

eBRIEF

THE GREAT MANUFACTURING DIVIDE: COMPANIES WITH SMART INFRASTRUCTURE WILL DOMINATE, OTHERS WILL *DISAPPEAR*

PROBLEM

Manufacturers today are operating in survival mode. Supply chains remain unpredictable, with 61% of leaders citing it as a serious challenge.¹ At the same time, costs keep rising and the workforce shortage is intensifying. Nearly two-thirds of leaders say attracting talent is their top issue, with as many as 1.9 million manufacturing jobs projected to go unfilled by 2033.² Retention is proving just as disruptive. In fact, 80% of executives say turnover has already interrupted production.

61%

Leaders citing supply chain as serious challenge.

67%

Leaders say attracting top talent is their top issue.

1.9M

The number of manufacturing jobs projected to go unfilled by 2033.

Rising energy and material costs are squeezing margins further, making efficiency gains critical to staying profitable. And as factories become more connected, cybersecurity is an increasingly urgent risk, exposing vulnerabilities in systems that weren't built for today's threat environment.

In response, manufacturers often reach for quick fixes, layering on new applications, contracting extra staff, or building bolt-on processes. But these patches only mask the problem. When core systems are locked down by outdated infrastructure, every fix becomes another bottleneck that compounds the very problems it was meant to solve.

The Shift to AI Infrastructure is Underway

The leaders that are breaking this cycle are rethinking infrastructure from the ground up, making AI a core part of how factories operate. Here's how that's showing up:

→ **Adaptive operations:** Volatility is now the rule, not the exception. A single disruption (a late shipment, a sudden demand spike, or a machine running out of spec) can ripple across an entire factory. AI-ready infrastructure gives manufacturers the ability to sense these shifts and adjust in real time, keeping production steady and avoiding the costly slowdowns that rigid systems can't absorb.

→ **Predictive maintenance and quality:** Unplanned downtime is systemic. The average manufacturer confronts more than 800 hours of equipment downtime per year - and across the industry, the financial toll hits \$50 billion annually.⁴ With intelligence built into the infrastructure, equipment issues and quality slips are flagged before they snowball into lost hours. Predictive automation can cut downtime by up to 4.8 hours per server per year.⁵ Scaled across a large server fleet, that savings compounds quickly, reducing costly interruptions and stabilizing production.

→ **Scalability without sprawl:** Growth can't rely on endlessly adding servers or people. Modern infrastructure gives manufacturers the headroom to expand without the overhead - consolidating workloads, automating routine management, and supporting new applications. That means more capacity and agility without the runaway costs, complexity, and footprint that come with piecemeal expansion.

→ **Sustainability as a financial lever:** Energy is one of manufacturing's largest expenses. New infrastructure generations have demonstrated the ability to consolidate dozens of legacy systems into one while cutting power use by more than 80%.⁶

→ **Edge and HPC integration:** Modern manufacturing runs on speed, and every delay in insight risks wasted output or missed deadlines. In response, nearly a third of manufacturers are turning to digital twin strategies,⁷ creating virtual models of their operations to test and refine processes in real time. These models rely on AI and high-performance computing to crunch sensor data instantly. By moving compute power closer to where data is generated, factories can act on insights the moment they appear, turning potential delays into immediate action.

The Business Impact of AI-Powered Infrastructure

When manufacturers modernize their infrastructure, it impacts daily operations, the bottom line, and the business's resilience when conditions shift. Here's where the difference is most visible:

✓ Reliability that protects revenue:

Manufacturers that scale AI across operations reported improvements in process optimization and control of up to 41%,⁸ gains that help safeguard output, customer commitments, and ultimately revenue.

✓ Quality that earns customer trust:

Consistent quality builds confidence. By giving manufacturers 51% better visibility and responsiveness across operations,⁹ AI makes it easier to catch defects early, cut waste, and deliver products customers can rely on.

✓ **Lower operating costs, higher strategic spend:** Smarter infrastructure consolidates workloads and reduces energy demand, trimming overhead. Nearly three-quarters of manufacturers report cost reductions and improved efficiency after deploying AI.¹⁰ Those savings can be reinvested in automation, workforce training, or new product development.

✓ **Improved ESG reporting:** With automated data collection on energy use, emissions, and waste, manufacturers gain clearer visibility into their environmental impact. This not only reduces the reporting burden, but also gives leaders the insights needed to hit sustainability targets and demonstrate accountability to investors and regulators.

✓ **Strengthened supply chain collaboration:** AI-ready systems can securely share real-time insights with suppliers and distributors, making it easier to balance inventory, forecast demand, and prevent bottlenecks before they ripple downstream. Collaboration at this level helps stabilize the full value chain beyond the factory floor.

✓ **Built-in resilience to disruption:**

AI-enabled infrastructure strengthens continuity across the enterprise by anticipating failures before they happen. Predictive maintenance can reduce unplanned downtime by up to 45%,¹¹ keeping production stable. That stability helps absorb shocks without breaking customer commitments or revenue flow.

✓ **Faster innovation cycles:**

High-performance computing and AI shorten design iterations and time-to-market. Engineers can simulate new designs virtually, test them against production realities, and move from concept to rollout in a fraction of the time it once took.

✓ **A competitive edge in volatile markets:**

In an environment where reliability and speed win business, AI-ready infrastructure enables you to respond faster and deliver more consistently than competitors. It's why 94% of organizations view AI as an opportunity rather than a threat,¹² - and why early adopters are positioned to win more bids, keep customers, and outpace the market.

The Road Ahead for AI in Manufacturing



40%

lift in productivity by 2035

The global AI in manufacturing market is projected to surge to \$68 billion by 2032.¹³ By 2035, those investments are expected to deliver a 40% or greater lift in productivity,¹⁴ a gain that could fundamentally strengthen operational performance and market position in an industry where slim margins and rising costs are daily realities.

What's coming goes far beyond adding smarter tools to the mix. Production is moving away from fixed, linear systems toward intelligent networks that sense, predict, and adapt in real time. High-performance computing is becoming part of daily production planning. Edge AI is embedding decision-making at the machine level, shrinking the gap between data and action. And new simulation capabilities are allowing manufacturers to test and refine processes virtually before a single unit hits the line, reducing risk and accelerating improvement.

Looking ahead, the debate is no longer about “if” AI belongs in manufacturing, but about how fast leaders can scale it across their operations.

How ProCern Technology Solutions + Hewlett Packard Enterprise ProLiant Compute Gen12 Help

Manufacturers don't need another layer of technology adding to the complexity. They need infrastructure that works smarter from the ground up. Hewlett Packard Enterprise (HPE) ProLiant Compute Gen12 was built with AI in mind, giving manufacturers the ability to cut downtime, reduce sprawl, improve energy efficiency, and strengthen security while handling demanding workloads, adapting as conditions shift, and keeping operations protected.

With decades of experience driving digital transformation, HPE helps manufacturers modernize production with edge-to-cloud infrastructure, predictive analytics, and security built for connected factories. Its digital solutions continue to deliver measurable results worldwide—from lowering costs and improving product quality to accelerating time-to-market and strengthening supply chains. ProCern Technology Solutions puts that value into practice, designing and deploying the right configuration and providing ongoing support to keep operations running smoothly.

Together, the two turn AI from an experiment into a reliable part of your daily production, helping your manufacturing business run more efficiently today while positioning it for the next wave of innovation.

REFERENCES

- ¹ <https://tinyurl.com/3n9ehfj4>
- ² <https://tinyurl.com/mrys2dfm>
- ³ <https://tinyurl.com/2wpuzmyx>
- ⁴ <https://tinyurl.com/2fjtxehj>
- ⁵ <https://tinyurl.com/nknxzyn2>

- ⁶ <https://tinyurl.com/ytquryc6>
- ⁷ <https://tinyurl.com/22j7mc9m>
- ^{8,9,10} <https://tinyurl.com/y8yf3xu4>
- ^{11,12} <https://tinyurl.com/46dvhbjy>
- ¹³ <https://tinyurl.com/yzcu6tc9>
- ¹⁴ <https://tinyurl.com/vncen8x6>

