

The Evolution of AI in Supply Chain Management

From Automation to Orchestration: Why AI Alone Isn't Enough

If you were to listen to the hype, Artificial Intelligence began with Chat GPT and is the greatest thing to come from Silicon Valley since Steve Jobs' turtleneck. AI isn't new to supply chains. It's been at the heart of GAINS for years, however how we apply it — and what we have come to expect from it — has evolved dramatically.

AI has evolved from automating narrow tasks to shaping end-to-end decisions; as a result, it's

matured into a powerful tool for boosting supply chain agility, resilience, and growth. Yet much of today's conversation is still stuck in the hype cycle. AI is a tool, with a place in your supply chain toolbox; however, on its own, it solves nothing. AI needs structure, context, data, and human insight to make a difference; without that, it's just another black box. GenAI grabs headlines. Buzzwords dominate slide decks. Meanwhile, supply chain leaders are left asking:

How can AI help us make better, faster decisions that drive real-world results?

Here's the truth: **AI is just a tool, not a strategy.**

"AI alone isn't the answer. Without structure, it's just noise. But with the right framework, it becomes a force multiplier—helping businesses respond, adapt, and thrive through any disruption."

— Jeff Metersky, VP of Solutions, GAINS

That's where **GAINS and Decision Engineering & Orchestration (DEO)** come in. DEO brings AI into a structured decision-making framework — one that prioritizes business outcomes over theoretical possibilities. GAINS embeds machine learning, simulation, and optimization into a unified platform that doesn't just predict the future — it helps you engineer it. Whether you're rerouting shipments in response to a port disruption, optimizing inventory across channels, or designing a more resilient network, GAINS turns AI into action.

This isn't about automation. It's about the orchestration of data, decisions, and results.

Let's cut through the hype and walk through how AI has evolved — and take a closer look at how the GAINS DEO platform, with its embedded AI, moves beyond the buzz—and into designing better, smarter supply chain performance.

A Brief Timeline of AI in Supply Chain

1 The Automation Era: Rules-Based Efficiency

In the early 2000s, AI in supply chains meant rules-based automation:

“If demand goes up, reorder. If inventory drops below the threshold, replenish.” **It worked—until it didn’t.**

Rules-based systems are brittle. They break down when conditions shift. During this era, AI was about efficiency. Good for predictable tasks, but not built for volatility or variability.

2 The Optimization Era: Better Math, Bigger Problems

As supply chains got more complex and data-rich, AI matured into optimization.

Machine learning could forecast demand, detect anomalies, and recommend smarter plans.

Forecasts got sharper. But insight often stalled.

The challenge? Insight without action. AI operating in silos—disconnected from strategy and execution. Local optimizations didn’t translate into enterprise-wide value.

3 The DEO Era: Decision-First, Not Technology-First

Smarter models aren’t enough. What matters is smarter decisions. **If your AI can’t drive decisions, it’s not strategy. It’s just expensive hype.** That’s why GAINS developed **DEO**, a new reference model that focuses not on perfect data, but on structured, outcome-driven decision-making. We’re seeing the emergence of **Agentic AI**—technology that doesn’t just wait for instructions, but actively helps orchestrate decisions across your business. But without the right framework, even the smartest AI can be counterproductive. That’s why DEO is the new reference model for AI in the supply chain.



How does DEO work?

A Solid Foundation for Smarter, Stronger Supply Chains

DEO doesn't exist in a vacuum. It stands on a foundation that's been decades in the making—shaped by real supply chain challenges, tested through rigorous modeling, and refined by millions of decisions across industries. GAINS hasn't chased the latest trend. **We have built DEO on proven best practices, deep operational research, and hard-won experience from the field.**

Our platform is informed by advanced data science, yes—but it's also **grounded in what actually works**: tested frameworks, repeatable results, and the wisdom that only comes from operating alongside professionals in the complexity of real-world operations. That foundation is what

gives DEO its strength—and its flexibility. It allows our customers to adapt quickly without collapsing under the weight of disruption. It's what gives our models the fidelity to reflect your business, not some fictional ideal of supply chains.

GAINS helps companies respond to uncertainty with clarity and confidence, not guesswork. In a world that's always changing, you can't afford to build your future on shaky ground. DEO gives you something better: a rock-solid base for smarter decisions, faster responses, and more resilient outcomes.

DEO is built using the 7 Principles of Decision Engineering

Define decision outcomes

Anchor every decision to a business objective.

1

Design backward from value

Start with the goal, then structure data and models to get there.

2

Decouple data from action

Don't let missing data stall progress. Move with what's available.

3

Enable adaptive trade-offs

Dynamically balance cost, service, and risk.

4

Orchestrate across time horizons

Align strategic, tactical, and operational decisions.

5

Make decisions traceable and transparent

So they can be explained, audited, and improved.

6

Drive continuous improvement

Every decision is a feedback loop.

7

The Future Belongs to the Decision Engineers



From Forecasting to Decision-Making: DEO and Agentic AI

Think of **Agentic AI** as the leap from a GPS plugged into your car dashboard to a Digital Navigator/Co-pilot that automatically changes course based on 25 years of historical traffic patterns, real-time satellite data, speed trap locations, and the availability of your favorite road snack.

Agentic AI doesn't wait to be told what to do; it evaluates, recommends, and acts. **DEO ensures agents are aligned with your business goals**, not just running wild with optimization.

DEO: AI That Plays Well with Others

Today's supply chains aren't monolithic. They're built on a patchwork of platforms, spreadsheets, ERPs, and legacy tools. You don't need to rip them out. You need composable, decision-oriented systems that adapt to how you work.

GAINS DEO is plug-and-play. It integrates with SAP, Oracle, Excel, and more.

It works with your tech stack, not against it. And it ensures every intelligent agent, model, and plan serves a coordinated decision strategy.

GAINS Isn't Following the Future of AI — We're Building It

With DEO, AI isn't bolted on. It's **embedded in our decision logic**. DEO simulates trade-offs, aligns priorities, and helps human planners to act with clarity. By embedding Agentic AI into our DEO framework, we ensure AI doesn't just support supply chain planners; it orchestrates smarter decisions, continuously and contextually, across the real-world complexity of how modern supply chains operate.



- Predict lead time shifts
- Recommend inventory transfers
- Trigger replenishment changes
- Prioritize decisions based on risk and impact
- Seeing disruptions before they hit
- Simulating trade-offs across scenarios
- Aligning actions across teams and time horizons
- Improving continuously



Our customers aren't experimenting with AI, they're executing:

GAINS is helping leaders from all industries to optimize their supply networks to improve service and efficiency while maintaining balanced inventory and improving margins.

60%+ Improvement in Lead Time Accuracy

GAINS' AI-powered forecasting tools improved lead time accuracy by more than 60% for a global distributor — turning uncertainty into planning confidence.

\$10M Reduction in Excess Inventory

A leading industrial supplier used GAINS to identify surplus and optimize inventory across its network, unlocking over \$10 million in working capital.

99%+ Service Levels Achieved

A consumer goods company leveraged GAINS to balance cost and service, achieving over 99% fill rates without inflating inventory levels.

<90 Days to Measurable ROI

Many GAINS customers begin seeing measurable results — such as improved forecast accuracy and inventory optimization — within just 90 days of deployment.

25% Fewer Stockouts

A GAINS-powered service parts planner reduced stockouts by 25%, enabling faster response times and more reliable operations.



Finding Success in Your Supply Chain

You don't need an army of data scientists or a shiny new tech stack to build a resilient, high-performing supply chain. What you need is a unified decision framework—one where AI doesn't replace human expertise but amplifies it. With GAINS DEO, every decision becomes smarter, faster, and more aligned with the outcomes that matter most.

Because at the end of the day, it's not about adopting AI—it's about engineering better decisions. Stop chasing supply chain trends. Let's build the future of your business together, move forward faster, and engineer what's next, decision by decision.

Talk to a GAINS Expert

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