Accelerate Your Digital Future
Japan Machinery Innovation Forum
June 2022

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Industrial Machinery

Consumer-driven customization

Smart machines

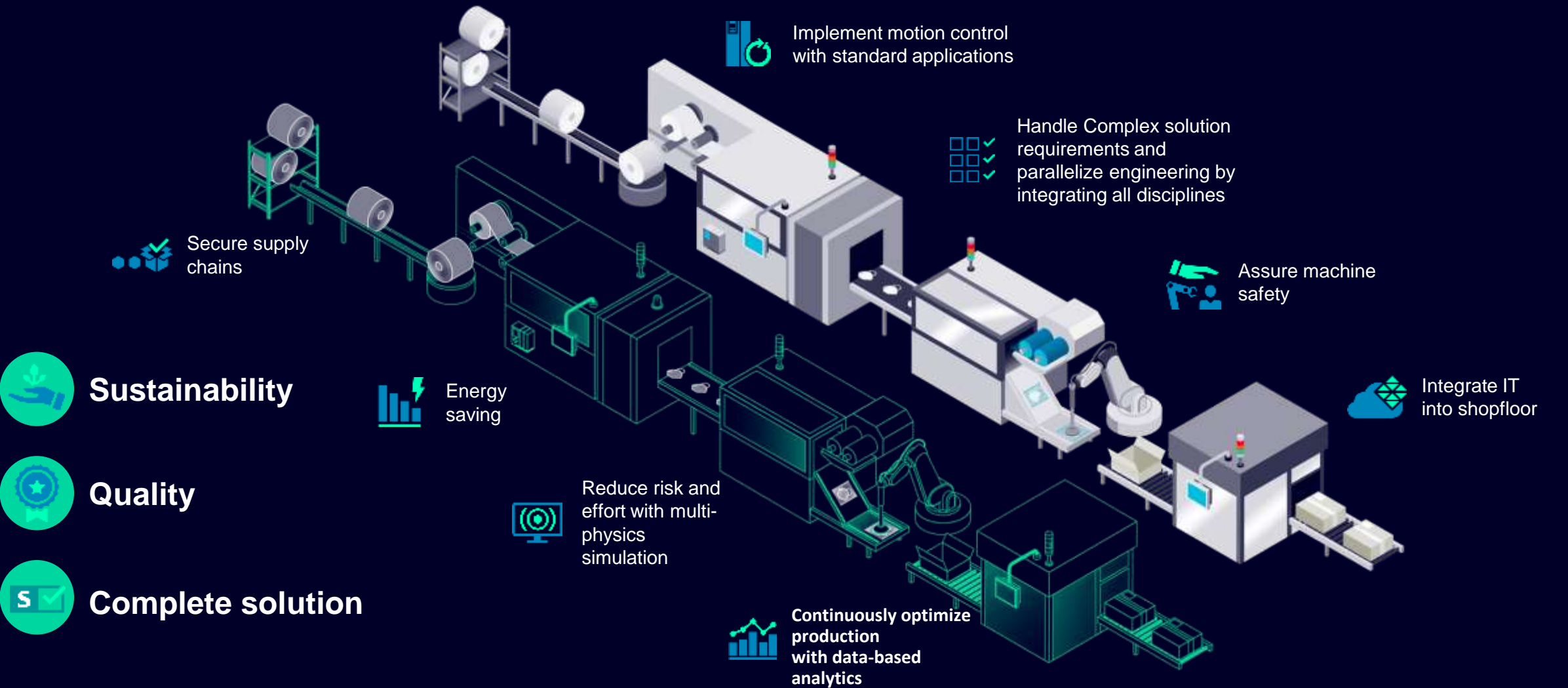**Hyperautomation**

Global competition/ Business models

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Requirements for machine building

Implement motion control with standard applications

Handle Complex solution requirements and parallelize engineering by integrating all disciplines

Secure supply chains

Assure machine safety

Sustainability

Energy saving

Integrate IT into shopfloor

Quality

Reduce risk and effort with multi-physics simulation

Complete solution

Continuously optimize production with data-based analytics

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EXPLOSION OF COMPLEXITY

Global Secure Smart
Quality Personalized
Connected Flexible
Sustainable Integrated
Efficient Cost-effective
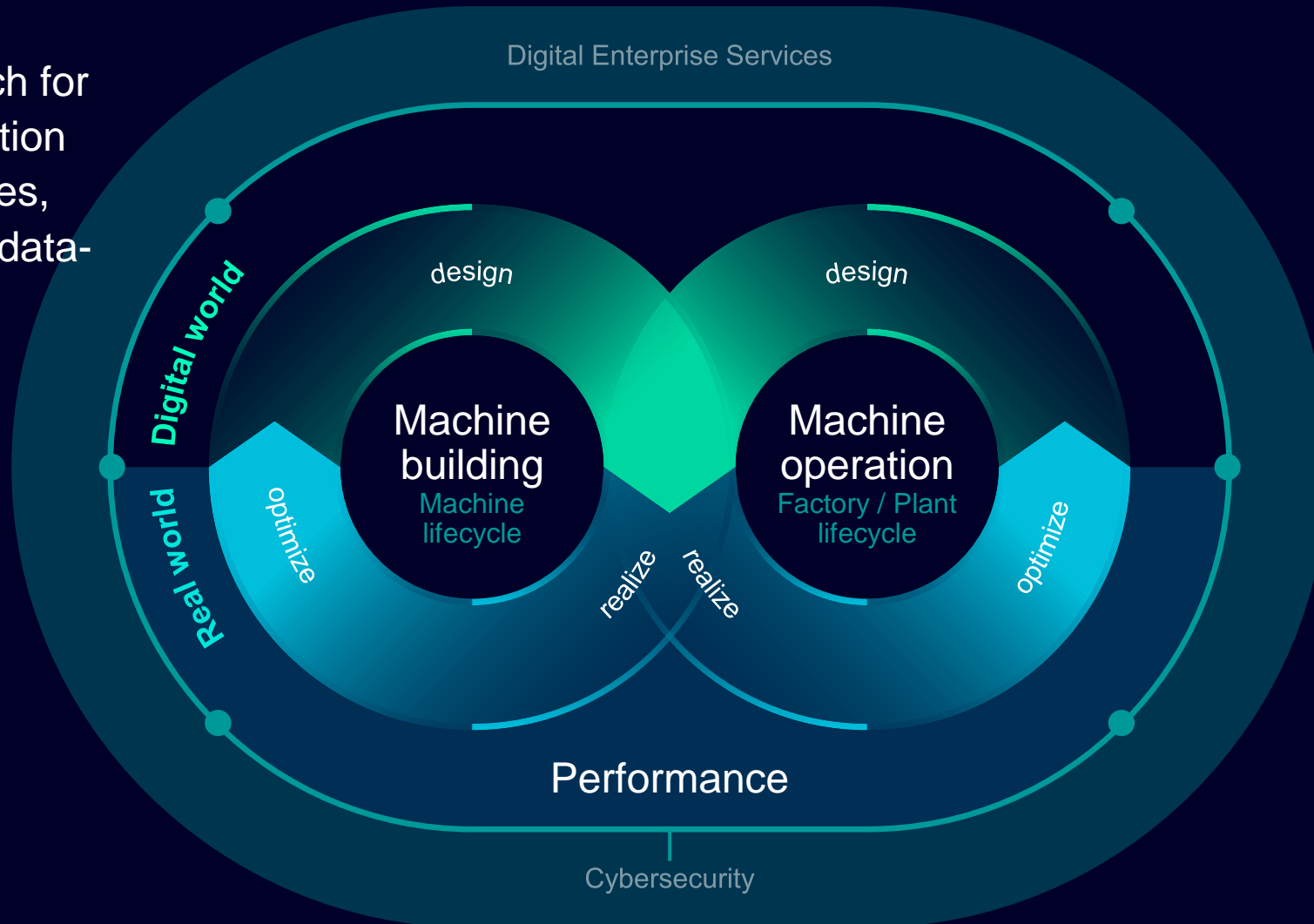
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THE MOST

automated flexible connected and adaptable machines will define the future.
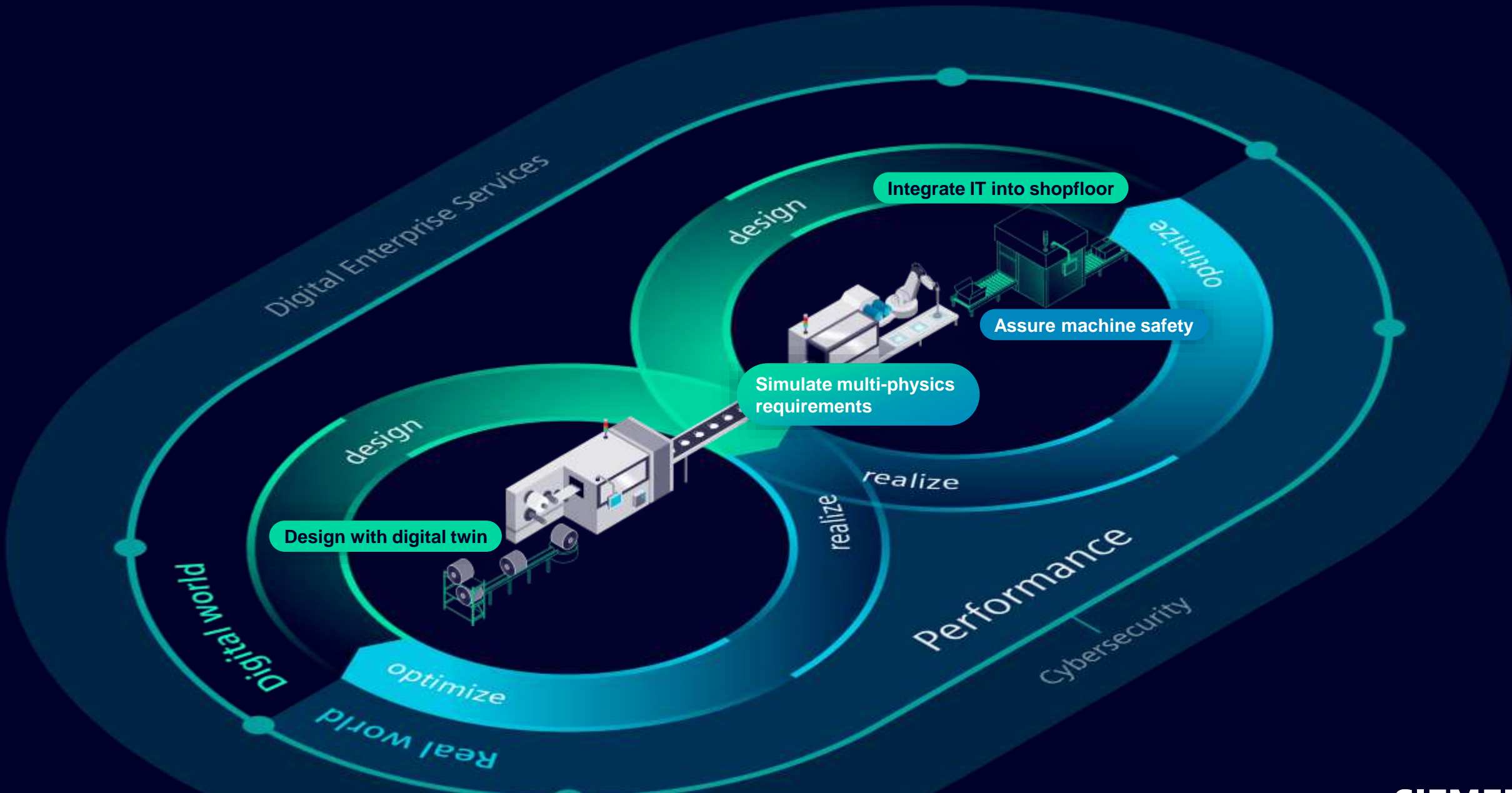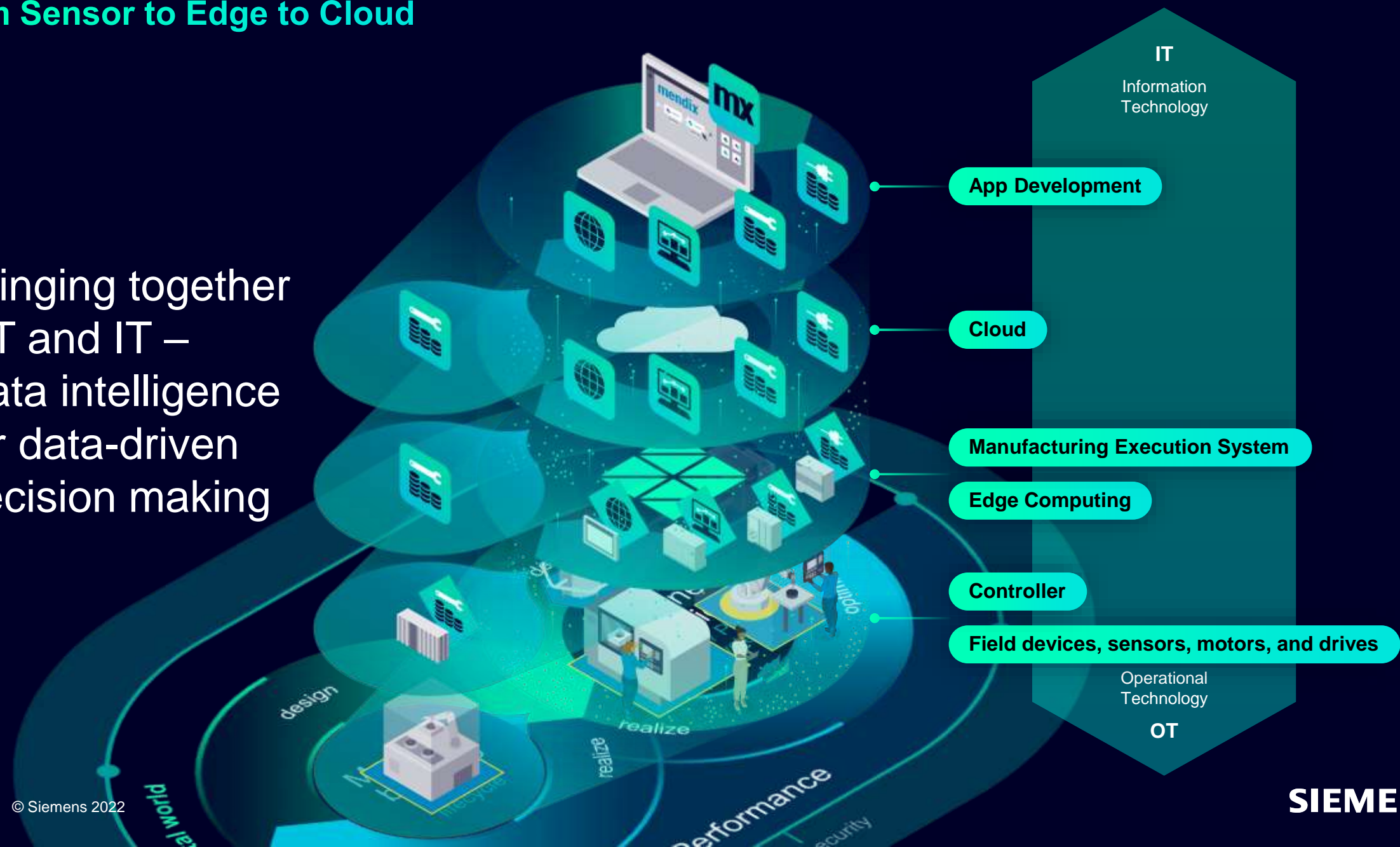
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The Digital Enterprise

The comprehensive
Digital Twin approach for
continuous optimization
of products, machines,
and production in a data-
driven industry.

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Integrate IT into shopfloor

Assure machine safety

Simulate multi-physics requirements

Design with digital twin

Digital Enterprise Services

design

optimize

realize

Performance

Cybersecurity

Digital world

Real world

optimize

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From Sensor to Edge to Cloud

Bringing together
OT and IT –
Data intelligence
for data-driven
decision making

IT
Information
Technology

App Development

Cloud

Manufacturing Execution System

Edge Computing

Controller

Field devices, sensors, motors, and drives

Operational
Technology

OT

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THREE KEYS TO USING COMPLEXITY AS A
Competitive advantage

**Comprehensive
Digital Twin**

**Personalized
Adaptable, Modern**

**Flexible
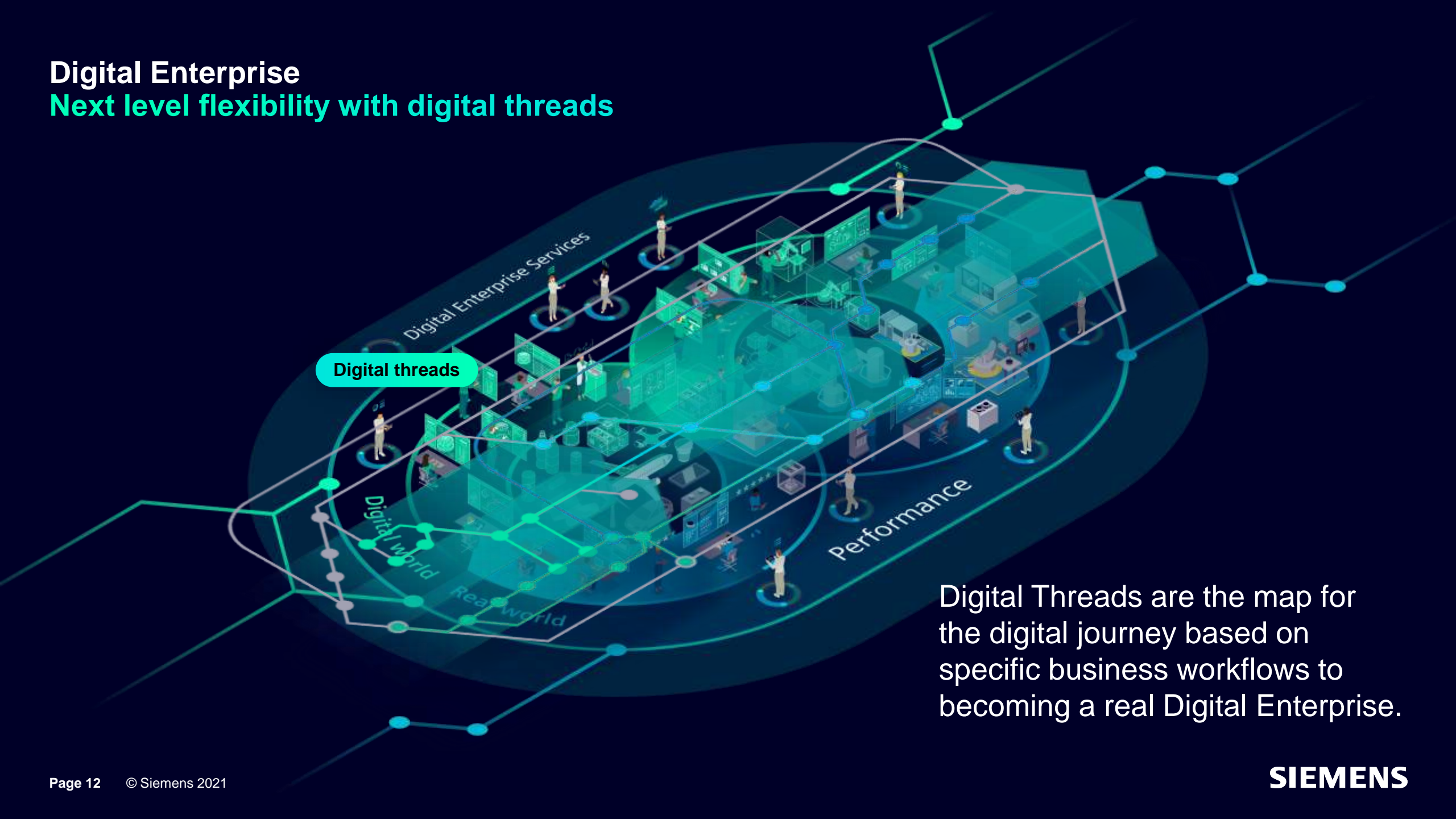Open Ecosystem**

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Where today meets tomorrow.

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Digital Enterprise
Next level flexibility with digital threads

Digital threads

Digital Enterprise Services

Digital world

Real world

Performance

Digital Threads are the map for the digital journey based on specific business workflows to becoming a real Digital Enterprise.

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INDUSTRIAL MACHINERY
Industry Solutions

Advanced Machine Engineering

Intelligent Performance Engineering

Digital Part Production

Smart Manufacturing

Service Lifecycle & Analytics

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Advanced Machine Engineering

A digital thread approach to engineering that enables companies to develop increasingly complex machines faster.

Multi-disciplinary design
Comprehensive digital twin

Virtual machine simulation
Early design verification

Multi-disciplinary configuration management

Harness customization

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Accelerate Innovation through Digitalization
with cost-effective cloud PLM for Machine Builders

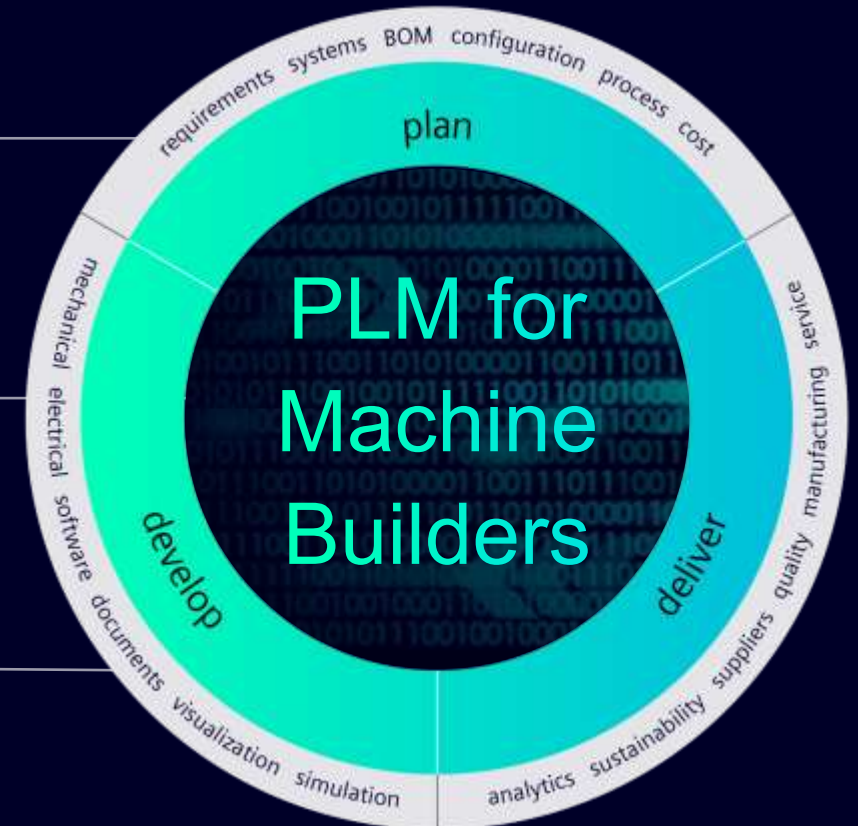### Project, Process & Requirements Management

Clear project deliverables and milestones alongside dashboard driven traceability and transparency of progress
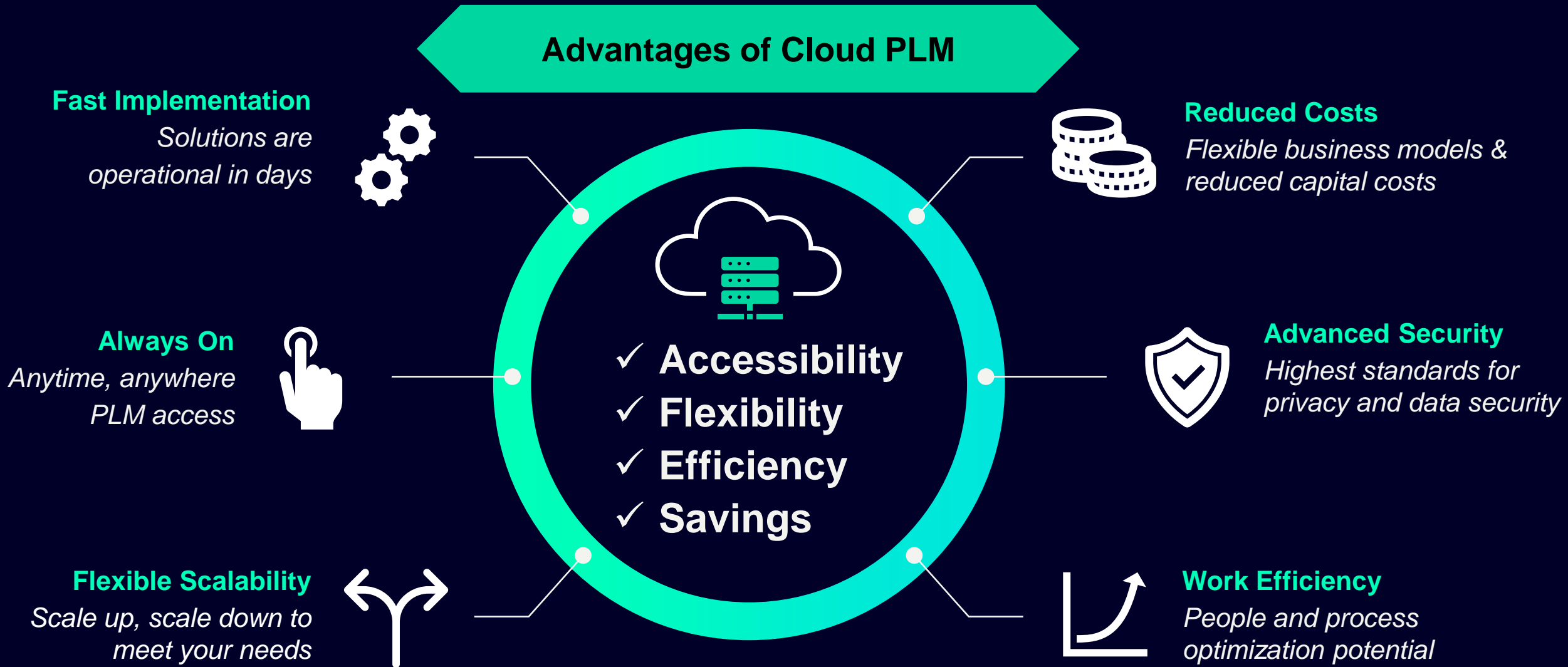
Machine Configuration & Re-use

Best in class integration to your design tools, effectively managing your product structure directly from CAD – saving re-keying of information into downstream systems

Blended ETO/CTO

Drive modular design and across projects

Standardize your in-service fleet

Improving maintainability

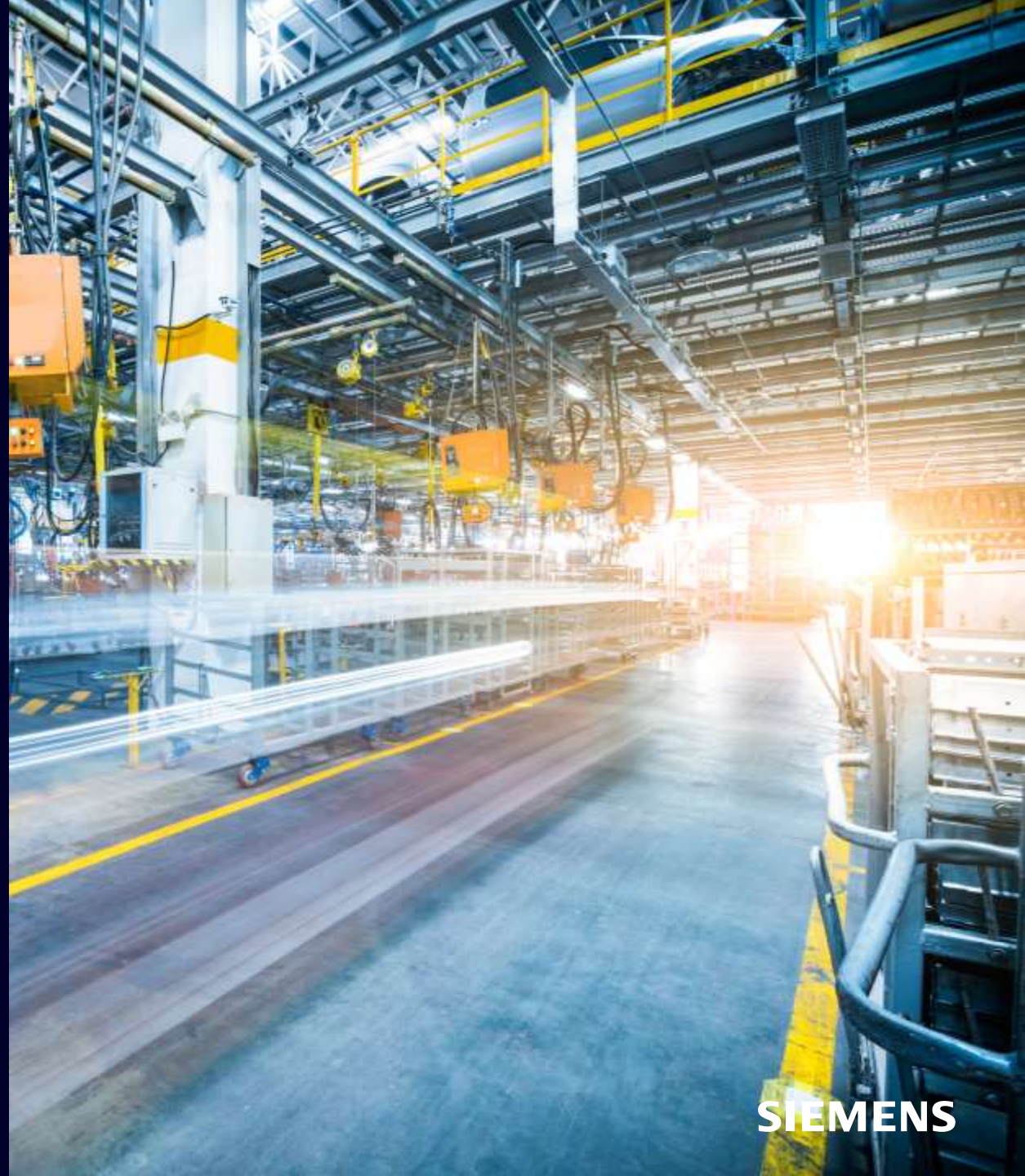PLM for Machine Builders

plan — requirements systems BOM configuration process cost

develop — mechanical electrical software documents visualization simulation

deliver — service manufacturing quality suppliers sustainability analytics

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Why PLM in the Cloud

Advantages of Cloud PLM

Fast Implementation
Solutions are operational in days

Reduced Costs
Flexible business models & reduced capital costs

- ✓ **Accessibility**
- ✓ **Flexibility**
- ✓ **Efficiency**
- ✓ **Savings**

Always On
Anytime, anywhere PLM access

Advanced Security
Highest standards for privacy and data security

Flexible Scalability
Scale up, scale down to meet your needs

Work Efficiency
People and process optimization potential

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HOW SHOULD YOU

increase machine speeds and continue to deliver high production rates?

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Industrial Machinery Industry Solutions
Advanced Machine Engineering

50% faster time to production

25% shorter commis-
sioning phase

"Digitalization is a huge opportunity. It's a matter of not being afraid of the challenges but rather taking the benefit that helps us to create more value."

Olav Tronrud, **CEO Tronrud Engineering**

TRONRUD
ENGINEERING

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Intelligent Performance Engineering

Improve reliability and address risk
by simulating complete machine operation.

Multi-Physics Engineering
Balance cross-domain attributes to meet requirements

Managed Connectivity
Design to commissioning and beyond

Closed Loop Design Validation
Combine simulation and testing to meet high quality standards

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Industrial Machinery Industry Solutions
Intelligent Performance Engineering

15%

Machine produc-tivity increase

"We eliminated at least one complete prototype iteration step, which reduced both development duration and expenditures."

Kristof Roelstraete, **Dir. Weaving Machine Development Picanol**

PICANOL

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HOW CAN YOU

embrace new tech-nologies to create additional business opportunities?

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INDUSTRIAL MACHINERY SOLUTIONS

Digital Part Production

A digital thread approach to manufacturing, increasing flexibility and quality while optimizing latest operations technologies.

Highly Automated CAM
Optimize machining processes with automation

Integrated Part Design and Manufacturing
Design, simulate and machine parts in one environment

Closed Loop Manufacturing
Use connected, collaborative systems

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Industrial Machinery Industry Solutions
Digital Part Production

3x 🕐

Faster CNC program creation

"We measure our savings not in minutes or hours, but by the number of shifts we save."

Michael Wier, **CNC Programmer Telsmith, Inc.**

TELSMITH, INC.

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Industrial Machinery Industry Solutions
Digital Part Production

3x

Faster CNC program creation

"We measure our savings not in minutes or hours, but by the number of shifts we save."

Michael Wier, **CNC Programmer Telsmith, Inc.**

TELSMITH, INC.

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HOW CAN YOU

overcome lean resource constraints and acce-lerate high quality machine delivery to your customers?

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INDUSTRIAL MACHINERY SOLUTIONS

Smart Manufacturing

A digital thread approach to manufacturing, increasing flexibility and quality while optimizing operations technologies.

Closed Loop
Manufacturing

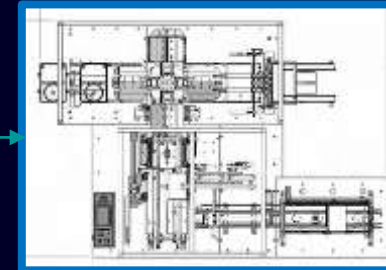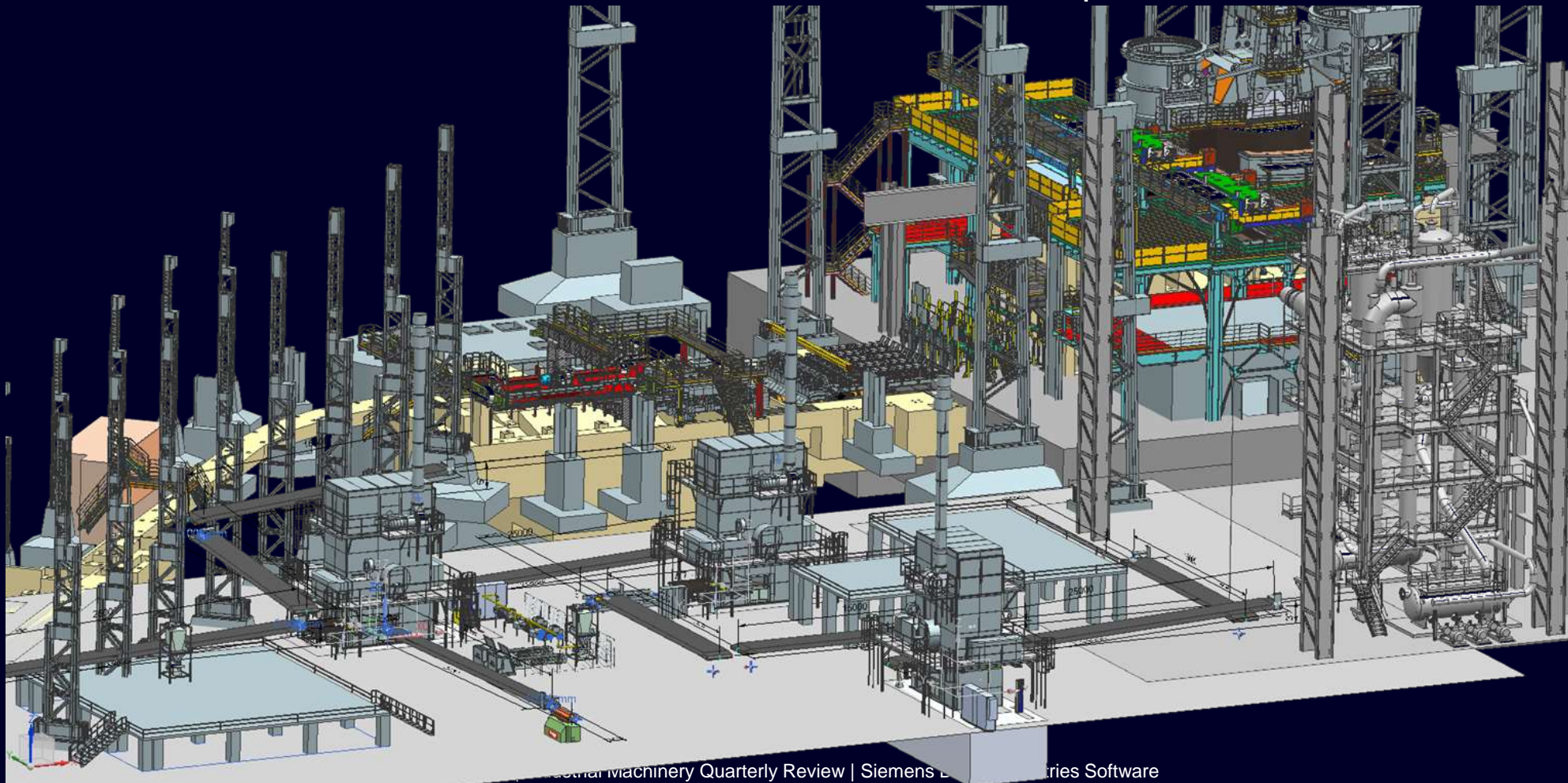**Advanced**
Production technologies

Synchronized
Production information processes

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Siemens Building Layout Solution

Our proposal is to create the full detailed Layout, entirely in 3D. Drawings are simply a document that describe what defined in the tridimensional space.

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Industrial Machinery Industry Solutions
Smart Manufacturing

50% Less WIP inventory

20% Production cost reduction

50% Increased standardization

"The Siemens concept is a production-oriented solution and fits 100% better to our orientation than SAP."

Markus Kunzelmann, **CIO Kapp Niles**

KAPP NILES

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HOW CAN YOU

leverage untapped machine potential to increase profitability and create new revenue streams?

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INDUSTRIAL MACHINERY
SOLUTIONS

Service and Lifecycle Analytics

Leverage IoT from the physical twin combined with engineering insights in the digital twin and cloud.

On demand
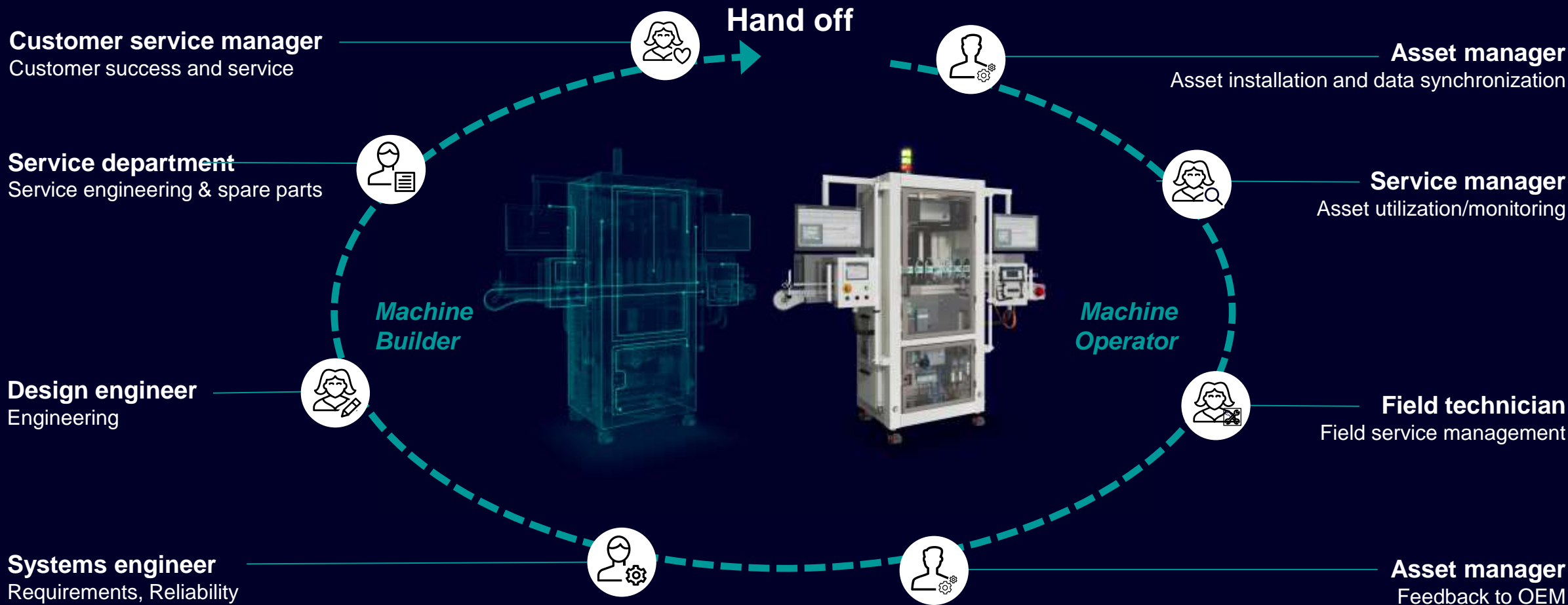Monitoring and operation modification

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Collective
Intelligence analytics

Re-invent and create
New business models

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ISAL – the machine lifecycle

Hand off

Customer service manager
Customer success and service

Service department
Service engineering & spare parts

Design engineer
Engineering

Systems engineer
Requirements, Reliability

Machine Builder

Machine Operator

Asset manager
Asset installation and data synchronization

Service manager
Asset utilization/monitoring

Field technician
Field service management

Asset manager
Feedback to OEM

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Industrial Machinery Industry Solutions
Service and Lifecycle Analytics

Founding Member of "MindSphere World"

Data analyzed with AWS IoT Analytics and Greengrass

Running app on MindSphere

Predict next service interval in order to optimize machine and increase customer satisfaction with new business as OEM.

SCHMALZ

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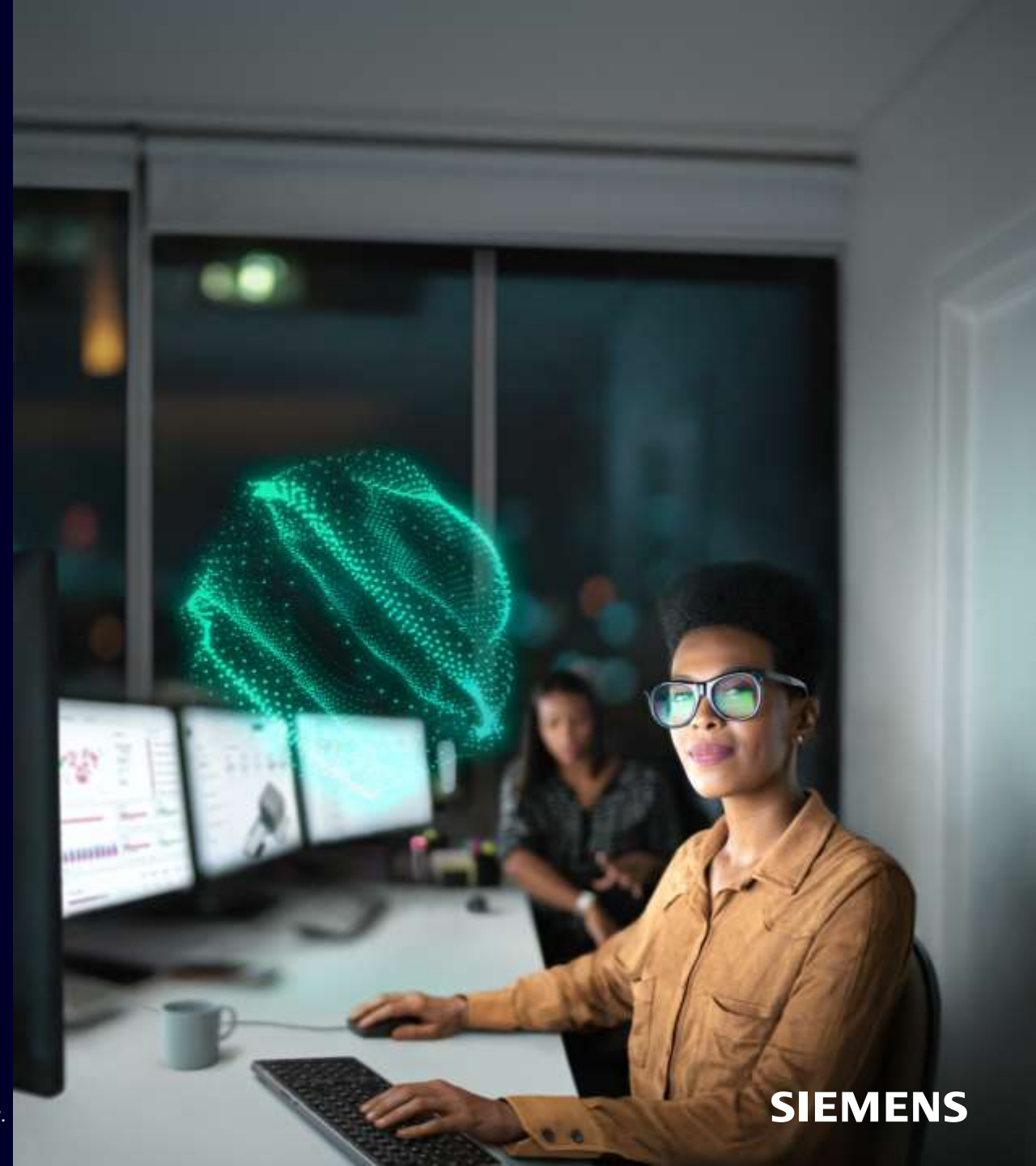# Turn complexity into competitive advantage by ...

Creating the most robust Digital Twin

Personalizing digitalization

Leveraging a broad ecosystem through open technology

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Thank you

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