



HEXAWARE

Agentic AI in Manufacturing: Unlocking 45 FTEs of Capacity on the Factory Floor

How a global semiconductor manufacturer cut
MTTR by 90% and freed 30–40% of engineering
time with agentic AI in manufacturing

Case study

Client

| Client

Challenge

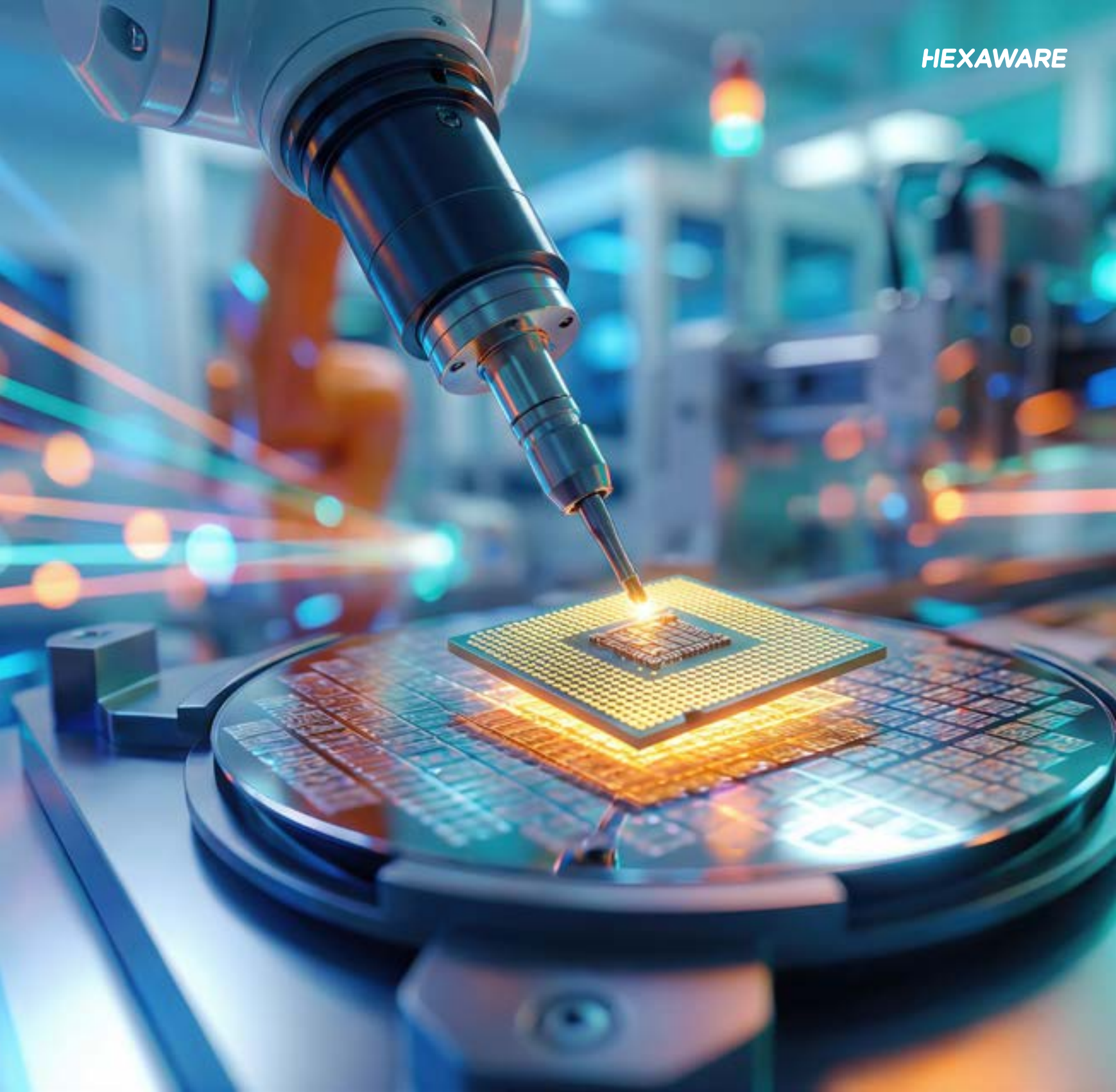
Solution

Benefits

Summary

A Global Leader in Semiconductor Manufacturing

A global semiconductor manufacturer operating a network of high-precision fabrication facilities. Its operations span the complete wafer-to-finished-product lifecycle, including deposition, photolithography, etching, CMP, metrology, and final test. With hundreds of floor engineers supporting 24/7 production across multiple sites, the enterprise operates in one of the most capital-intensive and downtime-sensitive industries in the world, where every minute of unplanned equipment stoppage translates directly into significant revenue loss and missed delivery commitments.



Challenge

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Manual Interventions Eroding Capacity, Uptime, and Margin

Across the shop floor, three of ten manufacturing steps accounted for 58% of all downtime—translating into \$7.2M of a total \$12.5M in lost annual revenue. Photolithography alone accounted for \$3.1M in yearly losses, followed by deposition/sputtering at \$2.2M and etching at \$1.9M. Behind every tool stoppage was the same story: a manual, undocumented triage process repeated from scratch every single time. Floor engineers were consumed by ticket-chasing rather than process improvement. Average response times ranged from 15 to 40 minutes, and MTTR stretched to 4 to 6 hours per incident—a clear signal that traditional industrial automation solutions were no longer sufficient.

The enterprise needed to:

- Eliminate the manual, repetitive triage bleeding capacity from the floor
- Compress MTTR and increase equipment uptime at scale
- Redeploy engineering talent from reactive firefighting to innovation
- Standardize AI-driven operations across every site without re-engineering per factory



Solution

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An Agentic AI realtime Command Center – Business and IT, Transformed Together

Hexaware partnered with the client to design and deploy an AI realtime Command Center that upgrades the shop floor and IT operations in a single, unified investment—accelerating the client’s broader digital manufacturing transformation. The solution pairs on-site AI agents for manufacturing running directly on equipment with an enterprise multi-agent AI platform that orchestrates end-to-end resolution across MES, ERP, SCADA/Historian, and ITSM systems via SECS/GEM, OPC UA, REST, and MQTT integrations.

On the floor, edge AI agents powered by small language models resolve urgent, time-critical issues in under 0.2 seconds—no cloud round-trip, no waiting. On the platform, every agent (Intake, Triage, Orchestrator, Knowledge,

Resolution, Feedback) executes in under 0.05 seconds. No agent waits more than 1 second—by design. The result is a new class of shop floor automation that behaves less like static tooling and more like a self-optimizing operating system for the fab.

To make adoption stick, Hexaware introduced a Business Value Framework built around a weighted scoring model (35% business value, 25% technical feasibility, 20% implementation risk, 20% time to value). Site leaders, IT, and floor operations co-scored every use case together, mapping 100 candidates into Quick Wins, Strategic Bets, Fill-Ins, and Deprioritize tiers—turning AI in industrial automation into organizational momentum rather than a spreadsheet exercise. The architecture keeps working offline, costs don’t grow with usage, and every site runs the same design without re-tuning.



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Measurable Value Across Uptime, Capacity, and ROI

- 90% reduction in MTTR — from 4–6 hours to under 20 minutes
- 40% improvement in Mean Time to Failure — from 1.0x to 1.4x
- 92% faster average response time — from 15–40 minutes to under 2 minutes
- 30–40% of engineering capacity returned on both the business (floor) and IT sides
- 45 FTE-equivalent of capacity unlocked every year — 150 floor engineers redeployed from ticket-chasing to process improvement, representing 35% of total floor capacity
- 10x ticket throughput with the same headcount
- 100% of agent actions logged and attested, ensuring governance and auditability
- 10:1–30:1 ROI within 12–18 months

Together, these outcomes represent a step-change in operational efficiency in manufacturing—proof that agentic systems can deliver hard, auditable value at fab-scale.



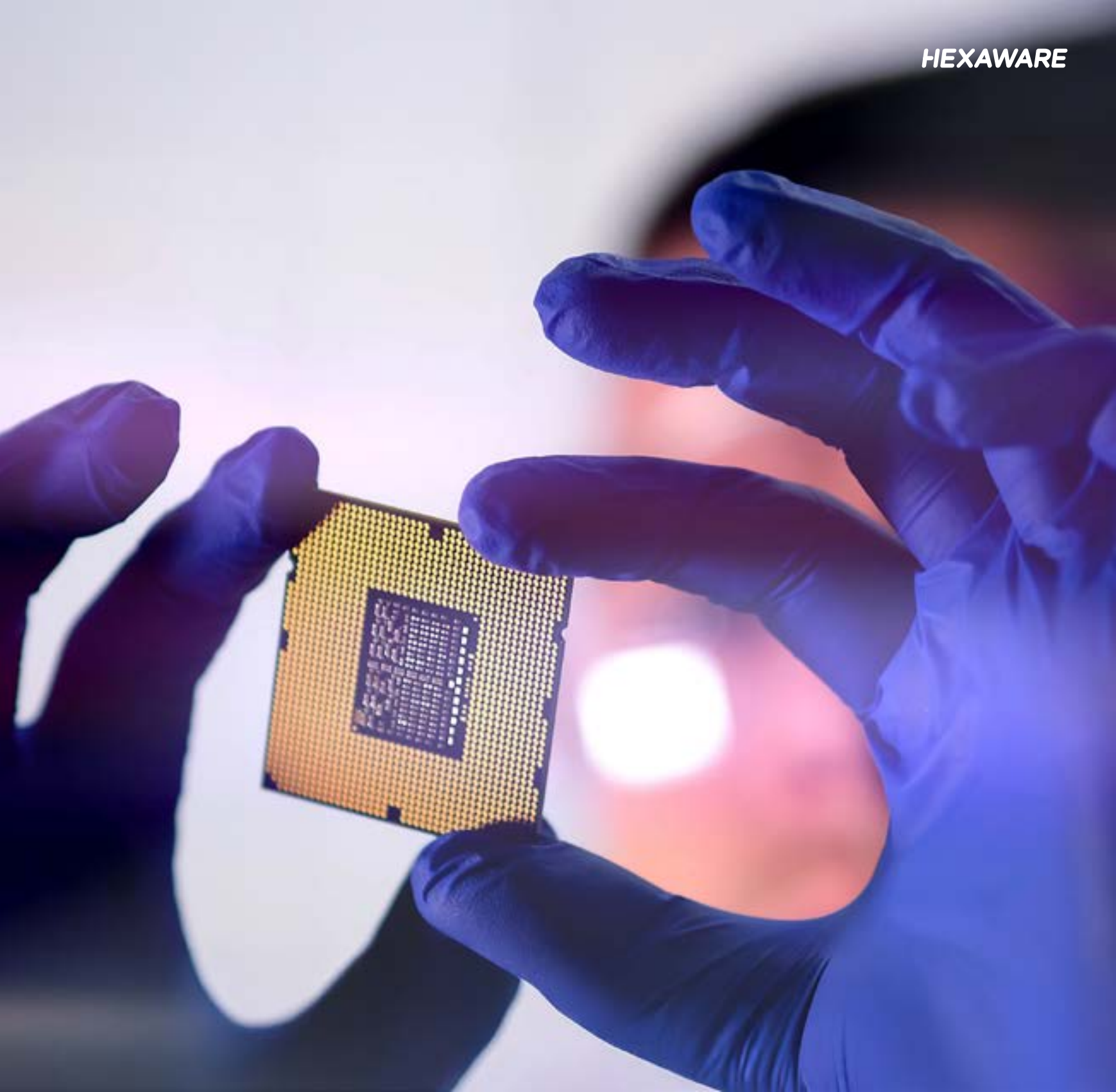
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From Manual Triage to Agentic Operations

By replacing manual, undocumented triage with an always-on agentic realtime AI Command Center, the enterprise transformed how its factories run and how its IT operations respond. Engineers now spend their time on innovation and process improvement instead of ticket-chasing, while equipment stays online longer and issues are resolved in minutes rather than hours. With a standardized architecture that scales across every site—online or offline—the organization is positioned to compound its gains as new use cases move from the roadmap to the floor, turning its investment in agentic AI in manufacturing into sustained operational advantage.



Let's Talk About Your Transformation

Hexaware drives digital transformation with agentic AI. Reach out to us at marketing@hexaware.com to start the conversation.

About Hexaware

Hexaware is a global technology and business process services company. Every day, Hexawarians wake up with a singular purpose: to create smiles through great people and technology. With this purpose gaining momentum, we are well on our way to realizing our vision of being the most loved digital transformation partner in the world. We also seek to protect the planet and build a better tomorrow for our customers, employees, partners, investors, and the communities in which we operate.

With offices across the world, we empower enterprises to realize digital transformation at scale and speed by partnering with them to build, transform, run, and optimize their technology and business processes.

Learn more about Hexaware at <https://www.hexaware.com>.

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