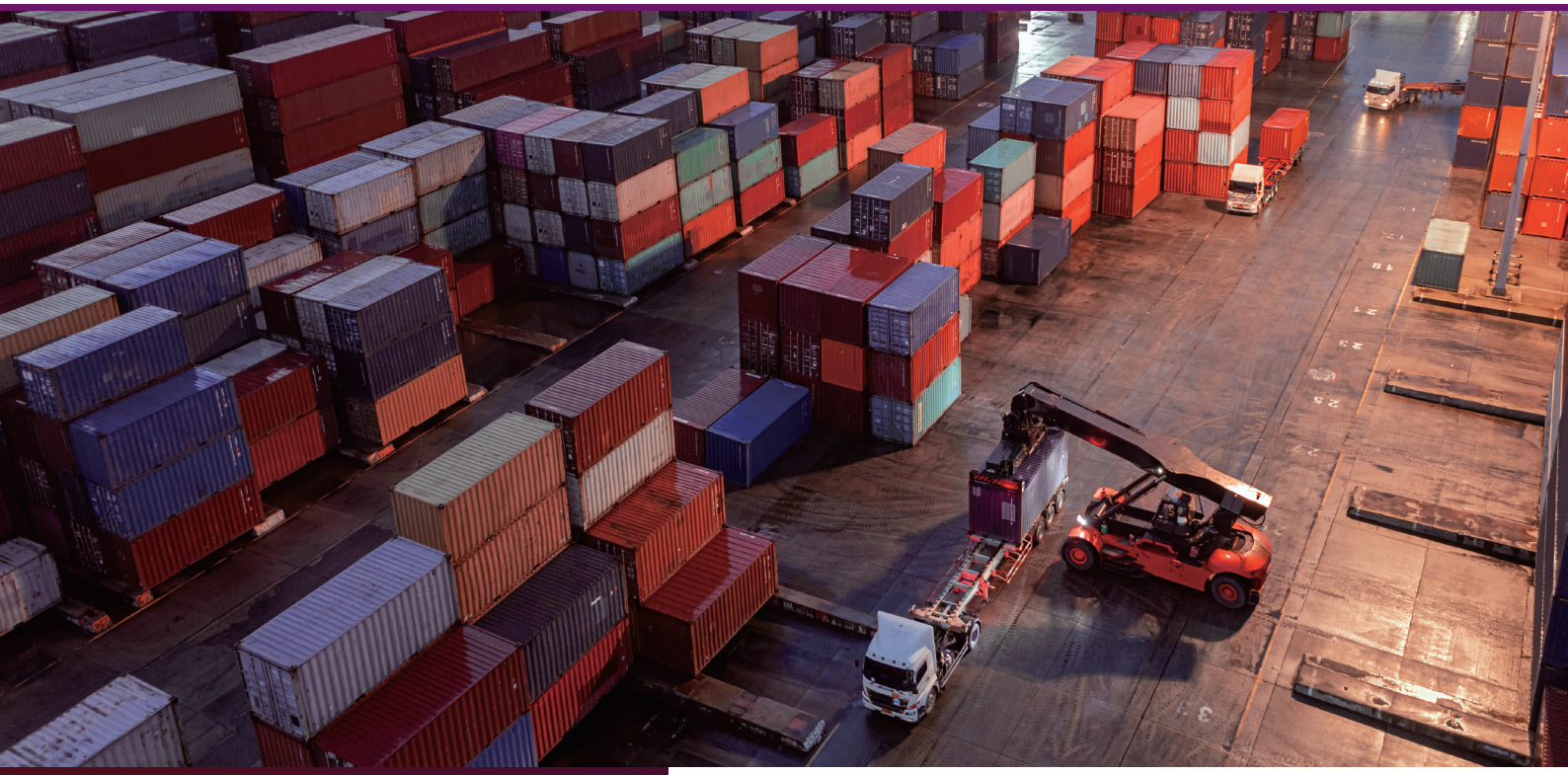
Lenovo Manufacturing Solutions

Smarter technology for all

Lenovo



Redefine Automation with AI

AI is redefining automation by breaking the limitations of traditional rule-based systems, turning rigid, repetitive processes into adaptive, collaborative workflows that can learn, reason and evolve collectively.

Built on manufacturing mastery, innovating at the heart of the future

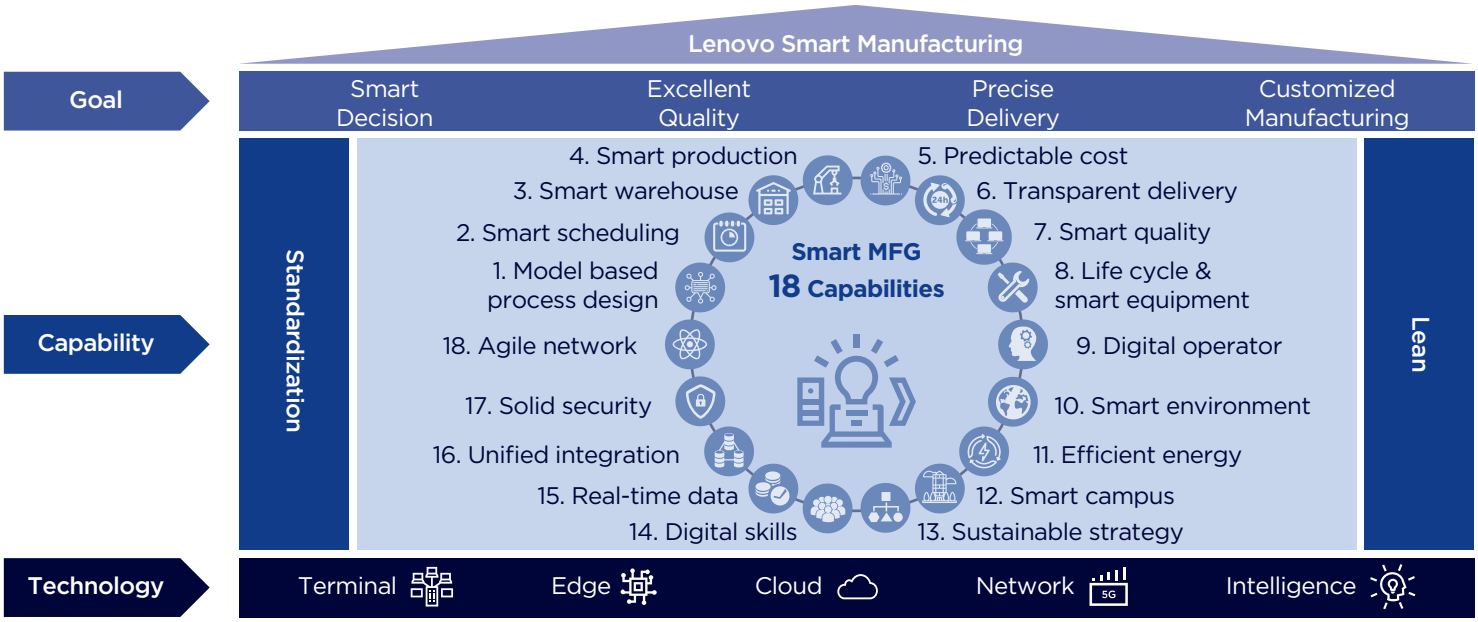
With decades of experiences as a global manufacturer, Lenovo brings proven expertise and innovation to guide the journey into **Industry 5.0**.

Ranked **No.8** in Gartner's Global Supply Chain Top 25, and exemplified by our Monterrey factory, part of the World Economic Forum Global Lighthouse Network, we fuse human creativity with AI-driven intelligence to transform production.

By uniting people and technology in seamless collaboration, Lenovo empowers manufacturers worldwide to build operations that are more responsible, sustainable, efficient, and resilient.

Lenovo

Lenovo Smart Manufacturing Capabilities



Our approach to help manufacturers comes in 4 stages

1 Ideation
Identifying the customer's vision, key strategy, and discover the current status and challenges;

2 Proposal
Providing a specific proposal with prioritization, project scope, and solution roadmap;

3 Implementation
Deploy the Proof of Concept together with the customer;

4 Scale and Manage
Roll-out the full-scale implementation with the results and learnings.

Engagement Workshops and Solutioning Overview

Week 1 Requirements Description & Site Visits	Week 2 Projects Review & Prioritization	Week 3 Roadmap and Solutioning	Week 8-10 POC and Impacts Validation	Week 10 onwards Scale up
• Business Context • Operational Pain Points • Industry 5.0 and • Sustainability Aspiration • Problem Statements • Workshop with Project Team	• Solutions Definition • Outline Use-cases • Use-cases and Projects Prioritization • Workshop with Project Team	• Engagement with Budget Pricing (ROI) and KPI Impacts • 1 x Outline Use-case Proof of Concept Proposal Submission • Digitalization Strategy Scoped	• POC Implementation	• POC Sign-off • Full Scale Implementation
Deliverables • Current State • KPI Identification	**Deliverables** • Future State • Business / KPI Impacts • Top 3 Use-Case	**Deliverables** • Proposal for 1 Use-Case	**Deliverables** • Pilot & Validate Use-Case • Validate KPI Impact – Productivity, Quality, etc • Validate ROI	**Deliverables** • Final Report • Presentation • Preparation of Full Scale Implementation
~ 8-24hrs (on-site)	~ 8-24hrs (on-site)	~ 2hrs (on-site)	~ TBD	~ TBD

Our Key Offerings:

AI powered Warehouse

Warehouse Execution System (WES)

A unified data and command gateway between the Warehouse Management System (WMS) and Warehouse Control System (WCS), providing a comprehensive overview of warehouse operations. It offers real-time reporting of errors and exceptions, ensuring uninterrupted operation. The WES has two distinct scenarios: first, as a flexible robotic process orchestration system in smart factories, and second, as a smart warehouse system in various warehousing businesses. This system enables the configuration and optimization of business workflows, allowing users to leverage their domain expertise while leaving operational details to the system.

Additionally, the WES offers holistic data dashboards and an integrated exception handling system. All exceptions from automation systems are efficiently managed within a single platform, preventing large-scale shutdown by isolating single point failures. The system seamlessly integrates with existing WMS/ERP/MES systems and employs advanced technologies and artificial intelligence algorithm. It also facilitates the easy configuration of maintenance procedures for different robots or automated equipment. By implementing the WES, businesses can expect to improve operational efficiency by more than 10% and significantly reduce efforts in robotics management.

More Information
WES Flyer

AI powered Warehouse

Automated Storage & Retrieval System (AS/RS)

Also known as 4-way pallet shuttles, this system is an innovative robot-based solution designed specifically for high bay warehouses. With the unique design, distributed control architecture, and intelligent AI-powered software, it automates the storage and retrieval of pallets, and represents the new generation of pallet shuttles. The accompanying software is tailored for large-scale robotics operations, enabling efficient scheduling, algorithm optimization, and seamless inbound and outbound pallet transfers without the need for user interference. This system can be customized to adapt to various warehouse layouts and can be easily adjusted to cater to high selectivity or high-density storage requirements.

By implementing this AS/RS system, businesses can significantly enhance inventory management with real-time visibility and dynamic response, resulting in an outstanding 200% increase in efficiency and a return on investment within three years. It optimizes inbound/outbound operations, cuts retrieval time by 40%, boosts space utilization by 45%, and integrates seamlessly with WMS/WCS.

More Information
AS/RS Brochure

Our Key Offerings:

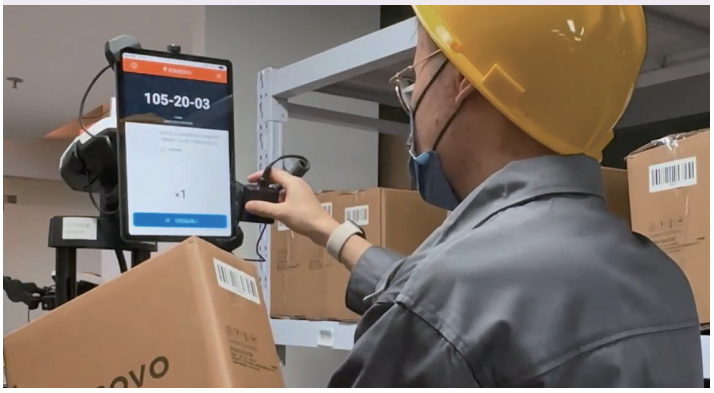
AI powered Warehouse

Pick Assist AMR

It utilizes the most advanced "order-to-person" collaborative mode, eliminating the need for manual route planning, warehouse redesign, or human intervention. When the order comes in, the robot intelligently plans its optimal path based on the order details. It then guides the nearby worker to place the goods onto the robot's carrier. Once the order is placed, the robot autonomously proceeds to the next pick-up point. The worker does not follow any single robot, but simply moves within a small area and cooperates with different robots.

This service offers maximum convenience to manufacturers as it's ready to use out-of-the-box. It provides significant cost advantages, saving 50%-80% on labor costs, with a return on investment within 10 months to 2 years. It offers unparalleled flexibility, allowing manufacturers to select the quantity and type of robots based on the dynamic business needs and facility size. You can even choose the service on a subscription, on-demand model. And with our value-added AI functions such as Smart Packing, Advanced Planning and Scheduling, and Optimal Material Assignment integrated into the service, the benefits can be maximized.

More Information
Pick Assist AMR Flyer



AI powered Warehouse

Automated Guided Forklift (AGF)

A solution designed to revolutionize intralogistics operations. With its comprehensive full-stack capabilities, the AGF is capable of seamlessly handling various scenarios and surpassing traditional core applications. From efficiently loading and unloading trucks to executing high-level put away and picking tasks, this innovative forklift empowers your warehouse's entire materials handling process. By leveraging advanced technologies such as autonomous driverless platform, 5G communication, AI, environmental perception, deep learning, and servo control, the AGF redefines the concept of industrial vehicles.

By delving into complex scenarios and facilitating superior human-machine collaboration, the AGF optimizes logistics efficiency, enhances space utilization, and generates significant value for our customers. Its autonomous operation enables unparalleled efficiency and productivity, particularly for repetitive tasks. Implementing the AGF in your intralogistics workflow can lead to a remarkable 30% increase in overall transfer efficiency, with a typical return on investment achieved within 1 to 3 years. In summary, the AGF's ability to enhance efficiency, reduce errors, and provide unmatched flexibility is transforming the management and movement of goods within your warehouse.

More Information
AGF Flyer

Our Key Offerings:

AI powered MFG Infrastructure

Lenovo Robotic Inspection

Lenovo Robotic Inspection is an AI-powered platform modernizing industrial inspections in high-risk environments. Integrating robotics, edge AI, and multi-modal sensing, it enables continuous monitoring and proactive operations with minimal human intervention. Its modular, scalable design supports diverse use cases like anomaly detection, predictive diagnostics, and workflow automation, while simulation-driven deployment cuts commissioning time and boosts safety, efficiency, and reliability across manufacturing and energy industries.

Key features include intelligent mobility for complex environments, workforce safety protection, IT/OT system integration, and AI-enabled multi-modal analytics. It delivers 15-month typical ROI, 70% improved operational efficiency, over 95% defect detection accuracy, and reduced human exposure to risks. Its differentiators include Lenovo's AI algorithms, full-terrain adaptation, and autonomous navigation, catering to global power and utility sector customers.

More Information
Robotic Inspection Flyer

Industrial Computer Vision

Lenovo Industrial Computer Vision

Lenovo Industrial Computer Vision – Tire Inspection is an AI-powered solution for tire surface defect detection. It uses high-definition cameras and few-shot lifelong learning to inspect all critical tire surfaces at production speed, reducing false positives/negatives and ensuring precise defect classification.

Key features include full-area dead-angle-free detection, high precision, standardized visualized results, defect tracing, and multi-specification adaptation. Its value propositions include few-shot unsupervised modeling, integrated edge training/inference, multi-technology integration, and advanced algorithms.

With proven ROI for tire manufacturers (1.5× production efficiency, 50% lower defect omission, 60% labor cost savings), it enhances quality standards, lowers costs, and enables flawless, compliant production.

More Information
Lenovo Industrial Computer Vision Flyer

Our Key Offerings:

AI powered MFG Infrastructure

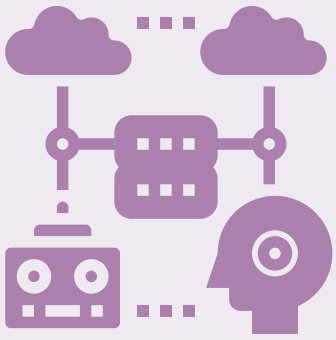
Supply Chain Intelligence (SCI)

A centralized hub that revolutionizes supply chain management. It serves as a nerve center, providing immediate visibility, coordination, and management across the entire supply chain ecosystem. By aggregating data from various sources and leveraging advanced technologies such as data analytics and artificial intelligence, it encapsulates the journey from data to insights to decisions and actions.

As one of the pioneering full-function Supply Chain control tower, it helps businesses with end-to-end transparency, enabling them to monitor key performance indicators, track inventory in real-time, and anticipate market demand. This heightened visibility allows for agile responses to market changes, reduce lead times, minimizes stockouts, and optimizes resources allocation. Moreover, this control tower facilitates collaboration by providing cross-functional teams with access to the same information, fostering synchronized actions and improved communication.

SCI has contributed to a 4.8% revenue increase and boosted on-time-in-full delivery performance by 5%. In fact, SCI has helped Lenovo to reduce manufacturing and logistics costs by around 20% while simultaneously boosting service levels in these areas.

More Information
- Supply Chain Intelligence
- Supply Chain Intelligence Case Study

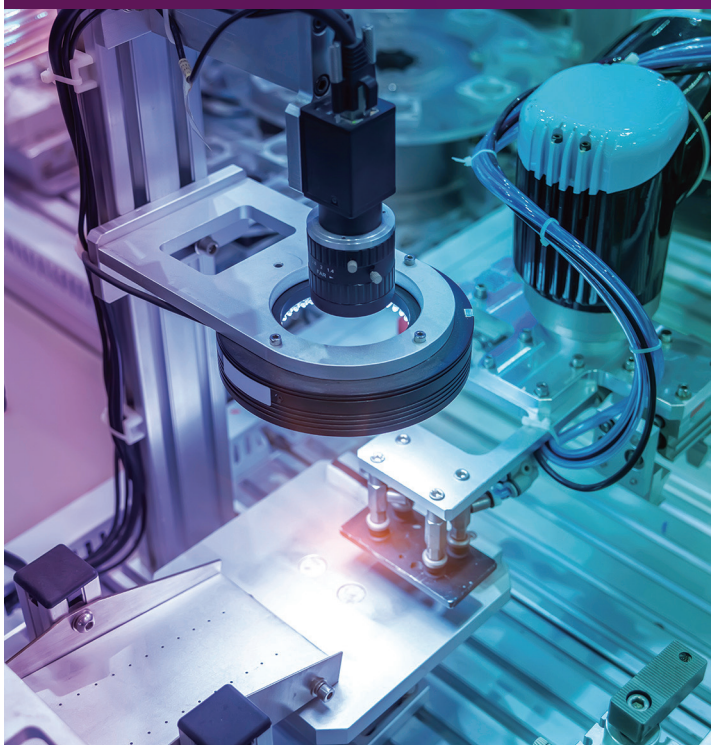


AI powered MFG Infrastructure

Lenovo Smart Energy Efficiency Solution

Lenovo Smart Energy Efficiency Solution is an end-to-end solution powered by IoT, AI and industrial control technologies, designed for smart buildings and manufacturing campuses. It addresses enterprises' pain points like inefficient energy data management and heavy manual O&M, with a four-tier closed-loop architecture to enable refined energy control, intelligent optimization and centralized monitoring.

Key features include AI-augmented energy management auto-pilot, centralized multi-terminal monitoring, knowledgebase-enabled O&M, and multi-scenario adaptation. It delivers 13~50% energy consumption reduction, over 20% energy cost cut, 2~3.5 years average ROI, 30% lower operation workload and 90% equipment failure rate, supporting ESG compliance.



Lenovo's global strength

180
Markets

10M+
Order lines per year

1B+
Global customers

120M+
Shipments

30+
Global manufacturing sites

2000+
Suppliers

>$160M
Digital transformation investment

18
R&D locations worldwide

69.5K
People

Lenovo ranks 5th in the Gartner® Supply Chain Top 25 for 2026 report

World Economic Forum's Global Lighthouse Network

TITAN Business Awards

BIG Awards for Business - Product of the Year

GOLD GLOBEE® AWARDS

Reinvent efficiency with AI-driven intelligence and lighten operational loads — Lenovo powers your manufacturing leap.

Contact us today to discover how Lenovo Manufacturing Solutions can bring the future of manufacturing to you.
Learn more on: https://www.lenovo.com/manufacturing

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Smarter technology for all

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