Smarter Factory

Fast-forward digital manufacturing

Need for Smarter Factory

Industrial enterprises have to address many goals simultaneously. Some of these goals include maintaining equipment reliability, ensuring worker safety, managing supply chain efficiency, optimizing production efficiency, meeting quality standards, and adapting to changing production demands. Additionally, factors like regulatory compliance, workforce skill gaps, and environmental sustainability pose new challenges for factory operations.

Embracing the concept of the Smarter Factory allows industrial enterprises to fast-forward their transition to a digitally connected enterprise. This encompasses various aspects of the operations, supply chain, shop floor, and enterprise IT. A Smarter Factory brings together assets, processes, people, and data using technologies such as ERP, OT systems, Industrial Internet of Things (IIoT), data analytics, artificial intelligence (AI), cloud, web applications, and so forth.

Motivation for Smarter Factory

Our Smarter Factory solutions have been crafted to address various challenges across the industrial value chain.

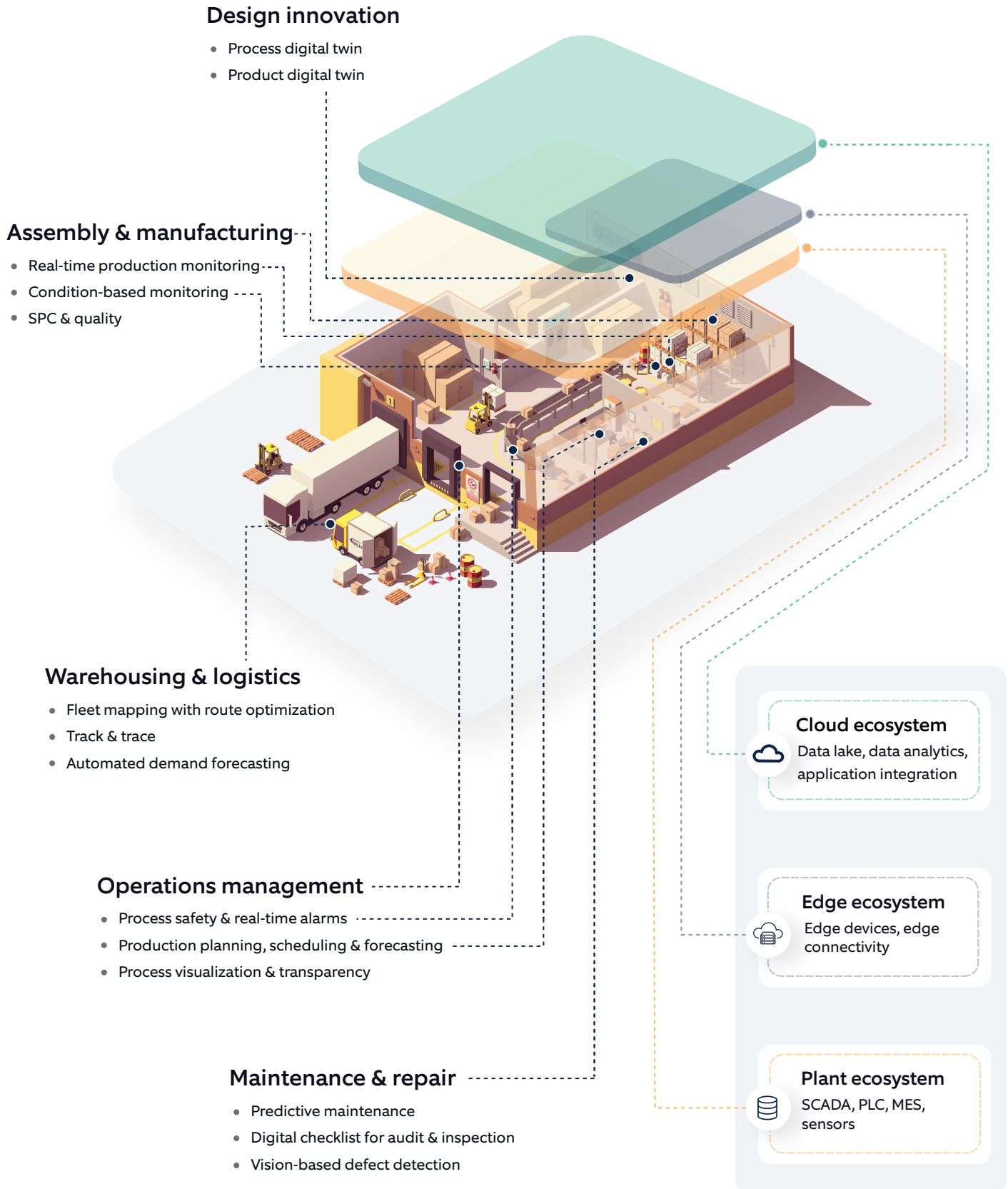|	Efficiency		Safety
	Transparency		Skill gap
	Wastage		Sustainability
	Inventory		Compliance

Challenges

Smarter Factory use cases

We enable more than 50 Smarter Factory use cases across the industrial value chain encompassing supply chain, shop floor management, and digital manufacturing operations.

Design innovation
- Process digital twin
- Product digital twin

Assembly & manufacturing
- Real-time production monitoring
- Condition-based monitoring
- SPC & quality

Warehousing & logistics
- Fleet mapping with route optimization
- Track & trace
- Automated demand forecasting

Operations management
- Process safety & real-time alarms
- Production planning, scheduling & forecasting
- Process visualization & transparency

Maintenance & repair
- Predictive maintenance
- Digital checklist for audit & inspection
- Vision-based defect detection

Cloud ecosystem
Data lake, data analytics, application integration

Edge ecosystem
Edge devices, edge connectivity

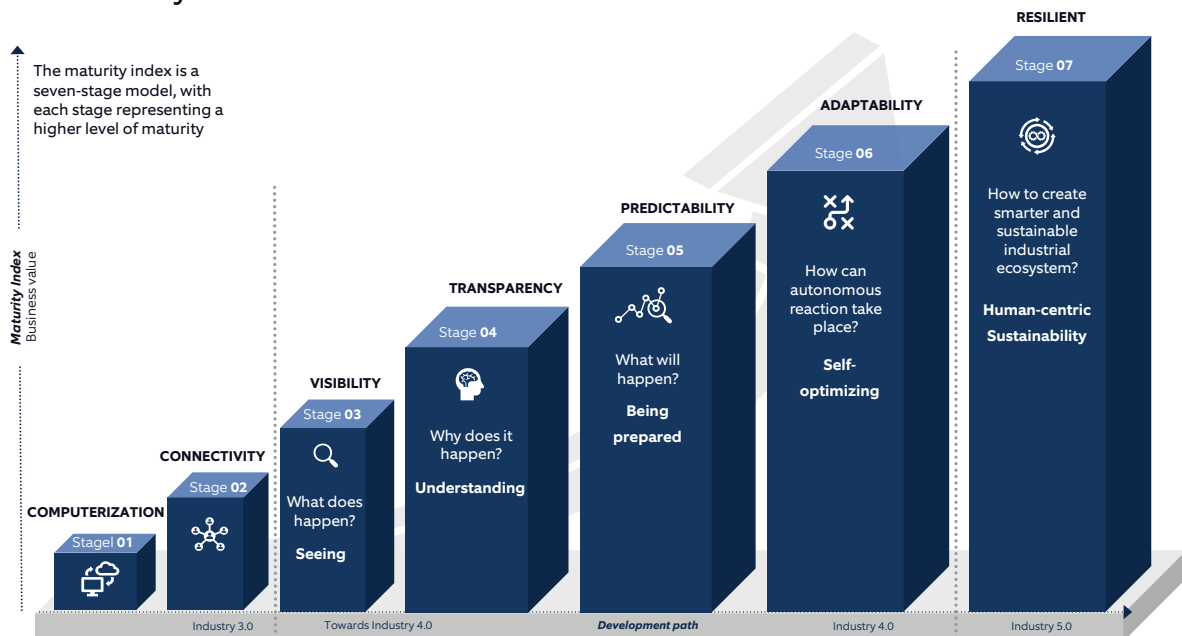### Plant ecosystem
SCADA, PLC, MES, sensors

How to get started?

Our solutions create an interconnected and interdependent ecosystem enabling seamless communication between machines and humans, enhancing co-ordination and synchronization on the factory floor. These solutions enhance efficiency with a highly responsive and human-centric design.
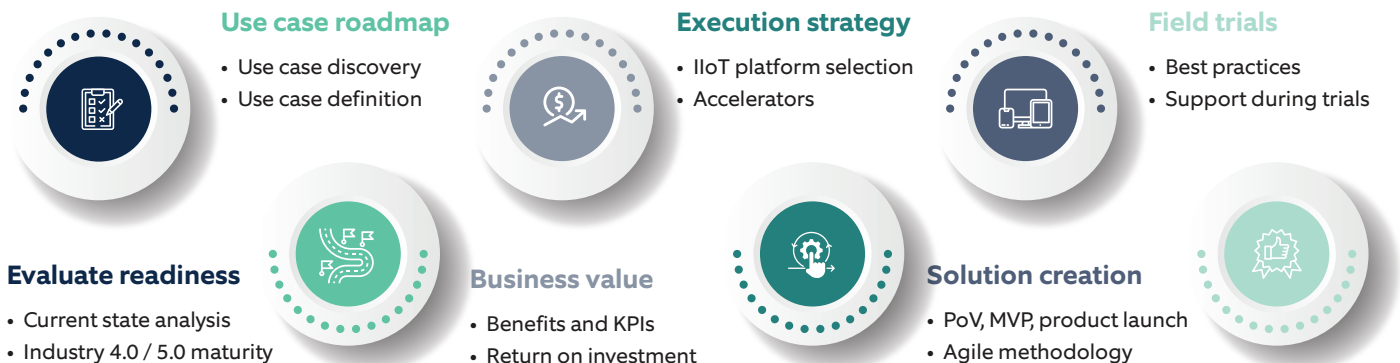
Get your Smarter Factory toolkit

Our toolkit provides a structured approach for enterprises embarking on their Industry 4.0 / Industry 5.0 journey. We enable Smarter Factory use cases to build a data-driven ecosystem. Our solutions cover data acquisition, processing, analysis, visualization, and strategy development, ensuring seamless integration and utilization of data for optimized operations.

We leverage our Smarter Factory maturity index framework to evaluate the use cases across different maturity levels.

The maturity index is a seven-stage model, with each stage representing a higher level of maturity

Maturity Index Business value

COMPUTERIZATION
Stage 01

CONNECTIVITY
Stage 02

VISIBILITY
Stage 03
What does happen?
Seeing

TRANSPARENCY
Stage 04
Why does it happen?
Understanding

PREDICTABILITY
Stage 05
What will happen?
Being prepared

ADAPTABILITY
Stage 06
How can autonomous reaction take place?
Self-optimizing

RESILIENT
Stage 07
How to create smarter and sustainable industrial ecosystem?
Human-centric Sustainability

Industry 3.0 — Towards Industry 4.0 — *Development path* — Industry 4.0 — Industry 5.0

We help you with...

Use case roadmap
- Use case discovery
- Use case definition

Execution strategy
- IIoT platform selection
- Accelerators

Field trials
- Best practices
- Support during trials

Evaluate readiness
- Current state analysis
- Industry 4.0 / 5.0 maturity

Business value
- Benefits and KPIs
- Return on investment

Solution creation
- PoV, MVP, product launch
- Agile methodology

Client success stories

Manufacturing intelligence for quality management

Designed a cloud-based manufacturing intelligence platform for a global leader in statistical process control software. The platform gathers data from various shop floor sources to offer quality management insights with customizable visualization.

Benefits

» Farm-to-fork tracking
» Improved OEE
» Reduced waste

AI-enabled production planning for job scheduling

Built a solution integrated with SAP ECC 6.0 for a leading construction materials manufacturer, offering an optimized production schedule. It considers factors such as due dates, job priorities, machine capacity, and more.

Benefits

» Improved machine utilization
» Enhanced operational productivity
» More agile planning

Streamlining real-time data access across systems

Crafted a multi-year smarter factory roadmap for a global industrial enterprise, focusing on simplifying their data strategy across machines and applications by leveraging Unified Namespace (UNS) best practices.

Benefits

» Single source of truth
» Data standardization
» Real-time data accessibility

Advancing sustainability through energy management

Developed a solution to monitor the energy consumption of the production facilities of a leading dairy product manufacturer. The solution leveraged multiple accelerators to derive real-time insights for key energy monitoring KPIs.

Benefits

» Data-driven decision-making
» Reduced carbon emissions
» Reduced operational costs

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Caring + Nagarro + Partnership =
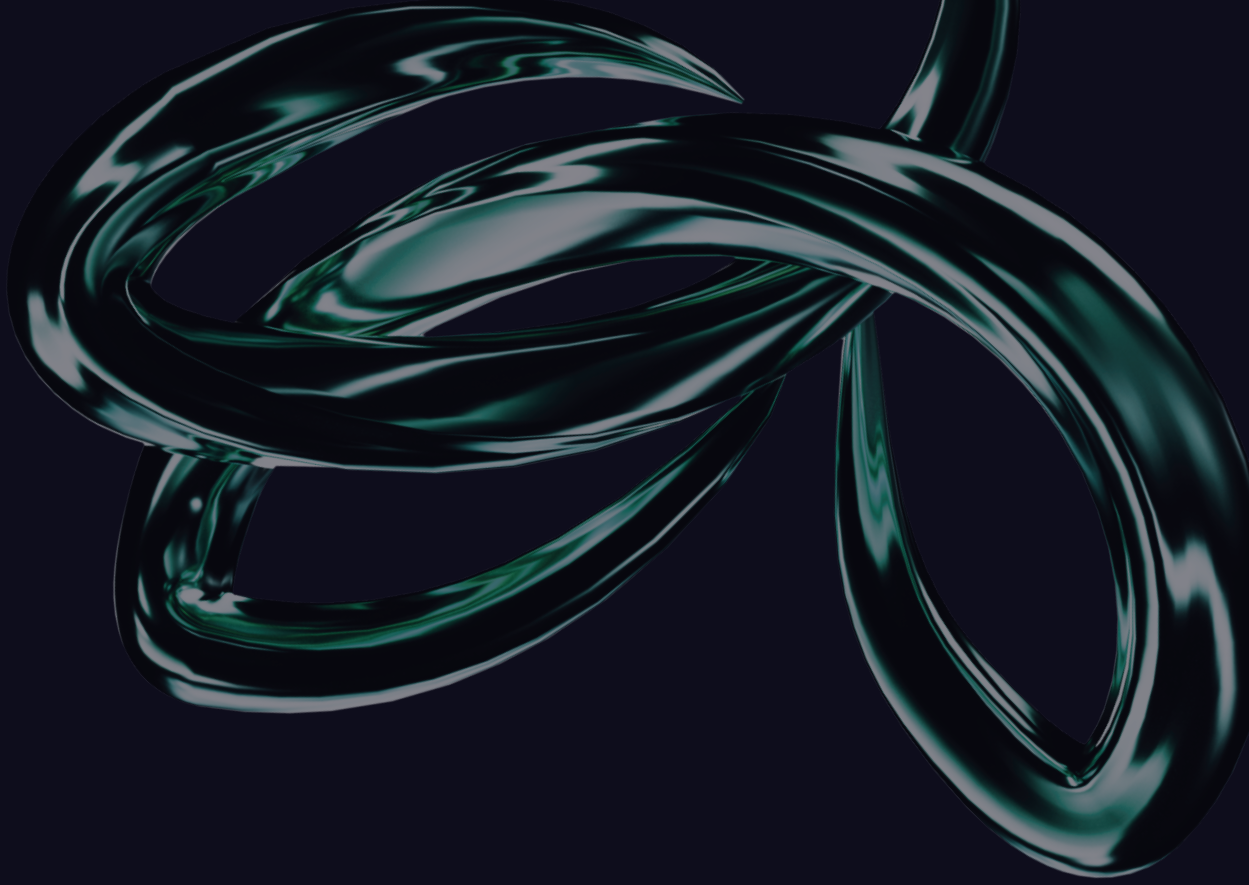
About Nagarro

Nagarro helps future-proof your business through a forward-thinking, fluidic, and CARING mindset. We excel at digital engineering and help our clients become human-centric, digital-first organizations, augmenting their ability to be responsive, efficient, intimate, creative, and sustainable.

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