GAINS
MOVE FORWARD FASTER

Whitepaper

Engineering What's Next

Decision Orchestration in Action – Design, Adapt, Repeat

Why Supply Chain Decision-Making Needs a Reboot

For decades, supply chain design was treated as a one-time strategic event — plan the network, build the model, and then execute (rinse and repeat as needed). But volatility and uncertainty have shattered that old model. Continuous disruption, rising customer expectations, and growing complexity require companies to stop separating "design" from "planning" — because every supply chain decision, whether strategic or tactical, creates ripple effects across the entire business.

You can't isolate a warehouse decision without considering the service level impact. You can't optimize lead times without evaluating supplier risk. You can't scale customer promises without aligning capacity, capital, labor, and inventory.

In short: Every decision is a design decision, and every decision is a planning decision. And no decision can be made in isolation.

That's why GAINS developed our Decision Engineering & Orchestration solution (DEO). Instead of optimizing disconnected silos, DEO helps companies engineer better decisions — across strategy, planning, execution and time horizons continuously balancing trade-offs as decisions need to be made.

In the real world, there's no such thing as an inventory only decision, a transportation only decision, or a procurement only decision — there are only supply chain decisions, each with ripple effects across the business.

That's exactly why we developed GAINS DEO.

Supply chain decisions impact the entire business.

- **Finance:** Capital investment, inventory working capital, transportation costs, and margin pressure.
- **Sales & Customer Service:** Promise dates, availability, speed to customer, and service levels.
- **Procurement & Sourcing:** Supplier lead times, geopolitical risk, and sourcing strategy.
- **Manufacturing & Operations:** Capacity utilization, labor efficiency, and production sequencing.
- **IT & Digital:** System integration, data readiness, and technology agility.

Network Design is no longer simply about **where** to place distribution centers or **how much** inventory to hold — it's about orchestrating decisions to balance cost, risk, service, and growth across the entire enterprise.

This is why GAINS DEO takes a decision-first, cross-functional approach.

Supply Chain Network Design isn't an event. It's the continual orchestration of trade-offs touching every corner of the business — and it requires full organizational alignment to succeed.

By unifying strategic (design), tactical (planning), and execution (operational) into a connected DEO framework, businesses can break down the artificial walls that have been placed between departments, and align stakeholders around a set of shared objectives, to make decisions that serve both today's realities (tactical) and tomorrow's growth (strategic).

Static spreadsheets and siloed tools can no longer support the strategic agility supply chain leaders need.

Using a composable architecture and **GAINS AI-driven DEO**, supply chain leaders can transform network design from a rigid blueprint into a flexible, iterative, and intelligent decision environment built for an uncertain future.

The companies thriving in today's volatile, uncertain world are the ones that stop treating their supply chain as a function of a single department and start treating it as a core business discipline.

With DEO, your "supply chain" is an always-on, enterprise-wide discipline.

Here's how GAINS helps unify decision-making

Decision Horizon	Key Questions	DEO in Action
Strategic Design	Where should we invest? How do we strike a balance between capacity, cost, and growth?	Scenario simulations with AI-powered optimization evaluate capital investments, DC placement, supplier mix, and long-range risk exposure.
Tactical Planning	What inventory policies drive margin and service? How should we segment customers?	Continuous MEIO, augmented by AI, dynamically adjusts stocking policies, lead times, reorder points, and customer segmentation as conditions shift.
Operational Execution	What orders do we place today? How do we respond to disruptions?	Embedded AI agents monitor real-time data, detect anomalies, and recommend proactive actions — from supplier adjustments to fulfillment shifts — before service breaks down.

With GAINS DEO, supply chain leaders no longer optimize one layer of their network at a time.
Every decision becomes part of a holistic, orchestrated system engineered for resilience, speed, and growth.

The Future of Network Design Is Decision-Driven

Engineering a modern supply chain requires more than software — it requires a partner that understands how to design smarter decisions in an unpredictable world. In today's uncertain, complex global environment, your supply chain network can either be a source of strategic agility or a crippling bottleneck. Businesses are under more pressure than ever to reimagine how their supply chains are structured, scaled, and optimized due to:

- Volatile transportation costs
- Geopolitical uncertainty
- Fluctuating customer demand
- Sustainability mandates
- Economic turmoil
- Labor shortages

That's where the GAINS approach to Decision Engineering & Orchestration and the power of Artificial Intelligence come in. Unlike other solution providers in the market who use AI as a trendy bolt-on or black-box experiment, GAINS has embedded proven, scalable, and composable AI capabilities directly into the supply chain design process. GAINS DEO isn't theoretical—it's been field-tested, refined across planning cycles, and tuned to deliver real-world results fast.

The Future Doesn't Wait. Neither Should Your Supply Chain

In a world where disruption moves faster than planning cycles, the competitive advantage belongs to the companies that can make better decisions faster. That's why GAINS doesn't offer a tool; we deliver a composable, AI-powered decision ecosystem designed to help you plan, design, and adapt in real time.

This isn't about doing more with data — it's about making better decisions. From network design to transportation optimization, GAINS helps you structure, simulate, and scale your supply chain strategy with precision. Whether you're running what-if scenarios or orchestrating daily execution, every component is engineered for speed, flexibility, and measurable impact.

Here's what sets GAINS apart — and why it matters for your future-ready supply chain.

You Don't Need More Data — You Need Better Decisions

GAINS DEO helps businesses structure their supply chain network challenges around the decisions that matter most, choosing the right methods (simulation, optimization, heuristics) for each trade-off across cost, service, and risk.

Purpose-Built AI, Not Off-the-Shelf Guesswork

GAINS uses field-tested, purpose-built AI models specifically for supply chain planning and design. From transportation routing and stochastic optimization to sequential planning and discrete event simulation, AI is deeply embedded, not an optional upgrade. GAINS' use of AI doesn't stop at automation — we blend machine learning with human supply chain expertise to ensure every decision is smart and practical.

Adopt What You Need. Expand When You're Ready

GAINS uses a modular, composable architecture so you can take an à la carte approach and adopt exactly what you need, when and where you need it. Whether you're re designing your entire network or testing a few new routes, GAINS fits seamlessly into your existing tech stack and scales with your goals.

Not One and Done- Always On

Most platforms treat network design as a one-time project. GAINS supports continuous recomposition, enabling you to run scenarios, adapt to market shifts, and refine designs over time without starting from scratch.

Results in Weeks, Not Years

Our Proven-Path-to-Performance (P3) methodology ensures you see measurable improvements in weeks, not years. GAINS is trusted by inventory-intensive companies around the world to deliver actionable insights and real outcomes — fast.

AI That Orchestrates Smarter Design Decisions: The GAINS Advantage

At GAINS, AI isn't an add-on — it's a core capability woven into the fabric of network design. From long-range capital planning to daily routing decisions, DEO accelerates insight, elevates decision quality, and enables continuous improvement across your supply chain. **But what truly sets GAINS apart is how DEO connects every model, method, and move to your strategic goals.** Whether you're modeling disruptions, evaluating trade-offs, or automating tactical updates, GAINS delivers the intelligence and structure to make every decision count.

GAINS integrates AI directly into the orchestration of your network design process, enabling you to:

- Simulate scenarios with more granularity
- Improve solution speed and quality
- Continuously adapt and recompute based on new inputs
- Optimize across cost, complexity, and service — without compromise

1 Faster, Smarter Model Solving with AI Algorithms

Designing optimal networks involves creating and solving massive models — often across multiple years, geographies, and constraints. GAINS embeds AI-enhanced solvers that learn from historical data to improve runtime and efficiency.
We use genetic algorithms to intelligently select starting points, simplify the solution space, and iterate toward the best design — faster. Our clients see significant gains (pun intended) in speed-to-insight and decision confidence.

2 Continuous Learning with Chained Run Optimization

GAINS automatically sequences multi-year design models, learning from each model year outcome. For example, our work with a large retailer leverages this capability to simulate year-over-year growth, respecting decisions made in prior years and automatically preparing and kicking off the next model year — no manual restarts required. This is Decision Orchestration in action: every run informing the next, continually improving decision quality over time.

3 Risk Adjusted Design for Real-World Volatility

Most tools ignore variability. GAINS embraces it. Our AI-powered optimization simultaneously considers input variability, tests a wide range of real-world conditions (lead time shifts, demand spikes, supply constraints), and fine-tunes designs to hold up under pressure. This empowers planners to move from theoretical "optimal supply chain" designed in a vacuum to pragmatic, resilient designs that can absorb shocks and thrive in the VUCA world.

4 Automating Strategic Planning Across Time Horizons

With DEO, decisions made today are engineered for their downstream impact, connecting strategic goals with tactical execution. Using sequential yearly planning, GAINS looks beyond the next quarter. Evaluating the cascading effects of decisions over multiple years — critical for long-range capital planning, sustainability, and capacity optimization.

5 Transportation Optimization with Genetic Algorithms

Our network design capabilities extend into transportation and logistics orchestration. Using genetic algorithms for vehicle routing, GAINS evaluates time windows, hours-of-service constraints, and shipment volumes to generate the most efficient routing scenarios — balancing cost, carbon impact, and service. No more "best guess" on freight strategies. You get AI-powered transportation blueprints that align with business goals.

6 AI Chat Assistant for Design Support

Planning isn't always a solitary activity. GAINS' embedded AI Chat Assistant supports users directly within the UI, leveraging design knowledge, platform documentation, and user behavior to offer contextual support — learning and improving over time. This creates a smarter, more guided user experience while reducing reliance on IT or consultants for routine questions.

7 DEO in Action: Structured, Prioritized, Impactful Design Decisions

GAINS doesn't just deliver AI — we deliver a decision-making framework.
Our composable platform enables you to:

- Structure design problems according to your business priorities
- Choose the right methods (simulation, heuristics, optimization, etc.)
- Measure cause & effect using discrete event simulation
- Iterate quickly based on new data or constraints
- Orchestrate trade-offs across strategic, tactical, and operational levels

That's Decision Engineering & Orchestration, applied to the design layer of your supply chain.

Why Network Design Is Harder Than Ever

1

Unprecedented Volatility

Geopolitical tension, economic uncertainty, extreme weather events, and shifting trade regulations have made it nearly impossible to rely on long-term stability. Traditional, static network models can't keep up with the pace or scale of today's disruptions.

2

Expanding Customer Expectations

Customers expect faster, more personalized, and more sustainable service — everywhere, all the time. Your network must be responsive, hyper-local, and capable of adapting to demand patterns that shift by the week.

3

Complex Global Footprints

Globalization has created sprawling, multi-echelon supply chains with thousands of nodes, partners, and routes. But localization, nearshoring, and ESG goals are pulling network strategies in new directions, increasing both complexity and risk.

4

Supply-Side Variability

It's no longer just demand that's hard to predict. Supply constraints, lead time variability, transportation delays, and capacity limitations create daily fire drills that ripple across the entire network.

5

Conflicting Trade-Offs

Balancing cost, service, and risk across an extended network isn't just difficult — it's dynamic. Decisions that optimize for cost today could erode service or agility tomorrow. A single answer no longer fits all.

6

The Need for Iterative, Scenario-Based Planning

One-and-done network design is a relic. Today's environment demands ongoing optimization, what-if scenario modeling, and rapid recomposition of supply chain flows in response to market shifts.

The Outcome: A Network Designed for What's Next

When you design with GAINS AI, you're not just building a supply chain—you're engineering a living, learning decision ecosystem. Our platform doesn't just generate answers; it helps you continuously orchestrate the next best decision across your entire network. Whether you're expanding into new regions, adapting to policy shifts like tariffs, or optimizing for carbon reduction, GAINS gives you the clarity and control to lead with confidence.

With GAINS, you can:

- **Adapt Continuously to Disruption:** Build a network that evolves as market conditions change — not one that waits for the next reset.
- **Optimize Without Starting From Scratch:** Leverage continuous recomposition to refine strategies and test new scenarios without rebuilding models or pausing operations.
- **Forecast and Simulate the Future:** Anticipate downstream effects, evaluate what-if scenarios, and run proactive simulations that guide real decisions — not just reporting.
- **Align Every Network Decision With Business Strategy:** From capital planning to last-mile routing, ensure every move supports your broader goals across cost, complexity, and service.

This is what it means to engineer what's next.
Not just better decisions — **smarter networks, built for change.**

Conclusion: The New Blueprint for Resilience

The age of static network design is over. With AI-powered Decision Engineering & Orchestration from GAINS, supply chain leaders can design intelligently, act decisively, and adapt continuously. From reactive to proactive, composable design lets your network flex with every market shift.

Let's engineer what's next, together.

About GAINS

GAINS helps companies move forward faster with smarter, decision-first supply chains. Our DEO platform blends proven AI, composable architecture, and deep supply chain expertise to drive measurable outcomes. Designed to manage uncertainty, GAINS empowers you to prioritize the right decisions at the right time, at the right speed and scale.

GAINS is the supply chain performance optimization company helping companies fulfill their customer's promise. Our first-in-class, best-in-breed composable GAINS Decision Engineering and Orchestration Platform transcends traditional silos of ERP, supply chain planning, and network design, enabling integrated, smarter, faster, and composable decisions across the time to plan horizons from strategic design to order execution. Specifically designed to manage volatility, uncertainty, complexity, and ambiguity, GAINS customers are able to focus on prioritizing the right decisions at the right time at the right speed and scale to optimize supply chain performance, improving profitability and customer confidence.

Learn More | Schedule a Network Design Assessment