

Becoming an AI-Powered Manufacturing Organization:

How Hybrid AI Platform Solutions Help Manufacturers Overcome Roadblocks, Driving Faster, Easier Access to AI Benefits



Jeff Hojlo
Research Vice President, Manufacturing Insights, Industry Ecosystems, and Business Networks, IDC



Leslie Rosenberg
Research Vice President, Network Life-Cycle Services and Infrastructure Services, IDC



What manufacturers need, according to IDC’s data:

Strategic priorities	Use cases
Digital supply chain	Capabilities-based procurement
	Extended planning
	Logistics automation
Smart manufacturing	Strategic asset management
	Resilient lean
	Quality
Omni-experience customer engagement	Advanced channel engagement
	Connected services
	Responsive experience
Product as a platform	Product innovation platform
	Product line engineering
	Life-cycle analytics

What is the primary issue holding your organization back from pivoting to AI more quickly?

Infrastructure issues		25%
Too many digital transformation initiatives		23%
Need to modernize first		22%
Not the right talent		14%

n = 142; Source: IDC’s MaturityScape Benchmark AI Survey, February 2025

Roadblocks to AI in manufacturing:

- Organizational inertia
- Disconnected data with no unified foundation
- Lack of a governance strategy and platform
- Security and compliance concerns
- Legacy systems and technology
- Limited AI knowledge and experience
- Talent gaps

AI use case opportunities in manufacturing:

“AI initiatives in manufacturing are enabled through hybrid AI — a mix of on-premises and cloud computing.”

What is a hybrid AI platform?

A hybrid AI platform is a complete solution encompassing hardware, software, and services

for unified AI strategies across edge, datacenter, on-premises, and cloud, supporting a range of AI models/agents and enabling the transition from general-purpose to accelerated computing for AI.

Three key initiatives that a hybrid AI platform will optimize:

- Enterprise quality
- Supply chain
- Ecosystem collaboration

Enterprise quality:

The focus on quality in manufacturing is multi-faceted and cross-organizational, requiring a hybrid AI approach.

- True enterprise quality management incorporates product, asset, process, and customer experience quality: disparate sets of data that complement and inform decision-making.

What are the top 5 primary causes of product quality issues for your organization?

- 1 Lack of necessary workforce skills
- 2 Product installation/integration
- 3 Production process issues
- 4 Incorrect/poorly communicated requirements
- 5 Product assembly errors

Supply chain:

A cloud-to-edge, hybrid AI-powered architecture enables a resilient supply chain. A top priority is modernizing supply chain infrastructure.

- The goal is to improve visibility and next best decision, as well as reduce risk through better predictability within an organization and across an ecosystem.

What are the top 3 priorities for your supply chain over the next 12 months and in the next three years?

1. Reduce costs/eliminate waste/drive efficiency.
2. Continue to modernize/update supply chain infrastructure.
3. Improve product compliance, quality, and safety.

Ecosystem collaboration:

Hybrid AI infrastructure must be secure to empower the manufacturing industry ecosystem.

- AI-powered cybersecurity ensures there will be a trusted manufacturing digital thread with the most up-to-date information, enabling faster response to customer demand and engineering change.

What are the three most important areas of risk to mitigate in your industry ecosystems?

1. Supply chain execution and logistics
2. Partner/participant performance
3. Product/service quality issues

Providing a path to AI maturity in manufacturing — enterprise to edge, on-premises to cloud:

- Discrete and process manufacturers are still in the experimentation phase with GenAI and agentic AI, trying to determine the optimal approach while getting their organization ready.
- Manufacturers must ensure they can quickly start and scale their AI use cases as their business needs evolve in the typical hybrid-cloud manufacturing environment.



Message from the sponsor

Simplify deployment of AI use cases and AI agents with the power of full-stack Lenovo Hybrid AI factories optimized for reliability with NVIDIA — increasing productivity, agility and trust in the new era of agentic AI.

To learn more, visit www.lenovo.com/hybridai.