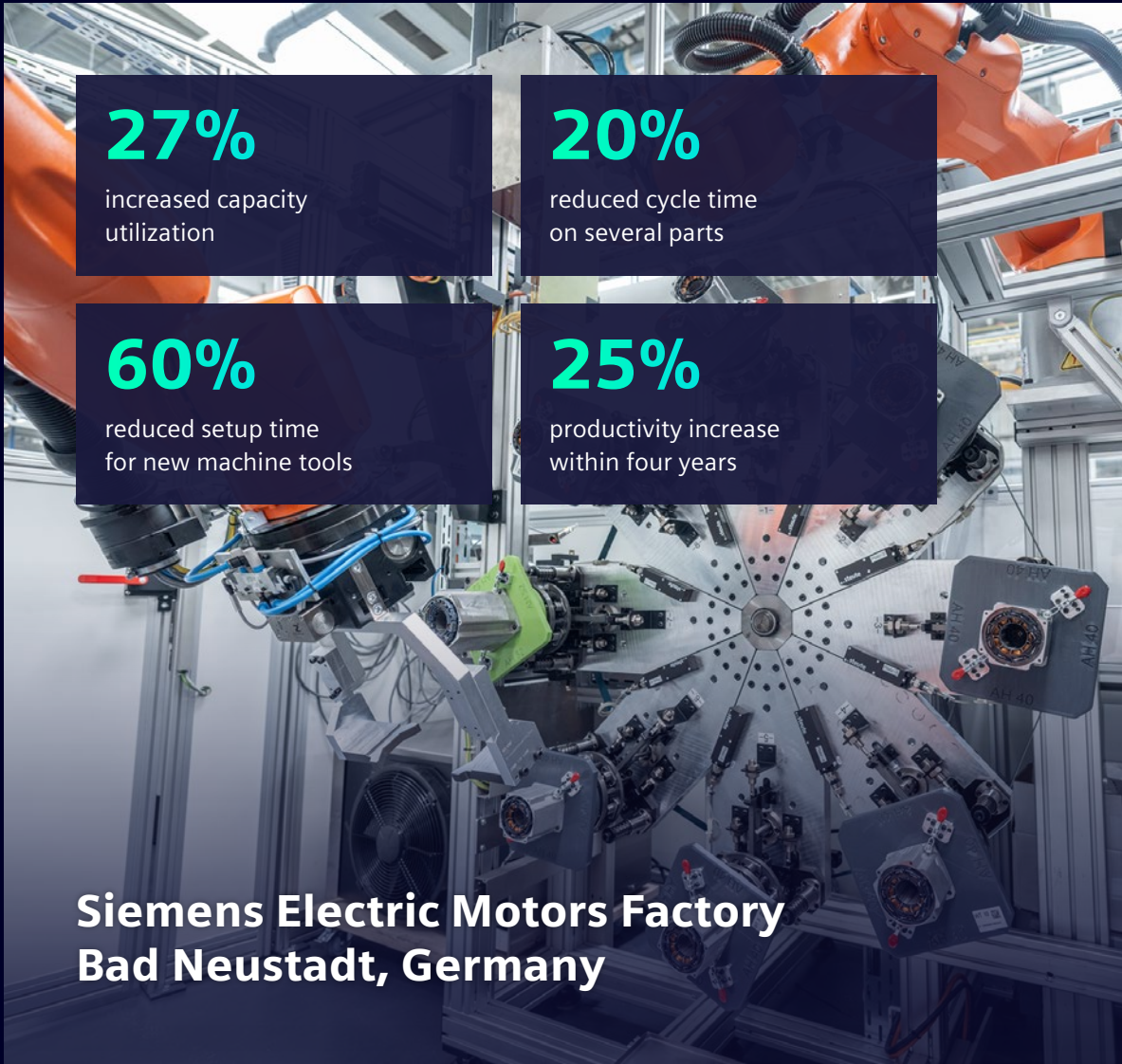
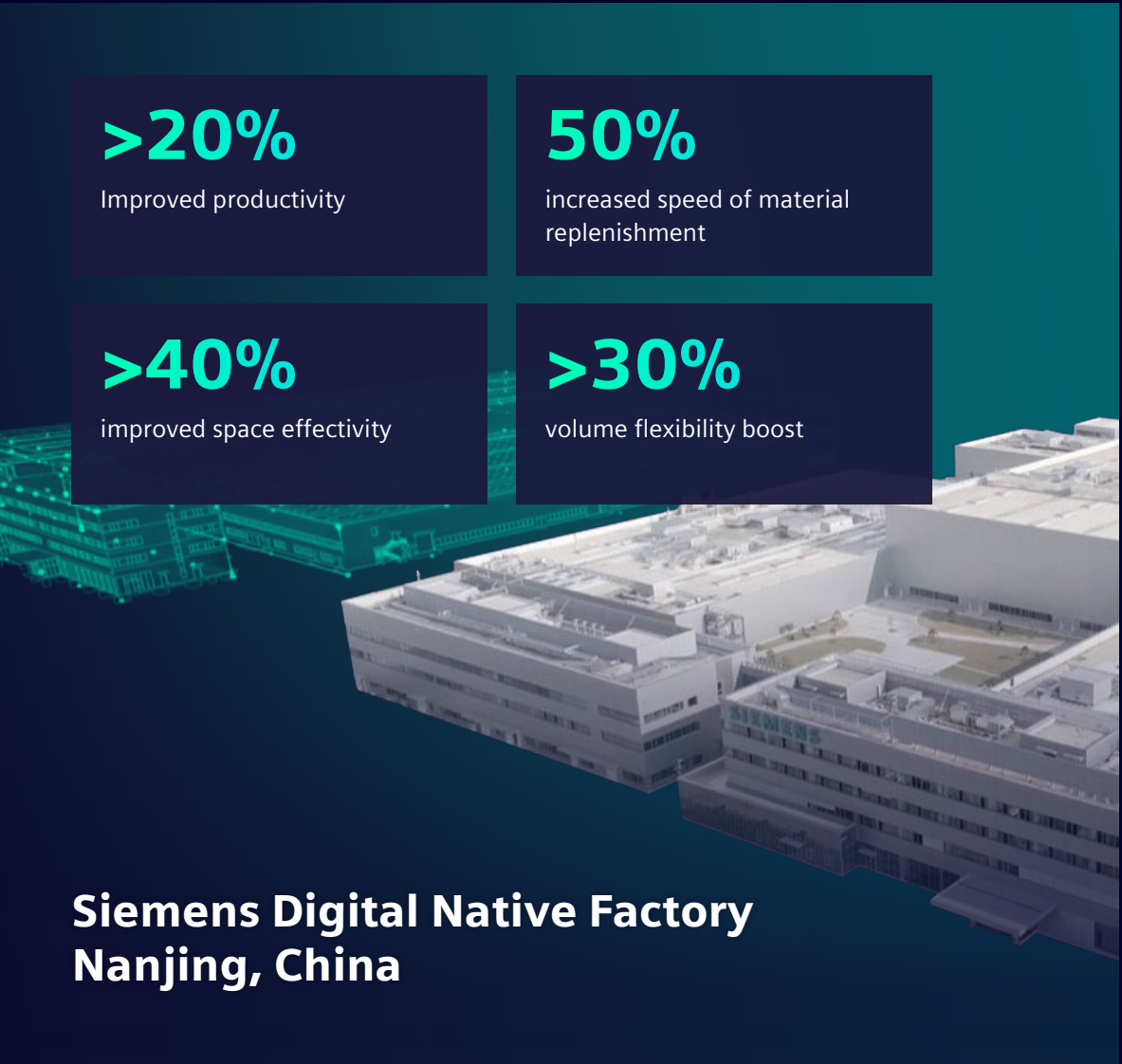
Digital Threads

Siemens Xcelerator

Why Siemens?

References

SIEMENS



Visit one of our Digital Enterprise Experience Centers

Experience the Digital Enterprise up close: We invite you to get a closer look at the unique combination of automation and software.

Discover what makes a true Digital Enterprise in our showrooms for digitalization and automation technologies at more than 40 sites around the world: In virtual and real tours, visitors to the Digital Enterprise Experience Centers witness the combination of the real and the digital worlds at first hand.

[Make an appointment to visit a Digital Enterprise Experience Center \(DEX\) in your region](#)



Digital Enterprise

Key technologies

Digital Threads

Siemens Xcelerator

Why Siemens?

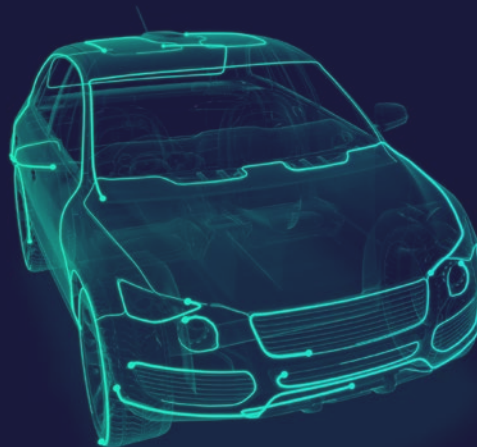
References

SIEMENS

Driving digital transformation for all industries with specific solutions combined with deep domain know-how



We build on a hero portfolio



26
of largest automotive
companies use our software

92%
of fortune
500 industrial
companies use
our software

#1
in industrial
software &
automation

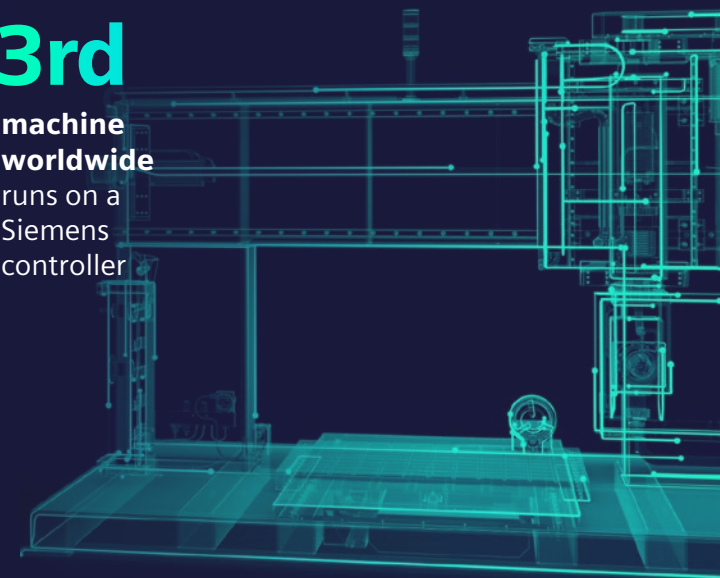
100 TB

of data per hour
generated worldwide
through our control
systems

>10 K

PLCs shipped per
day by Siemens
Digital Industries

EVERY
3rd
machine
worldwide
runs on a
Siemens
controller



Digital Enterprise

Key technologies

Digital Threads

Siemens Xcelerator

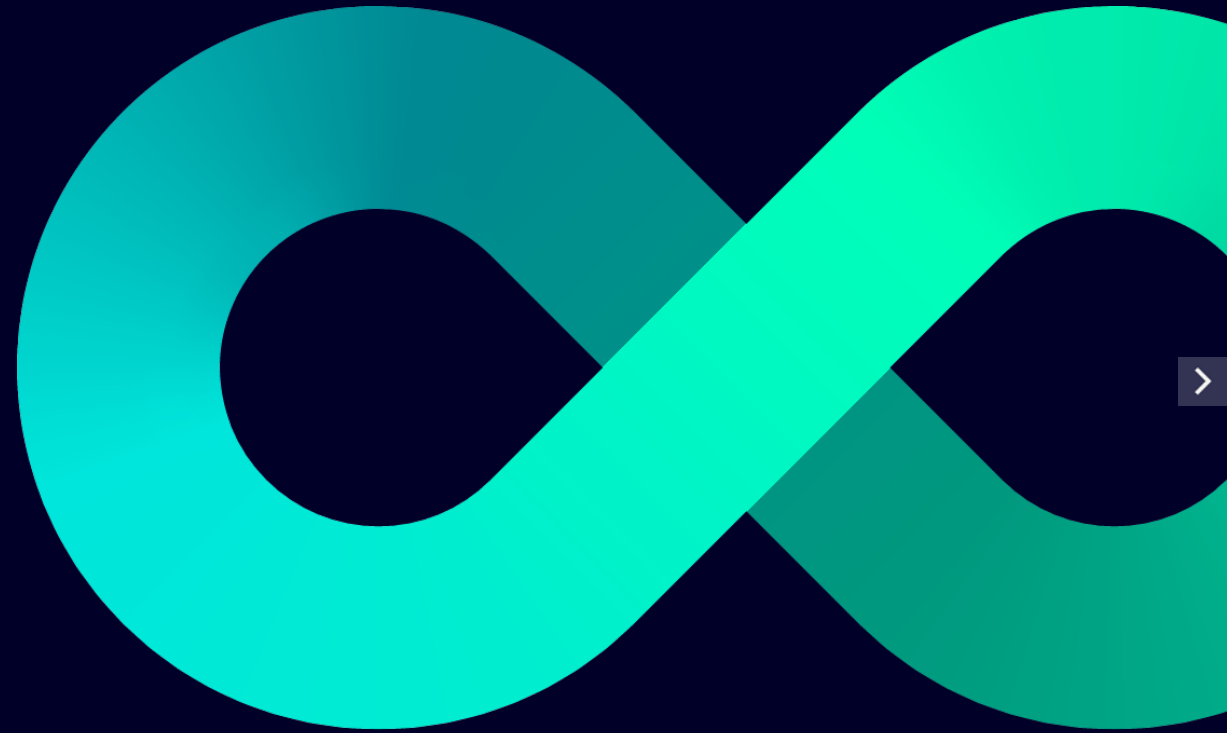
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DIGITAL ENTERPRISE

References



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Productivity & Efficiency



10%

increased
capacity

13%

less waste

PRINGLES

Discover the whole story [↗](#)

Pringles® stacks data to unlock innovation leaps

CUSTOMER CHALLENGE

- Increase the capacity of an already well-automated factory
- Unforeseeable changes in demand, rising energy costs, and varying quality of raw materials due to climate change

SOLUTION

- Siemens supported the factory's digital transformation by providing consulting services and solutions from its Xcelerator portfolio
- A Digital Twin of the dough helps automatically analyze dough quality with AI and provide operators with recommendations
- SIMATIC Energy Manager Pro and Senseye Predictive Maintenance help Pringles reduce energy and maintenance costs

CUSTOMER BENEFIT

- Without buying new hardware, the Pringles factory increased line performance by 10 percent
- Being able to ensure a perfect Pringles dough and optimizing the filling and packaging processes enables the factory to reduce waste by 13 percent
- AI-enabled energy management system helped the Pringles factory reduce the energy consumption by 7 percent



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Productivity & Efficiency



UP TO
30%

higher
productivity

UP TO
50%

faster time
to market

BSH HOME APPLIANCES GROUP

Discover the whole story [↗](#)

BSH unlocks the power of data to accelerate the journey from design to manufacturing

CUSTOMER CHALLENGE

- Intense global competition and rapidly changing rules and regulations
- Huge complexity due to managing thousands of product variants across five categories

SOLUTION

- BSH partnered with Siemens to build a fully digitalized value chain for all its factories
- Based on a single data backbone, Teamcenter, BSH bridged the engineering gap between product development and production
- BSH integrates design, planning and production into a comprehensive Digital Twin

CUSTOMER BENEFIT

- Up to 30 percent higher engineering productivity
- Up to 50 percent faster time to market possible
- Up to 100 percent seamless data flow across the value chain



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Productivity & Efficiency



50%

less energy
per product

25%

less total energy
consumption

SIEMENS ELECTRONICS FACTORY ERLANGEN

Discover the whole story [↗](#)

How to stay competitive as a Digital Enterprise

CUSTOMER CHALLENGE

- Produce medium-volume products with high variance in a cost-effective and sustainable way
- Reduce energy and resource consumption to become net-zero by 2030

SOLUTION

- Transformation into a sustainable Digital Enterprise
- Use of key technologies like Digital Twins, Artificial Intelligence, IT/OT convergence, and the Industrial Metaverse

CUSTOMER BENEFIT

- 40 percent shorter time to market through Digital Twins
- 50 percent reduction in carbon footprint through data analysis
- 60 percent increase in quality with AI-based solutions
- 50 percent more production through digital lean methods
- 40 percent less material circulation through simulations



Digital Enterprise

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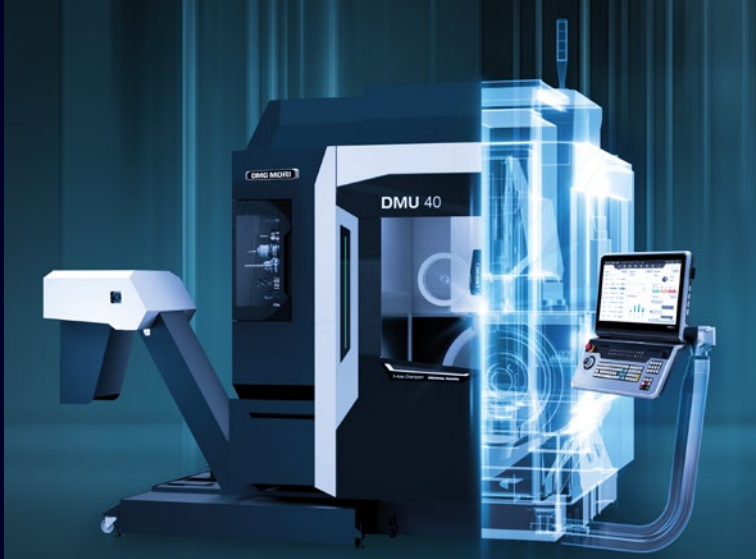
Siemens Xcelerator

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References

SIEMENS

Productivity & Speed



40%

faster
ramp-up
times

75%

Less
unproductive
machine times

DMG MORI

Discover the whole story [↗](#)

The first end-to-end Digital Twin of a machine tool on Siemens Xcelerator Marketplace

CUSTOMER CHALLENGE

- DMG MORI customers demand higher productivity
- Unproductive tasks must be moved from the machine to the virtual world

SOLUTION

- Based on the Digital Native CNC SINUMERIK ONE, the solution includes the digital twin of the control, the customer specific DMG MORI machine tool, and the workpiece
- The open digital business platform Siemens Xcelerator creates a powerful ecosystem of partners and provides a marketplace where DMG MORI offers its end-to-end Digital Twin of a machine tool

CUSTOMER BENEFIT

- The Digital Twin helps eliminate programming errors that cause scrap and damage to the real machine
- Enables up to 40 percent faster production ramp-up and significantly reduces the energy consumption of the real machine
- Unproductive machine time is reduced by up to 75 percent



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Speed



BASF

Discover the whole story [↗](#)

Staying competitive with the Digital Twin

CUSTOMER CHALLENGE

- The BASF headquarter in Ludwigshafen is the world's largest chemical production site
- Political turmoil, climate change and disruptions in the energy market and supply chains are impacting the chemical industry more than most other industries
- BASF saw the need to constantly adapt their plant to changing conditions

SOLUTION

- Integration of data from the BASF complex to ensure a universal flow of data over the entire lifecycle of BASF's facilities
- SIMATIC PCS7, COMOS and SIMIT were used to create the plant's Digital Twin
- Combination of the plant's data with a digital simulation to create a real-time virtual plant on which to test optimization ideas

CUSTOMER BENEFIT

- Shorter development times thanks to the Digital Twin
- Design and testing of processes virtually before using them with valuable raw materials in a real production plant
- Faster implementation of optimization measures through digitalized work processes



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Digital Twin empowers a circular economy in fiber production

CUSTOMER CHALLENGE

- Lenzing continuously develops innovative technologies for the production of sustainable products, for example its TENCEL™ lyocell and modal fibers
- Lenzing aims to unlock capacity and further streamline its operations

SOLUTION

- Extensive use of software such as COMOS for process plant engineering and SIMIT for the simulation of automation functions laid the foundation for the Digital Twin and reduced engineering times
- AI made old legacy plant design documents – such as P&IDs – intelligent and finally usable as the basis for modernization and expansion projects

CUSTOMER BENEFIT

- Lenzing has expanded production capacities and identified inefficiencies
- Higher output and enhanced sustainability
- Contribution to a sustainable circular economy by enhancing efficiency, reducing waste and supporting long-term environmental goals

Speed

GSK

Discover the whole story [↗](#)

Stepping up the pace in vaccine development and production

CUSTOMER CHALLENGE

- The global healthcare company GSK is collaborating with Siemens and ATOS to digitalize its vaccine development and production process
- Their goal: accelerate the vaccine development process

SOLUTION

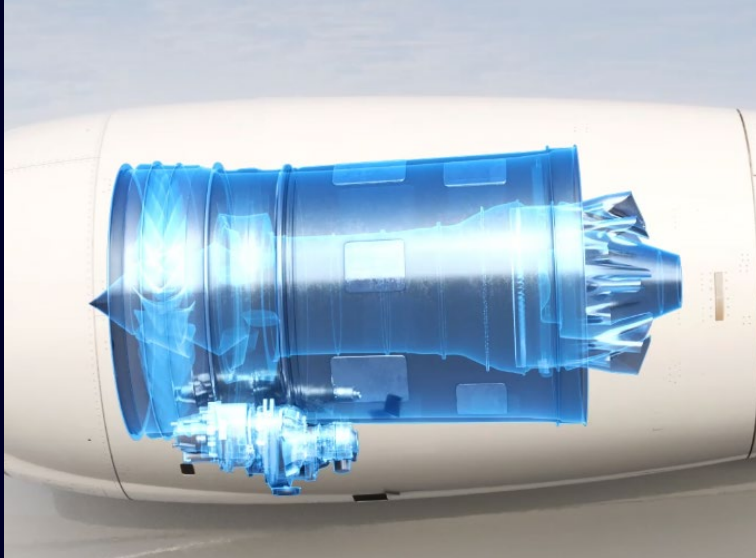
- GSK, Siemens and ATOS have developed a proof-of-concept Digital Twin specifically for the development and manufacture of adjuvant technologies
- Digital Twins allow data collection to understand exactly what is happening in real time during production. With that information, they can optimize operations

CUSTOMER BENEFIT

- Much shorter development times for vaccines, allowing them to reach people faster and with the optimum quality
- Monitoring of complex processes and prediction how changes would affect them
- Improved control of quality



Speed



80%

faster
programming
time

25%

weight
reduction

ROLLS ROYCE

Discover the whole story [↗](#)

AI-optimized aerospace engineering

CUSTOMER CHALLENGE

- Rolls-Royce faced complex requirements for a critical jet engine component: the hydraulic lubrication and scavenge pump
- Disconnected workflows led to long lead times, redundant iterations and difficulty meeting strict aerospace standards

SOLUTION

- Teamcenter enabled traceability and associativity across revisions
- NX CAD and Simcenter STAR-CCM+ refined designs and simulated conditions
- Print-orientation improvements and build-process simulations reduced distortion and improved additive-manufacturing quality
- NX CAM Co-Pilot recommended machining operations that cut programming time

CUSTOMER BENEFIT

- 25 percent weight reduction improves fuel efficiency and lowers emissions
- 200 percent increase in stiffness enhances durability
- Meets a safety factor of 9 relative to the original concept
- Up to 80 percent faster machining programming shortens time to market
- Sustainable, traceable and collaborative engineering process enabled by AI and cloud innovation



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Speed & Productivity

DUCATI MOTOR HOLDINGS

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Using rapid design iteration and virtual testing to develop motorcycles faster

CUSTOMER CHALLENGE

- Reduce development time from concept to track
- Adapt quickly to race conditions
- Ensure motorcycle durability and quality
- Eliminate inefficiencies from disconnected software applications

SOLUTION

- Deploy NX CAD for automated design generation and high-precision modeling
- Use Simcenter for advanced simulation and virtual validation
- Leverage Teamcenter for seamless collaboration and real-time data analysis
- Use Fibersim to optimize composite material manufacturing

CUSTOMER BENEFIT

- Rapid design iteration and virtual testing for faster development
- Performance analysis to optimize race-day adjustments
- Efficient composite manufacturing
- Merged development data with enterprise systems to boost operational capacity



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Productivity & Availability



1,950

hours of
downtime
avoided

53

process
stops
prevented

BLUESCOPE

Discover the whole story [↗](#)

AI helps predict failures before they occur

CUSTOMER CHALLENGE

- Reactive maintenance led to unplanned downtime and inefficient operations
- High maintenance costs due to emergency repairs and frequent component failure

SOLUTION

Senseye Predictive Maintenance was deployed to transition from reactive to proactive maintenance

CUSTOMER BENEFIT

- Early detection of potential machine malfunctions through AI-based predictive capabilities
- Increased operational efficiency by reducing unplanned downtime
- Significant cost savings due to optimized maintenance and fewer disruptions
- Over 1,200 hours of downtime avoided in Australia
- 750 hours of downtime avoided in other countries
- 53 process stops prevented, ensuring continuous production



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Article No. DICM-I10033-00-7600

iPDF

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Cybersecurity information

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial cybersecurity concept. Siemens' products and solutions constitute one element of such a concept. For more information about industrial cybersecurity, please visit

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